



Den Braven

Better
results
through
Knowledge

Polyurethane Foam Solutions





About Den Braven

Who we are

Den Braven is a worldwide specialist in the manufacture and supply of high-quality sealing products. Our key sales channels are: construction, industry and the DIY sector.

Den Braven is the perfect partner for polyurethane foam products for unique and standard applications. This product group includes highly specialist products for filling, insulating, bonding and fireproofing with polyurethane foam, also called PUR foam or OCF (One-Component Foam).

What we stand for

Knowledge sharing as a success factor

Den Braven believes in knowledge sharing as a success factor. This translates into an extensive range of training options for customers and end users. In addition we also organise toolbox meetings. Our team of experts from the Centre of Excellence can be deployed all over the world to help you with customised advice. We are happy to share our knowledge and experience, allowing us to achieve better results together.

Clear focus on the future

We believe in the added value of a correct product selection combined with the best possible application method. Sound practical knowledge, customer-specific requirements and new regulations form the basis for optimising and developing our products, procedures and concepts. With its own international R&D centres, Den Braven keeps a clear focus on the future. This results in a broad and varied product range. We always provide a fitting solution.

Sustainable business

Den Braven understands that sustainable business is the future. Based on the increased worldwide focus on sustainable building, we pay specific attention to the developments in the field of low-energy solutions. Examples include airtight building, using more efficient production processes and minimising carbon dioxide emissions through compact transport.



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Polyurethane foam

Polyurethane is one of the most versatile insulating materials that we know. Polyurethane foam or PUR foam has many applications. Nowadays the construction industry cannot do without this insulating material. PUR foam is available in several variations, including canisters with one or two-component foam (possibility of injecting and moulding). Additionally, the foam can be applied by hand (adapter) or with a gun. Depending on the type, the foam will expand to 30 times its original volume after application and cures under the influence of the moisture in the air.

Applications

Filling

Polyurethane foam can be used to fill cracks and holes in building structures. Examples are spaces between walls, frames and doors. For these applications Den Braven supplies standard and premium foams, such as High Yield (Maxi-Foam), or traditional foams with user-friendly guns. Fill the crack or hole no more than 50 to 70%. The foam will start expanding immediately after application.

Insulating

Insulating, i.e. making frames or building structures such as wall and roof elements, airtight is another option of polyurethane foam. Sustainable airtight building eliminates undesirable airflows and is based on the new Passive House standard. Den Braven supplies unique foams with a very high insulation value and very low air permeability, exceeding this standard by far.

Bonding

Den Braven manufactures a range of unique one and two-component high-end foams based on polyurethane for the bonding of various materials. The environment, time-saving, clean application, low-cost and simplicity are key terms that form the basis for the development of these products.

Fireproofing

Den Braven supplies high-end foams for linear joints in fire compartments, positioned both horizontally and vertically. These foams can also be used as an insulating barrier to make small surface penetrations fire-resistant and to prevent smoke, heat and fire passing through. This improves the fire-retardancy of buildings, allowing people to be evacuated to a 'safe' environment and gives the emergency services time to perform their work.

Why use PUR foam?

