



**Designers & manufacturers of products and solutions preventing the problems caused by condensation, high humidity & pressure variations**



**BB BROWNELL**  
LIMITED

[www.brownell.co.uk](http://www.brownell.co.uk)

# Company profile

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## *World Leaders in Moisture Control*

Since 1963 Brownell has developed its experience and a range of products dedicated to providing solutions to prevent and protect against the effects of condensation, humidity and pressure control.

Brownell now offers a comprehensive range of products including desiccators, humidity indicators, pressure relief valves and gas purging systems for applications in all of today's commercial and industrial sectors.

An ongoing commitment to research and development continues to offer customers and user's knowledge and products capable of proving solutions for their needs and requirements. We welcome opportunities to work and cooperate with customers to develop solutions and products for their specific needs.

Brownell is based in North West London on the modern Park Royal Industrial estate and holds ISO 9001:2008 approval.

We also have a comprehensive data library and test facility for the performance of moisture barriers, equipment housings and operational scenarios to assist customers with the best design practices for the performance of their system.

### **Our Products**

Desiccant Bags

Desiccants

Desiccators

Electronic Humidity Indicator

Immersion Proof Breathers

Moisture Adsorbing Board

NEPS1000

Pipeline Dryers

Pressure Relief Valves

Relative Humidity Indicators

VMAP-G



# Military Products

A range of desiccators and supporting products designed for operating and use with high technology military systems and instruments. Military systems require high reliability and constant performance in some of the most diverse operating environments in the world including high temperature, high humidity and extreme temperatures from the frozen arctic to hot deserts. In multi role applications military instruments and systems can be rapidly deployed to these extreme environments and be mission ready to adapt and operate immediately. Our range of military support products uses high performance adsorbents with robust designed construction for optimum performance under all extremes.

## Key Features

- *Wide operating temperature range*
- *Robust construction for hostile environments*
- *Low dusting*
- *High tolerance to vibration and shock*
- *Corrosion resistant*
- *Designed and built to MIL STD 810*
- *Low dewpoint and dryness*

## Applications

- *Missile seeker heads*
- *Wave guides*
- *Electro-optics*
- *Optical sights*
- *Thermal imaging*
- *Night vision*
- *Image intensifiers*
- *Lasers*
- *Radios*
- *High voltage systems*
- *Ruggedised computer systems*



Humidity Indicator / Valve

Desiccator

# ERHI

## Electronic Relative Humidity Indicator

Brownell has introduced an Electronic **Relative Humidity Indicator** as an alternative to paper and chemical colour based indicators. The new Electronic Humidity uses a polymer humidity sensor combined with a temperature sensor to provide a digital display reading of relative humidity, ambient temperature and dewpoint.

### Key Features

- Easy installation
- Easy to use
- High accuracy
- RH measurement range 10% to 90%
- Temperature range - 20°C to +50°C
- Fully self contained
- Battery life over 10 years
- Three output readings
- LED display
- Robust construction



### Applications

- Packaging cases
- Glove boxes
- Transit & weapon containers
- Dry air pipelines
- Plastic moulding pellets
- Dry powders
- Flexible packaging barriers
- Optical payloads
- Cameras

*The digital humidity indicator is an ideal alternative to colour change paper indicators and mechanical mechanism humidity indicators*

