

Transformer Breathers



Protection against:

- ◆ High humidity
- ◆ Water condensation
- ◆ Pressure variations
- ◆ Dielectric loss
- ◆ Mould growth
- ◆ Outgassing

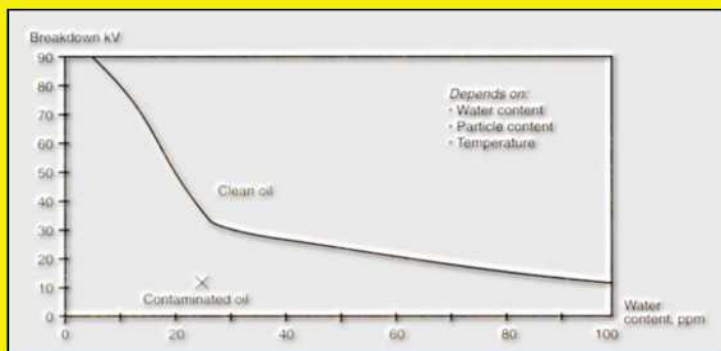
Key Technical Features

- High performance plastic or metal construction
- Simple installation
- ISO9001/2008 design approved
- Suitable for 1250 kVA to 750 mVA Transformers
- Low dusting beaded ENVIROGEL adsorbent
- Up to 25% adsorption capacity
- Definitive colour change saturation indication
- IP65 rating
- Operating temperature range -50°C to $+70^{\circ}\text{C}$
- Vandal proof
- Weather resistant
- All round visual saturation indicator

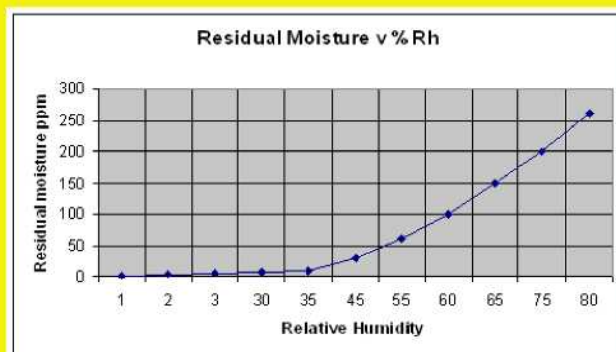


Size R Transformer Breather

Typical Electrical Breakdown in Transformers



The insulation value of oil can deteriorate dramatically as it becomes contaminated with water.



Water content of oil increases as it is exposed to high relative humidity

Rechargeable Transformer Breathers



V, W Transformer Breathers

BROWNELL Transformer Breathers provide clear visibility of the ENVIROGEL through a shatter-proof, UV stabilised polycarbonate cylinder or window.

Two-way, low pressure valves are fitted in the base of the breather, to ensure that atmospheric air enters the desiccant charge when a negative pressure differential occurs within the transformer being protected.

BROWNELL Transformer Breathers are filled with ENVIROGEL, self-indicating desiccant.

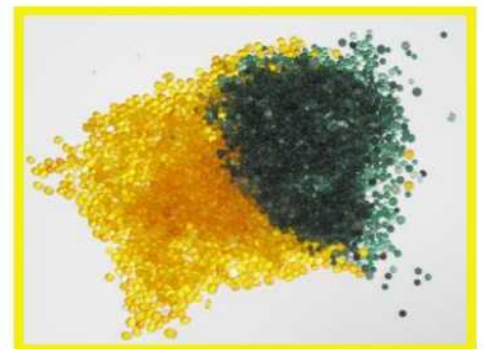
The ENVIROGEL is orange in colour when active, turning green when saturated. This allows a visible assessment of the condition of the ENVIROGEL. Various sizes and packs of ENVIROGEL are available for refilling the Transformer Breathers.

BROWNELL have more than 60 years experience in the design, manufacture and testing of types of humidity control equipment and moisture measuring instruments.

Please contact our Technical Services Division for further information.