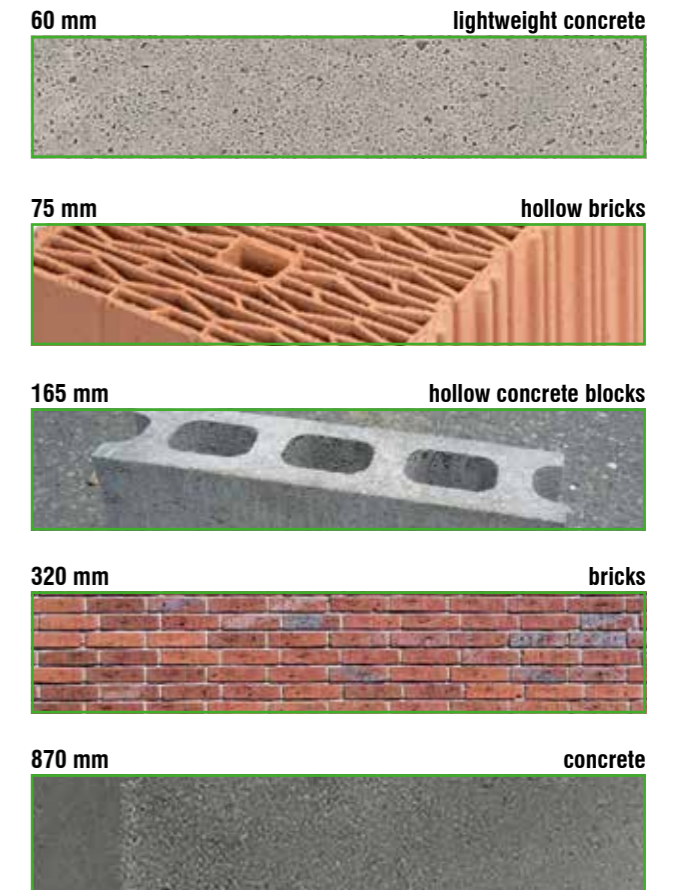
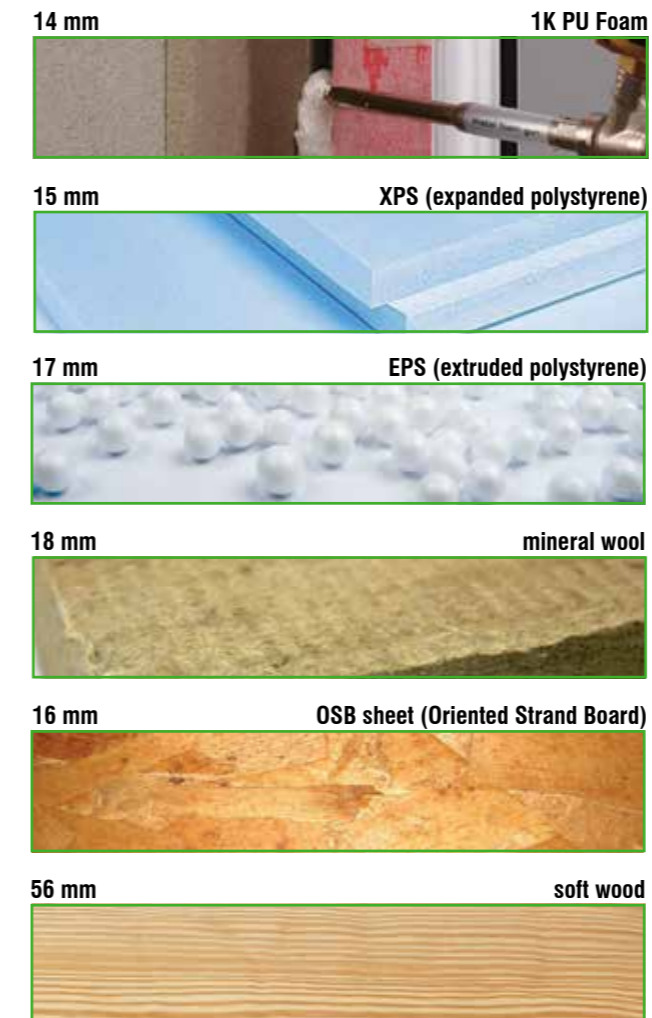
- ▶ Good adhesion
- ▶ Air-tight and waterproof
- ▶ Thermal insulation
- ▶ Flexible
- ▶ Very low density and therefore high volume
- ▶ Seals and fills all kinds of shapes and openings
- ▶ Versatile
- ▶ Environmentally friendly and ozone safe

High insulation value

The following picture shows the insulation value of Zwaluw polyurethane foam. These include both canisters with one-component and two-component rigid foam in comparison with other building materials. The high-quality composition and structure of the foam guarantees an efficient insulation value and also contribute to the reduction of carbon dioxide emissions in the air thanks to the low weight and the compactness of transport.

Insulation value of polyurethane foam

By way of indication, a 14-mm polyurethane foam layer insulates just as much as:



Industrial applications

Besides one-component PUR foams, Den Braven also manufactures canisters with two components, which are available in versions that can be injected, sprayed and moulded. Thanks to their rapid curing and the absence of post-expansion, these products are highly suitable for industrial applications.

Zwaluw Green-Foam

- ▶ 100% MDI-free, no gloves required
- ▶ Most airtight PU foam on the market
(tested by an European Notified Body, up to 1050 Pa)
- ▶ High foam yield
- ▶ Patented formula
- ▶ Part of the Sustainable Airtight Building concept



▶ Zwaluw Green-Foam

Zwaluw Green-Foam is a flexible high-yield one-component insulation and construction foam that has been tested and approved by an European Notified Body. It is specially developed for sealing and filling joints, seams and connections. Zwaluw Green-Foam is specifically tested according to the guidelines of EN 1026:2000 to determine the air loss at a pressure of up to 1050 Pa. The air loss is 25 times lower than prescribed by the standard. This makes Zwaluw Green-Foam highly suitable for application in details in so-called passive houses and energy-neutral homes and buildings. Zwaluw Green-Foam is a 100% MDI-free polyurethane foam that can be applied without gloves.

Application

Mainly in low-energy and passive buildings. Can be used, among other things, to make joints around window and door frames, and between individual structures, partition walls, ceilings and floors, surface penetrations of pipes and tubes through walls and floors airtight and thermally insulate them. In general the foam has excellent adhesion on concrete, brick, stone, plaster, wood, metal and many synthetic materials, such as polystyrene foam, rigid PU foam and uPVC.

Especially suitable for connecting plaster blocks and sand-lime bricks. The foam can also be applied at low temperatures.

Shelf life:
9 months

Packaging:
canisters: 800 ml filled up to 500 ml
(12 canisters per box)

Colour:
white

Meets standard:
EN 1026:2000

Notified Body 0960



▶ Zwaluw DBS 9802

A fire-retardant and self-extinguishing one-component insulation and construction foam. It has good thermal and noise insulation values and is specially suitable for applications in fire-retardant structures. Meets SBR specification sheet S.065 of the "Sustainable building" national residential building package.