### Specification

**Sensor type:** Polymer sensor technology

**Construction:** Anodised aluminium

**Displayed units:** - Relative Humidity (%)  
- Temperature (°C)  
- Dewpoint (°C)

**IP rating:** IP 67

**Battery type:** Lithium manganese dioxide

**Optional accessories:** - Data recording  
- RFID scanning



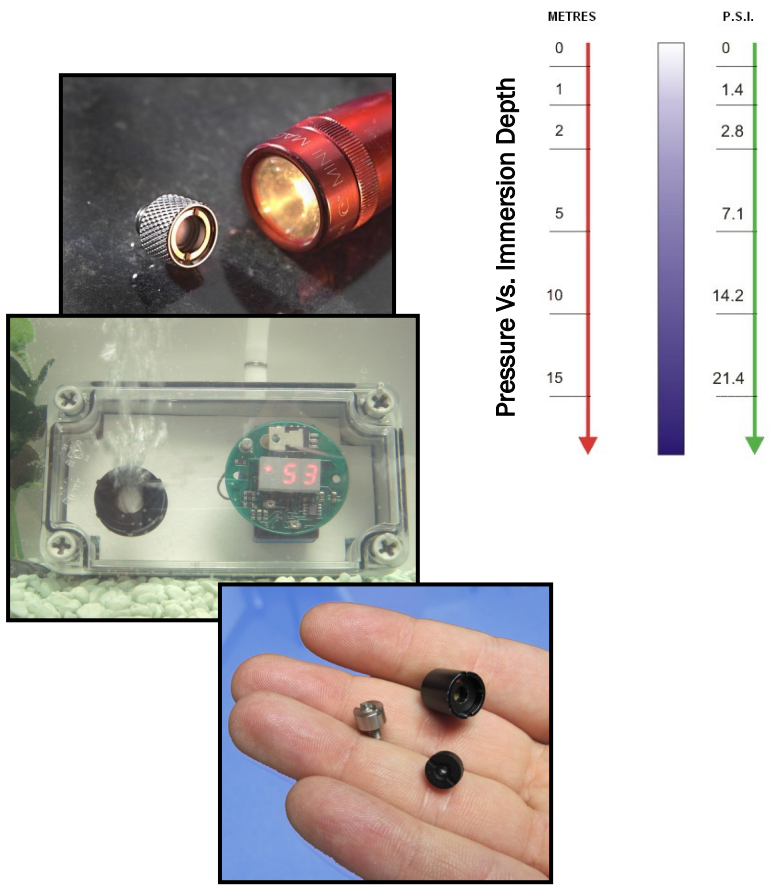
# Immersion Proof Breathers

Prevent damage to enclosures and instruments

Immersion Proof Breathers allow an enclosure or equipment to “breathe” (transfer air in and out) but will withstand driving rain, sand, pollen, total immersion, dust and airborne contaminants. The breathers can pass high flow rates of air which result from rapid variations in pressure, caused by temperature or altitude changes. If a controlled environment within an equipment is required, A humidity adsorber can be fitted with most immersion breathers. These adsorbers are filled with desiccants to prevent humidity damage and condensation.

## Key Features

- Air transfer “in & out”
- Threaded or lock nut mounted option
- Immersion protection to 2m
- Immersion time period up to 48hrs
- Constant pressure equalisation
- Solvent and oil resistant
- Temperature range from - 40°C to +100°C
- High filtration efficiency
- Choice of housing materials
- Easy installation
- IP 67 rating



## Applications

- Computer keyboards
- Meteorological instruments
- IP enclosures
- Gearboxes and transmissions
- Hand held terminals
- Battery housings
- Azimuth sealed applications
- Hose down protection

Product No.	Dimensions			Typical Immersion Depth
	Internal Thread	External Thread	Overall Length	
BLD9290	N/A	M3x0.5	8.5mm	< 2h @ 1m
BLD10518	N/A	M3x0.5	10mm	< 2h @ 1m
BLD6693	N/A	M8x1.25	15mm	< 2h @ 1m
BLD6343	N/A	M16x1	24mm	< 2h @ 1m
BLD5243	M16x1	M20x1.5	26mm	< 2h @ 1m



## Moisture Adsorbing Board

**Moisture Adsorbing Board** is a practical alternative to desiccant bags for applications with limited or restricted free space. Moisture adsorbing board can be manufactured to size by cutting, punching and thermo forming. The compactness of the moisture adsorbing board allows installation into spaces and apertures which are inaccessible to desiccant bags.