Two Toggle 701 & 702 Transformer Breathers

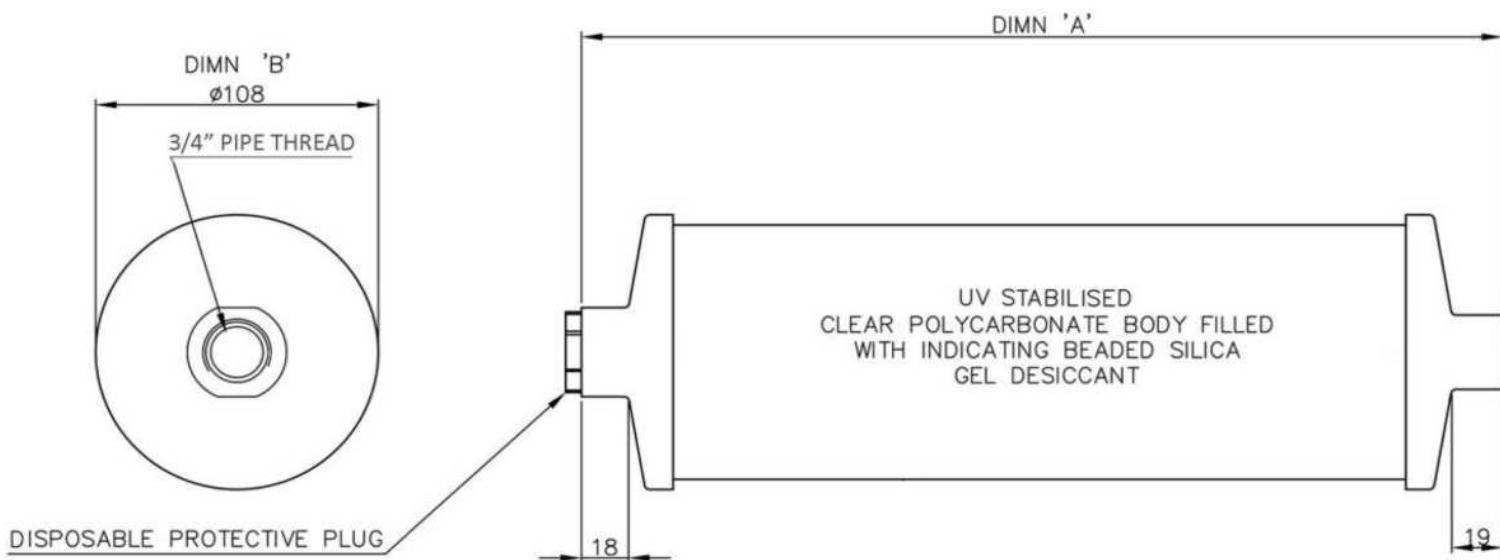


The ENVIROGEL: orange in colour when active, turning green when saturated

Sizes R, R1 & R2

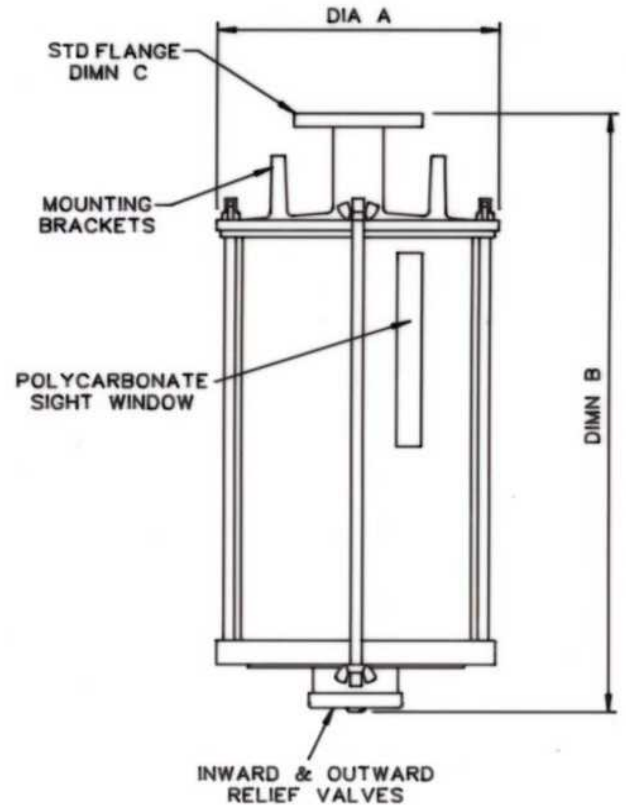
The top pipe connector (3/4" Female Pipe Thread) is also the filling and emptying point. The beaded, self-indicating ENVIROGEL should be replaced once the colour has changed from orange to green, as indicated on the label attached to the breather. All threads conform to BS21 and ISO7-1. Full installation and maintenance instructions are supplied with each BROWNELL Transformer Breather.

Size	Max. Oil Contents	Weight of Desiccant	Overall Length (A)	Overall Diameter (B)
R	1500 Litres	0.60 Kg	158mm	108mm
R1	3000 Litres	1.20 Kg	250mm	108mm
R2	4750 Litres	1.90 Kg	352mm	108mm



Sizes R, R1 & R2

Sizes V, W, X, Y & Z



These Transformer Breathers are connected either by a flange or pipe thread connection. Mounting brackets on the top plate provide additional support for the Transformer Breather. Two-way, low pressure valves are fitted in the base plate of the breather to ensure that the atmospheric air enters the desiccant when a negative pressure differential occurs within the Transformer being protected.

Size 'V, W & X' Transformer Breather has a 3/4" Female Pipe Thread.
 Size 'Y & Z' Transformer Breather has a 1" Female Pipe Thread.