Application

For fire-retardant sealing in joints between partition walls, ceilings and floors, in perimeter joints around window and door frames, around prefab elements, surface penetrations of pipes, conduits and tubes through walls and floors, and in connecting seams.

Shelf life:
12 months

Packaging:
canisters: 700 ml (12 per box)
available as adapter foam (DBS 9802-PUR)
and gun foam (DBS 9802-NBS)

Colour:
pink

Meets standard:
NEN 6069 P v EN 1366
(Efectis test report) fire class B1 (DIN 4102)
MPA BAU Hannover P-NDS04-349
MPA Leipzig GmbH
(kw-3.2/10-052-2)



▶ Zwaluw NBS Flex-Foam

A flexible high-yield one-component insulation and construction foam that has been tested and approved by an European Notified Body. It is specially developed for sealing and filling joints, seams and connections. Zwaluw NBS Flex-Foam is specifically tested according to the guidelines of EN 1026:2000 to determine the air loss at a pressure of up to 1050 Pa. The air loss is 7 times lower than prescribed by the standard. This makes Zwaluw NBS Flex-Foam highly suitable for application in details in so-called passive houses and energy-neutral homes and buildings.

Application

Among other things, to make joints airtight and thermally insulate them if a softer, more elastic foam is required, for instance around window and door frames, and between individual structures, partition walls, ceilings and floors and for surface penetrations of pipes and tubes through walls and floors. In general the foam has excellent adhesion on concrete, brick, stone, plaster, wood, metal and many synthetic materials, such as polystyrene foam, rigid PU foam and uPVC. Especially suitable for connecting plaster blocks and sand-lime bricks. The foam has limited post-expansion and can also be applied at low

temperatures (+5°C).

Shelf life:
9 months

Packaging:
canisters: 750 ml (12 per box)

Colour:
white

Meets standard:
EN 1026:2000

Notified Body 0960



► Zwaluw PU Thermo-Adhesive

A one-component polyurethane foam specially designed for bonding and mounting polystyrene (EPS, EPS-P and XPS), rigid polyurethane foam (PUR/PIR) and rockwool boards to concrete, gypsum and brickwork. Also for filling joints between the insulating boards. It is waterproof and rot-proof, permanently elastic after curing and can be plastered. Zwaluw PU Thermo-Adhesive has a very good structure and excellent adhesion.

Application

For bonding various insulating boards for facade insulation (ETICS), as well as for filling the joints between the insulating boards.

Shelf life:
12 months

Packaging:
canisters: 750 ml (12 per box)
available with or without gloves

Colour:
beige

Meets standard:
fire class B2 (DIN 4102)



► Zwaluw PU Stone Adhesive

A ready-to-use high-quality polyurethane adhesive for bonding various stone types, including gypsum, concrete, aerated concrete and lime-stone blocks. It is the perfect adhesive for fast, light and clean work and if no water and/or electricity is available.

Advantages in comparison with traditional mortars: faster and cleaner application, stronger adhesion and tensile strength after 1 day > 7 N/mm², applicable on various surfaces, easy, modern and labour-friendly application, lower logistical costs, limited use of adhesive due to thin joints and no waste.

Application

For bonding various types of stone in non-loadbearing walls. Zwaluw PU Stone-Adhesive can be applied with the Zwaluw Dual PU Applicator

Shelf life:
12 months

Packaging:
canisters: 750 ml (12 per box)
available with or without gloves

Colour:
beige

Meets standard:
fire class B3 (DIN 4102)