### Key Features

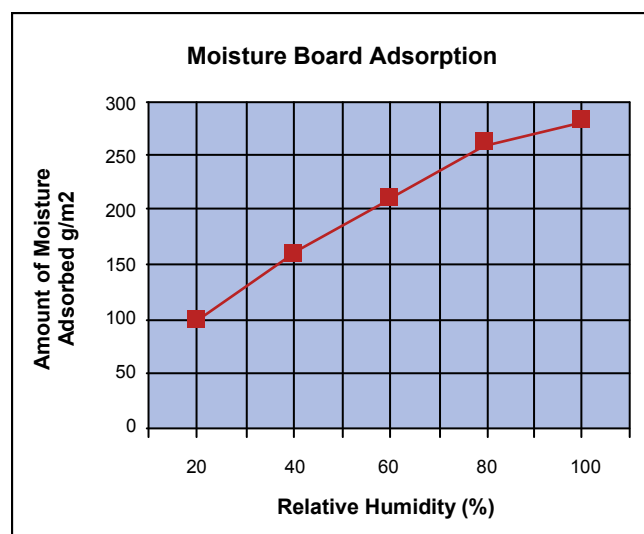
- *Optional shapes and sizes*
- *Uniform thickness*
- *No loose desiccant*
- *Can be printed*
- *Flexible / thermo-formable*
- *Long term adsorption characteristic*
- *Easy to fix by mechanical retention*

*Moisture Adsorbing Board is currently available in 140mm wide strips and either 0.8mm or 1.6mm thickness*

*The standard operational temperature range is -40 °C to + 70 °C*

*For calculating the quantity of moisture Board required the typical adsorption value is 0.025grams per cm<sup>2</sup>*

*Moisture Adsorbing Board is manufactured from polymer plastic with active silica gel desiccant adsorbent*



### Specification

**Polymer:** TCP

**Desiccant:** Silica Gel

**Operating Temperature:** -40 °C to +70 °C

**Adsorption Capacity (Nom):** 10% by weight at 50%rh at 22 °C

**Adsorption Rate:** 0.03 grams per hour

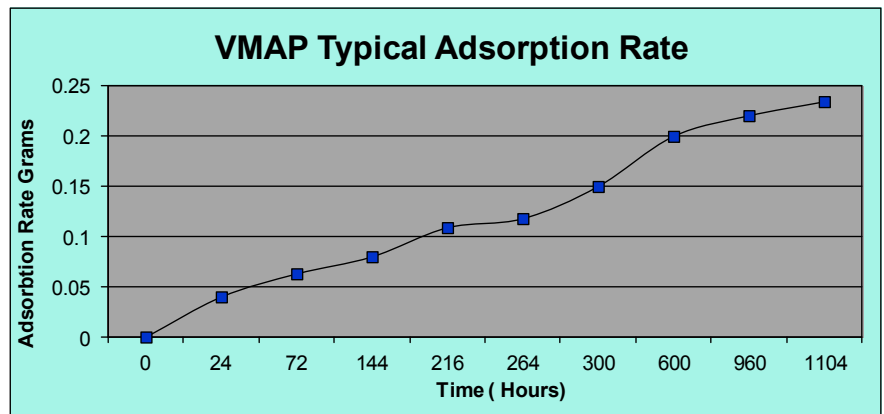
# VMAP-G

## Versatile Moisture Adsorbing Polymer

**VMAP** is a molecular sieve desiccant combined with a polymer to form a versatile product which adsorbs moisture and humidity. VMAP is also capable of adsorbing odours and volatile organic compounds. VMAP can be moulded into precise shapes providing maximum space utilisation along with the ability to be bonded or mounted in place.