All threads conform to BS21 and ISO7-1.

BROWNELL Transformer Breathers are also available as double and triple units. Please contact our Technical Services Division for details of the YY, ZZ, YYY & ZZZ assemblies.

Sizes V, W, X, Y & Z

Size	Overall Diameter (A)	Overall Length (B)	Standard Flange (C)	Weight of Desiccant	Max. Oil Contents
V	255mm	375mm	1" B.S.T.D.	5.0 Kg	11,350 Litres
W	255mm	555mm	1" B.S.T.D.	10.0 Kg	22,700 Litres
X	255mm	735mm	1" B.S.T.D.	14.5 Kg	34,050 Litres
Y	355mm	485mm	1" B.S.T.D.	17.5 Kg	45,450 Litres
Z	355mm	645mm	1" B.S.T.D.	27.3 Kg	68,150 Litres

Quick Change

- ◆ ENVIROGEL cartridges can be refilled, replaced or reactivated
- ◆ Rapid cartridge replacement
- ◆ No special tools required
- ◆ Minimum downtime and maintenance
- ◆ Ideal for planned maintenance cycles



Transformer Breathers can be changed in a matter of minutes with Brownell's replacement cartridges. (Size W illustrated)

FAQs

Q: Can I fit a Transformer Breather, which has a larger ENVIROGEL capacity than my existing Transformer Breather?

A: Yes, for example you can use a Size R1 Transformer Breather to replace an R type which will significantly increase the time between ENVIROGEL maintenance.

Q: Are there any specific safety considerations when handling Transformer Breathers and ENVIROGEL?

A: We recommend when handling ENVIROGEL, suitable precautions are taken (as with any potentiality dust generating material) an approved respiratory mask is used.

Q: What is the recommended method for disposing of used ENVIROGEL?

A: We suggest that used ENVIROGEL is disposed of at a registered landfill site in accordance with local authority regulations.

Q: How can I reactive saturated ENVIROGEL?

A: Following the safety procedures for handling ENVIROGEL. Heating the ENVIROGEL for 3-4 hours at 95°C will recover 95% of the adsorption capacity.

Data to be used in selection of Transformer Breather Units

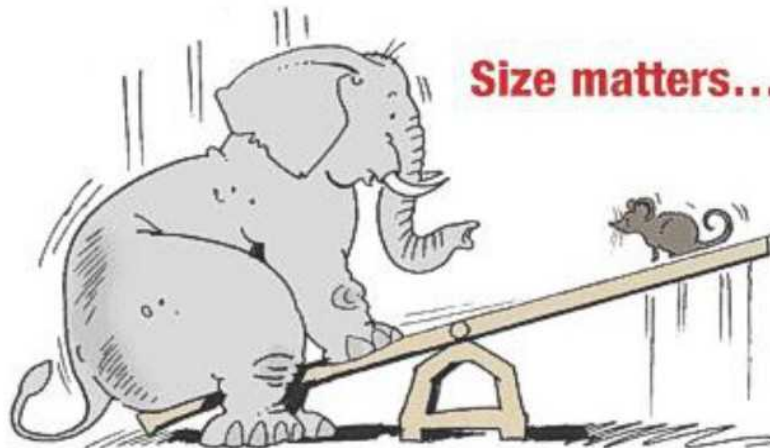


TRANSFORMER BREATHERS

Type	Max. Oil Contents (Litres)	Approximate Transformer Rating (MVA)	Max. Air Space Volume (Litres)	Approximate Daily Breathing Rate (Litres)	Max. Air Volume Before Recharge (Litres)	Estimated Effective Cycle Time (Days)
R	1,500	<1.25	230	15	6,000	400
R1	3,000	3	500	30	12,000	400
R2	4,750	6	1,100	55	20,000	400
V	11,350	9	2,400	140	45,450	320
W	22,700	30	4,800	280	90,900	320
X	34,050	60	7,250	420	136,500	320
Y	45,450	100	9,685	570	181,800	320
Z	68,150	180	14,500	840	272,700	320
YY	90,900	240	19,370	1,140	363,600	320
ZZ	136,360	500	29,000	1,680	545,400	320
YYY	136,360	500	29,055	1,700	545,400	320
ZZZ	204,550	750	38,750	2,280	818,100	360

Guidance Information only.

Size Matters



**Doubling your desiccant life coupled with reduced maintenance
DOESN'T MEAN TWICE THE COST!**



Size R can be replaced
with Size R1

7440 Lowland Drive
Burnaby, BC

t: 604-431-5000
tf: 1-800-663-6505
e: sales@beaverelectrical.com



Size V can be replaced
with Size W



Size Y can be replaced
with Size Z

1475 Island Highway east
NanOOSE Bay, BC

t: 250-468-9796
tf: 1-888-468-9796
e: nsh@beaverelectrical.com