► Zwaluw PU Stone Adhesive Special Offer Pack

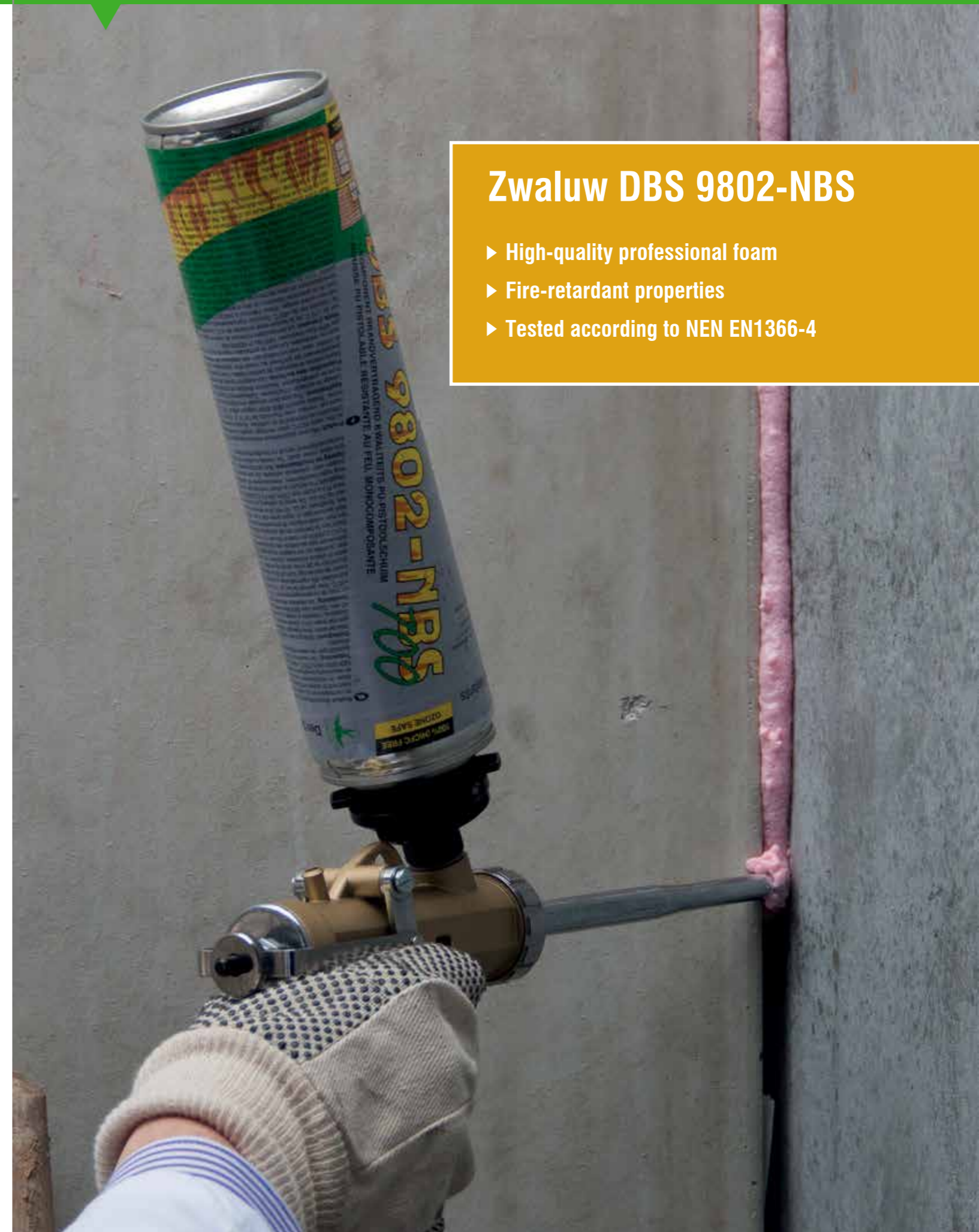
A ready-to-use high-quality polyurethane adhesive for bonding various stone types, now also available as a special offer pack.

Shelf life:
12 months

Packaging:
canisters: 750 ml (2 pcs)
Zwaluw PU Gun Ultragun Economy (1 pc)

PU Stone Adhesive colour:
beige

Meets standard:
fire class B3 (DIN 4102)



Zwaluw DBS 9802-NBS

- High-quality professional foam
- Fire-retardant properties
- Tested according to NEN EN1366-4



Zwaluw NBS Flex-Foam

- ▶ Flexible insulating PU foam
- ▶ High foam yield
- ▶ Good noise insulation
- ▶ Part of the Sustainable Airtight Building concept



Zwaluw Thermo Adhesive

- ▶ Faster bonding of insulating boards without requiring water or electricity
- ▶ Weighs 100x less than traditional glue mortar
- ▶ Cheaper and time-saving
- ▶ Easy to use – simple and clean

► Zwaluw PU-Foam 360°

A one-component insulation and construction foam developed for sealing and filling joints, seams and connections between construction parts. The foam cures under the influence of moisture from the air and from the substrate. In contrast to standard PUR foam, Zwaluw PU Foam-360° can be applied and emptied in any position.

Application

Joints between partition walls, ceilings and floors. Surface penetrations of tubes and pipes through walls and floors. Joints around window and door frames. In general the foam has excellent adhesion on concrete, brick, stone, plaster, wood, metal, in crawl spaces and on many synthetic materials, such as polystyrene foam, rigid PU foam and uPVC.

Shelf life:
12 months

Packaging:
canisters: 500 ml (12 per box)

Colour:
light green

Meets standard:
fire class B3 (DIN 4102)



► Zwaluw Recypur®

A one-component insulation and construction foam based on moisture-curing polyurethane. It cures quickly, insulates, has a good bonding and filling capacity, and can be perfectly dosed in combination with a Zwaluw NBS gun. Meets SBR specification sheet S.065 of the "Sustainable Building" national residential building package.

Application

For the professional sealing of connecting seams and for filling installation and perimeter joints between walls and frames around prefab elements.

Recycling:

On a building site work must also be performed as environmentally-friendly as possible. In case of PUR foam, the user of the PUR foam is personally responsible for removing the empty canisters from the building site in almost every situation. People often find it difficult to get rid of this waste in a responsible manner. With Recypur, Den Braven Sealants now offers the possibility to end this waste issue in a cost-effective and environmentally-friendly manner.

You pay a €0.50 deposit per canister of Zwaluw Recypur. You receive €0.55 back when returning empty canisters of Recypur. You can return the empty PUR canisters of Recypur at your sales point. Den Braven collects the empty PUR canisters and has them professionally processed into a useful by-product.