### Key Features

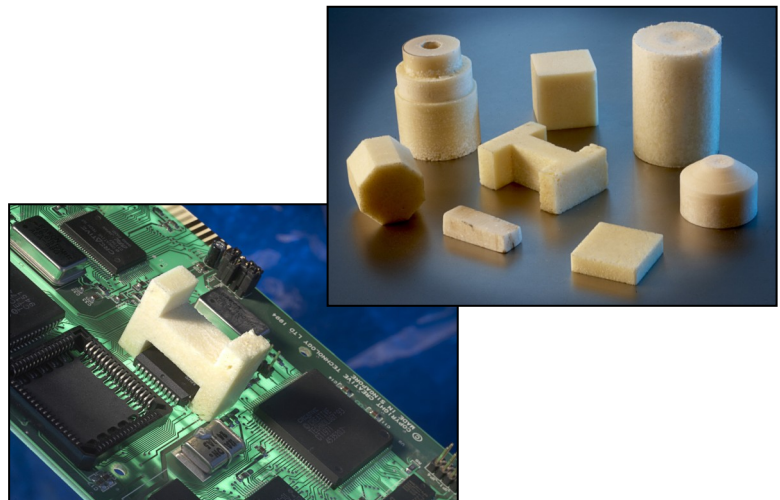
- High strength & stiffness
- Good dimensional stability
- Excellent electrical insulator
- Mechanically stable
- Mouldable for complicated shapes
- Machineable
- Low dusting
- High temperature resistance
- Maximum space utilisation
- Complex shape moulding
- Controlled adsorption rate



*This chart indicates the rate of moisture adsorption of VMAP when exposed to conditions of 50% RH at 20 °C*

### Applications

- Electronics
- Optics
- Telecommunications
- Packaging
- Underwater systems
- Hi voltage switchgear
- Lasers
- Semiconductors
- Computers



### Specification

**Polymer:** TCP

**Desiccant:** Molecular Sieves

**Operating Temperature:** -40 °C to +90 °C

**Adsorption Capacity (Nom):** 10-15% by weight at 50%rh at 22 °C

**Typical Adsorption Rate:** 0.03 grams per hour

*VMAP can be moulded or machined from standard stock sizes to meet the demands ranging from prototyping to high volume production applications.*

# Panel Mounting Desiccators

**Electronic, electrical & optical equipment protection**

Brownell panel mounted humidity adsorbers have been designed to protect all types of equipment including electronic, electrical and optical equipment against harmful effects of high humidity, mould growth, condensation, corrosion and electrical breakdown. By reducing any existing or incoming moisture to acceptable levels, these problems can be prevented. Saturation indicators built-in to the desiccators show when reactivation or replacement is required. Desiccators are filled with powerful adsorbing agents including silica gel and molecular sieves.

## Key Features

- *Relative humidity indication level from 15% - 70%*
- *Robust construction*
- *Ultra clean option available*
- *Easy installation*
- *Operating temperature from - 40°C to +90°C*
- *Capacity 0.5–500g*
- *Refillable*
- *Re-activateable*
- *Static and breathers desiccators*
- *Plastic and metal housings*



## Applications

- *Electronic equipment*
- *Electrical equipment*
- *Optical equipment*
- *Cameras*
- *Storage containers*
- *Laser systems*
- *High voltage junction boxes*

Product No.	Thread	Overall Length	Humidity Indication Level
BLD5060	M20-M35	40-130mm	30% / 50% Rh
BLD6088	3/4"x20	46-122mm	50% Rh
BLD6342	M38-M72	37-52mm	15% / 30% 30% / 50%
BLD8743	M32	121mm	15% / 30% 30% / 50%
BLD5267	M35	120mm	N/A

# Desiccants

**Adsorbent materials used to remove water vapour and other contaminants**

A desiccant is a moisture adsorbing material that can create and maintain a dry environment or gas stream. Silica gel, activated clay or molecular sieves are the most common desiccants. The applications in which they are used include: Double glazing, pharmaceuticals, process drying, electricity transformers and semi-conductors.