Shelf life:
12 months

Packaging:
canisters: 700 ml (12 per box)

Colour:
light green

Meets standard:
fire class B3 (DIN 4102)



Zwaluw PU Stone Adhesive

- Time-saving and cleaner working method
- Stronger bond, tensile strength after 1 day > 7 N/mm²
- Can be used on various substrates and stone types
- Simple, modern and labour-saving application
- Less adhesive material required due to thin bond



PU-Foam 360°

► Applicable in any position

► **Zwaluw PU-Gunfoam**

A one-component insulation and construction foam based on moisture-curing polyurethane. It cures quickly, insulates, has a good bonding and filling capacity, and can be perfectly dosed in combination with a Zwaluw NBS gun. Meets SBR specification sheet S.065 of the "Sustainable building" national residential building package.

Application

For joints between partition walls, ceilings and floors. Connecting joints around window and door frames. In general Zwaluw PU-Gunfoam has excellent adhesion on concrete, brick, stone, plaster, wood, metal and many synthetic materials, such as polystyrene foam, rigid PU foam and uPVC.

Shelf life:
12 months

Packaging:
canisters: 700 ml (12 per box)
canisters: 750 ml (12 per box)

Colour:
light green

Meets standard:
fire class B3 (DIN 4102)



► **Zwaluw Maxi-Gunfoam**

A one-component insulation and construction foam, developed for creating seals between construction parts with a very high yield. When allowed to foam freely according to the "Free Foam Yield" FEICA method, Zwaluw Maxi-Gunfoam yields 58 litres of foam. Zwaluw Maxi-Gunfoam B3 cures under the influence of moisture from the air and the building material.

Application

For joints between partition walls, ceilings and floors. Connecting joints around window and door frames. In general Zwaluw Maxi-Gunfoam has excellent adhesion on concrete, brick, stone, plaster, wood, metal and many synthetic materials, such as polystyrene foam, rigid PU foam and uPVC.

Shelf life:
18 months

Packaging:
canisters: 870 ml (12 per box)

Colour:
light green

Availability:
Available on request

Meets standard:
fire class B3 (DIN 4102)



► **Zwaluw Maxi-Gunfoam Winter B3**

A one-component insulation and construction foam, developed for creating seals between construction parts with a very high yield. When allowed to foam freely according to the "Free Foam Yield" FEICA method, Zwaluw Maxi-Gunfoam Winter B3 yields 58 litres of foam. Zwaluw Maxi-Gunfoam Winter B3 cures under the influence of moisture from the air and the building material.

Application

For joints between partition walls, ceilings and floors. Connecting joints around window and door frames. In general Zwaluw Maxi-Gunfoam Winter B3 has excellent adhesion on concrete, brick, stone, plaster, wood, metal and many synthetic materials, such as polystyrene foam, rigid PU foam and uPVC. Zwaluw Maxi Gunfoam Winter B3 can be applied at ambient temperatures down to -15°C. Make sure that the canister itself has a temperature of +10°C.

Shelf life:
18 months

Packaging:
canisters: 870 ml (12 per box)

Colour:
light green

Meets standard:
fire class B3 (DIN 4102)



► Zwaluw PU-Foam

A one-component, polyurethane insulation and construction foam based on moisture-curing polyurethane. Cures quickly, insulates and has an excellent filling capacity. Meets SBR specification sheet S.065 of the "Sustainable building" national residential building package.

Application

For filling installation and perimeter joints between walls and frames and around prefab elements; for sealing surface penetrations; for sealing various connecting seams.

Shelf life:
12 months

Packaging:
canisters: 300, 500 en 750 ml (12 per box)
available with or without gloves

Colour:
light green

Meets standard:
fire class B3 (DIN 4102)



► Zwaluw 2C-PU Foam

A two-component polyurethane insulation and construction foam that has excellent stability and can be cut after 40 minutes.

Application

Zwaluw 2C-PU Foam can be used to bond and seal window and door frames. The thermal properties and the two-component system also make Zwaluw 2C-PU Foam suitable for insulation gaps where insufficient moisture is available. In general Zwaluw 2C-PU Foam has excellent adhesion on concrete, brick, stone, plaster, wood, metal and many synthetic materials, such as polystyrene foam, rigid PU foam and uPVC.

Shelf life:
12 months

Packaging:
canisters: 400 ml (12 per box)

Colour:
pink

Meets standard:
fire class B3 (DIN 4102)





► **Zwaluw Universal PU-Cleaner**

A cleaner for uncured PU foam that can be universally applied as a spray and gun cleaner.

Application

To remove and rinse uncured PU foam from the PUR foam gun and to dissolve fresh PUR foam wherever it needs to be removed. Can also be used to remove paint spatter, wax, grease, oil, stickers, glue residue, etc. When used on plastic and coatings: prior testing recommended.

Shelf life:
12 months

Packaging:
canisters: 500 ml (12 per box)

Colour:
transparent



► **Zwaluw Universal Cleaning Wipes**

Quick, effective cleaning wipes to clean surfaces. They clean and refresh old paint and sealant. Ideal for removing stains from most work surfaces. Zwaluw Cleaning Wipes clean your hands, tools and surfaces. Dermatologically tested.

Application

For the removal of uncured products, such as: glue and sealant, epoxy stains, spray glue and solvent glue, polyurethane foam.
Grease: oil, lubricants, ink, grass stains, petroleum-based products.
Paint: oil and water-based paints. Effective up to 24 hours after the paint has dried.

Shelf life:
36 months, 12 months after opening

Packaging:
pots: 80 wipes (per pot)
(8 pots per box)



► **Zwaluw PUR Remover**

An effective paste that can be used to remove cured PUR foam in an easy manner.

Application

Zwaluw PUR Remover can be used on powder-coated aluminium, uPVC, ceramics, glass, etc. Depending on the layer thickness of the PUR foam, the product must be applied and left for 30 to 120 minutes. The dissolved PUR foam can be removed with a plastic spatula. Clean with Zwaluw Cleaning Wipes for optimum results. Test in advance in a non-visible location.

Shelf life:
24 months

Packaging:
pots: 100 ml (12 per box)

Colour:
n/a

Availability:
available on request



► **Zwaluw Polyurethane guns**

Den Braven has several polyurethane guns in its product range. Below you can see the most widely used polyurethane guns. The guns can be used with all gun foam canisters produced and supplied by Den Braven.

All guns have a set screw at the rear to regulate the foam during application. The guns are durable and easy to clean.

The difference between the various polyurethane guns lies in aspects such as the difference in foam yield and service life-extending options, such as being able to order individual parts. For example, spare parts are available for the Zwaluw NBS-M Gold PU Gun and the Zwaluw Uni NBS 9070 PU Gun. The Zwaluw Ultra Gun Economy PU Gun is a bolted product and therefore cannot be disassembled.

The foam yields of the Zwaluw PUR guns differ for each type. In the following product overview, the additional efficiencies in foam yield of the NBS-M Gold and NBS 9070 are stated in comparison with the Ultra Gun Economy. The test results were measured in a laboratory at a temperature of +20°C and a relative humidity of 50%.

► **Zwaluw PU Gun NBS-M Gold**

This is the premium PU gun from Den Braven. The gun guarantees a high yield, is solid and has a long service life if correctly used and maintained. The high-performance materials contribute to easy maintenance. Spare parts are available for this gun.

Weight: 412 g
Output: 27 g / sec
Improved foam yield compared to Ultra Gun Economy: +41%



► **Zwaluw PU Gun Uni NBS 9070**

A high-quality and lightweight PU gun. Very user-friendly maintenance due to the full PTFE coating. The high-performance materials contribute to easy maintenance. Spare parts are available for this gun.

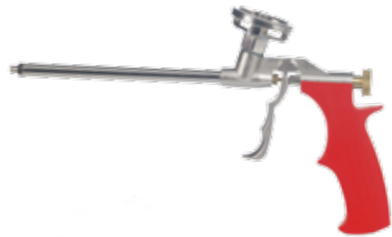
Weight: 264 g
Output: 25,8 g / sec
Improved foam yield compared to Ultra Gun Economy: +9%



► **Zwaluw PU Gun Ultra Gun Economy**

The standard PU gun from Den Braven with an ergonomic handle. The adapter has a nickel coating and a PTFE bearing to prevent adhesion of the PUR foam. The set screw at the rear closes the nozzle and/or adjusts the flow. Parts are non-replaceable.

Weight: 288 g
Output: 22,4 g / sec



► **Zwaluw PU-Gun LB-60 & LB-100**

High-quality PU gun with a nozzle length of 60 or 100 cm. These guns are suitable for Zwaluw PU-Gunfoam.



Zwaluw Dual PU-Applicator

An easy way to apply two glue beads at once for products such as the Zwaluw PU Stone-Adhesive.

Available in bags of 10
 Art.no. 210335

Also available in boxes of 1,000
 Art.no. 210334



Feica's OCF manufacturers aim to make improvements in the industry

As an OCF manufacturer, Den Braven is one of the members of FEICA. FEICA is a multinational association that represents European adhesive, sealant and polyurethane manufacturers. OCF (one-component foam) manufacturers represented in FEICA have their own technical working group that focuses on continuous improvement within the industry. All members are committed to supplying high-quality products and accurate and reliable information in the most transparent manner possible. To support this they have signed a statement of intent, containing their common values and principles of the partnership.

The technical working group for OCF within FEICA has agreed to the performance of laboratory tests according to a commonly agreed guideline for the technical performance of the polyurethane foam.

► **Volumetric Content**

FEICA members have mutually agreed to state the actual canister content on the label as well. Sometimes underfilled canisters are put on the market.

► **Foam Joint Yield in metres**

This test method describes how the apparent density of an OCF can be determined and how the theoretical foam volume ejected into a joint (yield) can be determined.

► **Free Foam Yield in litres**

This test method describes how the total foam volume of an OCF canister should be determined.

► **Dimensional Stability**

This test method describes what the dimensional stability of the applied and cured foam should at least be (shrinkage and expansion).