## Key Features

- Selective adsorption
- Ultra low moisture concentration
- Low dusting
- High capacity
- Saturation indication
- Uniform flow distribution
- Odour adsorption

## Packaging

- 500g – 170kg commercial containers
- Desiccant bags 0.5g-2500g
- Shelf life special packaging
- Re-useable /recyclable packaging

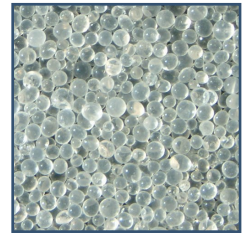
General Packaging  
Electronic Equipment  
High Voltage Switch Gear  
Optical Equipment  
Electro-optical Equipment  
Telecommunications

Molecular Sieves	✓	✓	✓	✓	✓	✓
Activated Clay	✓	✓	✗	✗	✗	✓
Silica Gel	✓	✓	✗	✓	✓	✓
ENVIROGEL®	✗	✓	✗	✓	✗	✓
Activated Alumina	✗	✓	✗	✗	✗	✓

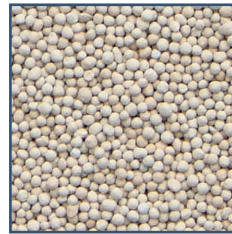
## Desiccants available



ENVIROGEL®



Non Indicating Silica Gel



Molecular Sieves



Activated Alumina



Activated Carbon



Activated Clay

# NEPS1000

## Dry gas purging system

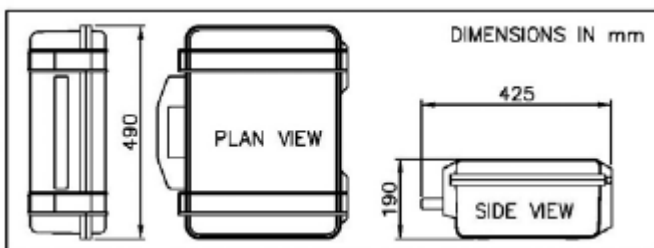
NEPS1000 is used to purge optical, electronic, laser, electro optic systems and humidity sensitive devices. NEPS1000 will purge small to large volumes with pressure cyclic purging ensuring thorough and effective purging. Using microprocessor programmes the NEPS1000 has built-in leak testing facility, gas dewpoint checking and user programmable features to maximise the full range of functionality that is available with all models. Purging cameras, optical instruments and ranging devices are all typical applications for the NEPS1000 range of purging instruments. Purging to known dewpoint levels and quality standards ensures improved reliability and systems operation.

## Key Features

- *Easy to use single connection purging*
- *Dewpoint and pressure readout*
- *Remote dewpoint sensing option*
- *Portable and robust*
- *User programmable*
- *Automatic purging operation*
- *Dewpointstat gas control*
- *Dewpoint display from  $-80^{\circ}\text{C}$  to  $+20^{\circ}\text{C}$*
- *User friendly*
- *Maintainable on-line*
- *NATO approved*

## Applications

- *Optical equipment*
- *Electronics*
- *Laser systems*
- *Communication*
- *Electro-optics*
- *Fibre-optic equipment*



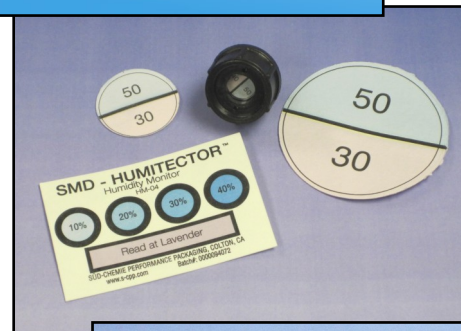
# Relative Humidity Indicators

## Keeping moisture under control

Brownell manufactures a range of relative humidity indicators which provide a signal of the relative humidity ranging from 5% to 90% Rh (at 20°C). Relative humidity indicators can be used in conjunction with desiccators, desiccant bags and moisture adsorbers. Humidity indicators can also be used to monitor the relative humidity inside: cabinets, enclosures, flight cases, pipelines, packaging barriers and instrument cases. A distinctive colour change of blue to pink indicates the transition of the relative humidity from dry to wet. Relative humidity indicators are fully reversible when dried with a desiccant or placed in a dry environment.