► **Foam Cutting Time**

This test method describes the curing time of a liquid foam (froth) until it can be cut.

► **Sagging Behaviour**

This test method describes the evaluation of the sagging of freshly applied OCF and how the widest possible joint can be determined without the OCF sagging.

► **Water Displacement**

This test method describes how the actual foam yield of the cured foam should be determined, including any "gaps" in the cured foam.

► **Brittleness of PU Foam**

This test method determines the level of brittleness of the cured foam at a specific temperature.

► **Compression Strength**

This test method describes the compression resistance and penetration value of the cured foam. Within this context, hardness and flexibility are treated as identical aspects.

► **Shear Strength**

This test method yields the shear strength and adhesive strength of the foam and is measured according to EN 12090.

► **Tack Free Time**

This test method describes the time that passes before a skin is formed on the liquid OCF.

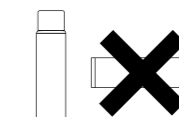


Den Braven believes in knowledge sharing as a success factor. Part of this is providing recommendations about selecting and applying our polyurethane foam products. With this user manual, we would like to assist you in making the correct product choice and provide you with information on the correct application.

	Filling	Insulating	Airtight & Passive building	Passive fire resistance	Bonding
Zwaluw Green-Foam	■	■	■		
Zwaluw DBS 9802	■			■	
Zwaluw NBS Flex-Foam	■	■	■		
Zwaluw PU Thermo-Adhesive					■
Zwaluw PU Stone-Adhesive					■
Zwaluw PU-Gunfoam	■	■			
Zwaluw Maxi-Gunfoam	■	■			
Zwaluw Maxi-Gunfoam Winter	■	■			
Zwaluw PU-Foam	■	■			
Zwaluw Maxi-PU-Foam all seasons	■	■			
Zwaluw PU-Foam Winter	■	■			
Zwaluw Purfoam-2C	■	■			■
Zwaluw Purfoam-2C Fast	■	■			■
Zwaluw Purfoam-2C Sprint	■	■			■
Zwaluw Recypur®	■	■			
Zwaluw PU Foam 360°	■	■			

Storage

Always store the canisters upright at a temperature of between +5°C and +25°C in the shade.



Preparation

Slightly pre-moisten the bonding surface

(not applicable to 2C PU Foam)
Fresh foam absorbs moisture from the surrounding area (surface and air). Dry surfaces should therefore be moistened before applying the foam to achieve maximum performance. A lack of moisture leads to inefficient curing of the foam, negatively affecting the end result. Water droplets on the surface should be avoided. After all, the water forms a barrier against proper bonding in this case.

Shake the canister

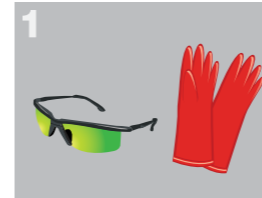
Prepolymer and propellant form two layers during storage. You should therefore attach the gun to the canister first and then firmly shake it 20-30 times before use to create a homogeneous mixture. Insufficient shaking may result in poor quality (reduced volume and incorrect cell structure). It is recommended to shake sometimes during use (especially after interruptions) to prevent the two layers from separating and to guarantee optimum use.

Application

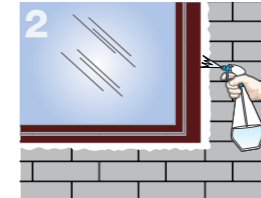
Polyurethane foam can be applied both by hand and with a PU gun. You have read above which product is suitable for a particular application. On the following pages we will provide recommendations about the correct application method, distinguishing between manual application and application by means of a gun. Surface preparation is an important part of both applications. For optimum results you should ensure that the surface is in good condition, clean and free from oil and grease.



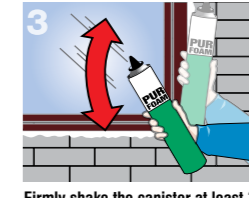
► Application instructions for adapter foam



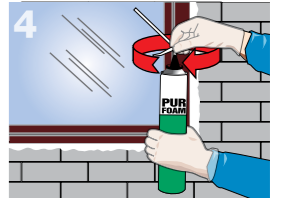
1 Wear gloves* and safety goggles



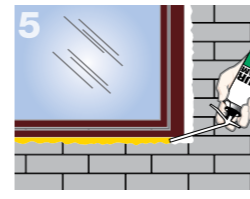
2 Moisten the surface**



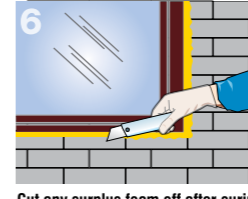
3 Firmly shake the canister at least 30x