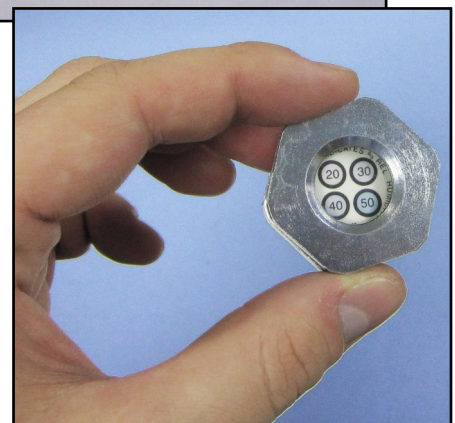
## Key Features

- Relative humidity ranging from 5%Rh to 90%Rh (at 20°C)
- Distinctive colour change indication
- Reversible and non-reversible option
- Available in plastic or metal housings
- Up to 10 Bar operating pressure
- Thread or flange mounting
- Temperature range from -40°C to +80°C
- Multiple level reading
- Desiccator mounting option
- IP 69 rating (optional)



## Applications

- Electronic equipment
- Electrical equipment
- Optical equipment
- Cameras
- Storage containers
- Laser systems
- High voltage junction boxes



Product No.	Dimensions			Colour Indicator Level
	Internal Thread	External Thread	Overall Length	
BLD1519	M16x1	M20x1.5	22.5mm	30% / 50%
BLD2856	M16x1	M20x1.5	22.5mm	15% / 30%
BLD4332	N/A	1.438-18 UNEF	16mm	20% / 30% 40% / 50%
BLD5000/02	N/A	3/4"x14	16mm	30% / 50%
BLD6344/02	N/A	M16x1	24mm	30% / 50%

# Pipeline Dryers

## Reducing water vapour content in pipelines

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Brownell Pipeline Dryers are primarily used for reducing the water vapour content to a safe level in compressed air or process gas pipelines. These dryers are suitable for small diameter pipelines, up to 10mm or 3/8 and working pressures up to 7 bar. Dryers are usually filled with either silica gel or molecular sieves desiccant for water vapour removal but the use of different grades of molecular sieve desiccant can provide selective adsorption of other components.

### Key Features

- *Point of use dry air*
- *Low cost*
- *Easy installation*
- *Available with condition indicator*
- *Different filtration levels available*
- *Compression fitting interface*
- *Low - medium pressure ratings*



### Applications

- *Air exhaust lines*
- *Vacuum lines*
- *Low pressure compressed air lines*
- *Marine vehicles*



# Pressure Relief Valves

## Prevent damage caused by pressure differentials

Pressure and vacuum differentials will occur in equipment and transit containers when they are subject to changes in temperature and/or altitude. The installation of relief valves in equipment and transit containers will prevent damage caused by pressure or vacuum differentials. The use of relief valves allows designers to reduce the constructional strength and weight in equipment or transit containers.

## Key Features

- Fully automatic
- Optional valve operated indicator
- Wide operating temperature range
- Two way valves for pressure and vacuum relief
- Fully automatic opening and closing
- Manual override facility for equalisation
- Protection against waterspray (optional)
- Flow rates range from cc/min to litres/h
- Low cohesion providing reliable opening
- Available in aluminum, brass, stainless steel and plastic



## Applications

- Transit/storage/missile containers
- Pressure sensitive applications
- Air portable containers
- Non return valves
- Out gassing protection
- Airborne equipment
- Sealed enclosures
- Gas pipelines



Pressure Relief Valve mounted to a transit container

## Specification

**Operating temperature:** -30°C to +90°C

**Pressure or vacuum opening:** minimum 250N/m<sup>2</sup> (1inch W G)

**Pressure opening:** maximum 206 KN/m<sup>2</sup> (30 PSI)

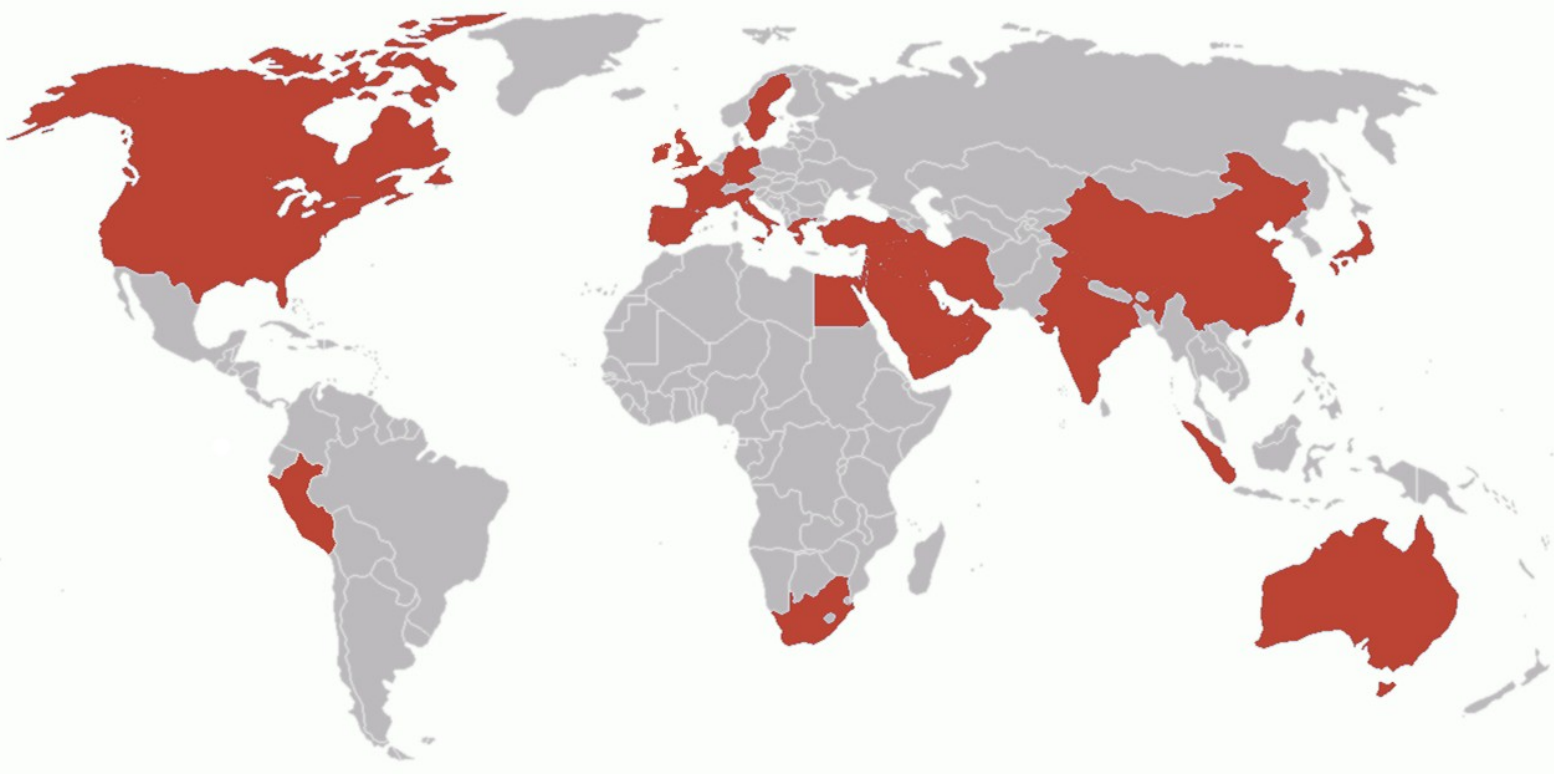
**Vacuum opening:** maximum -68.9 KN/m<sup>2</sup> (-10 PSI)

**Opening tolerance:** ±5%

**Stability:** ±10%

# Brownell around the world

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Australia  
Canada  
China  
France  
Germany  
Greece  
Hong Kong

Israel  
Italy  
Japan  
Middle-East  
Peru  
Portugal  
Singapore

South Africa  
Spain  
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United States

Brownell has a network of appointed representatives and technical support centre's around the world proving localised support and assistance.



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