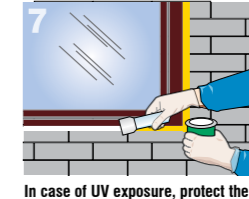
4 Attach the adapter to the canister



5 Turn the canister and apply the foam



6 Cut any surplus foam off after curing

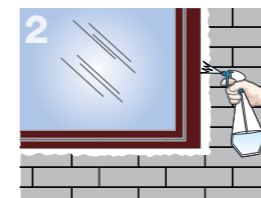


7 In case of UV exposure, protect the foam

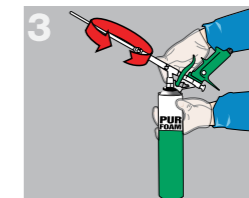
► Application instructions for gun foam



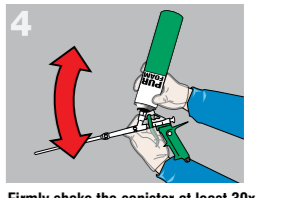
1 Wear gloves* and safety goggles



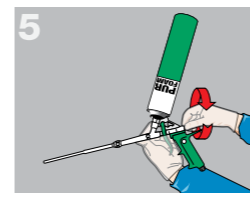
2 Moisten the surface**



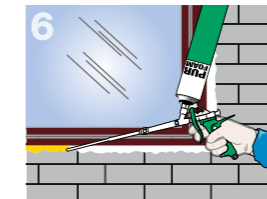
3 Attach the gun to the canister



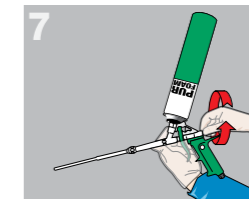
4 Firmly shake the canister at least 30x



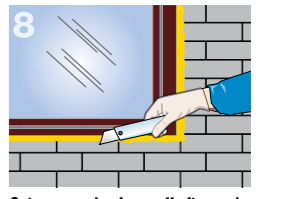
5 Use the set screw to adjust the foam yield



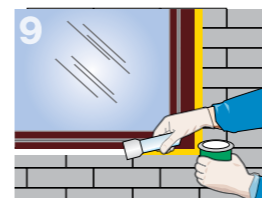
6 Apply the foam



7 Close the set screw



8 Cut any surplus foam off after curing



9 In case of UV exposure, protect the foam

* Except for Zwaluw Green-Foam; this product can be applied without gloves
 ** Except for Zwaluw 2C-PU Foam



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Who, what, where

- ▶ Incorporated in 1974
- ▶ over 1,000 employees
- ▶ over 25 sales offices
- ▶ 8 manufacturing companies
- ▶ Sales > over 25 million canisters per year
- ▶ Supply coverage of 99.9%

www.denbraven.com

Frequently asked questions

► What causes the foaming of polyurethane foam?

Polyurethane foam is a combination of Polyol, Isocyanate and propellants. When this mixture is applied, it will react with moisture from the surrounding area (air and substrate), causing a foaming reaction.

► What are the distinguishing features of Den Braven polyurethane foams?

For the formulation of the Den Braven polyurethane foams, the ideal balance was found between construction value, insulation value, foam yield and application properties.

Due to its structure with mostly "closed cells" we achieve a higher insulation and strength.

► Why should canisters with polyurethane foam be stored upright?

If the canisters are stored upright, the foam will be at the bottom of the canister, with the propellant (lower specific weight) on top. If the canister is on its side, the foam will come into contact with the rubber part of the canister's valve. The rubber may allow some moisture in, as a result of which the foam will block the inside of the valve, rendering the canister useless.

► Is there a difference in expansion between gun foam and adapter foam?

There is hardly any difference in foam yield between gun foam and adapter foam. There is, however, a difference between the curing times of the two products. In identical conditions a gun foam will cure faster and will therefore also expand sooner. This is related to a reaction that takes place during application. The type of application gun (especially the nozzle) has a greater effect on the reaction than people often realise. When filling joints, it should be taken into account that no more than +/- 50% of the joint needs to be filled when using a tube for application.

For gun foam this is about 65 to 75%.

► What is the difference between fire-retardant PUR foam and standard PUR foam?

Nowadays strict fire-resistance requirements are set for certain building objects. These requirements are set especially for government buildings, shopping centres, office buildings and other places where large numbers of people gather. Given the fact that PUR foam seals relatively large seams and gaps, it is important that, in case of a fire, the foam can resist the fire for a certain amount of time, preventing oxygen from entering through these seals. The fire retardancy of PUR foams is classified into three

classes, namely B1, B2 and B3. The standard foams on the Dutch market are classified as B3 (on the German market B2 foam is used almost exclusively). The fire retardancy of PUR foams is tested by Efectis and MPA Bau. Den Braven has an adapter and gun foam under the name DBS 9802, which meets the strictest fire retardant requirements (B1). A test report is available on request.

► Why is it recommended to lightly moisten the substrate?

As one-component polyurethane foams react with moisture from the air, the reaction will be accelerated if the substrate is lightly moistened. After all, more moisture will be present to make the curing process possible. A moist substrate also promotes better adhesion. Please note: drops on the surface (too much water) will prevent good adhesion.

► What is the difference between one and two-component foam?

The reaction of one-component foam requires moisture and air from the surrounding area, which causes problems when foaming larger volumes in one go. Also, injecting foam in a sealed environment, e.g. hollow spaces in doors, sections, openings between ship's decks, cavity walls, etc., is almost impossible. For these applications, the use of two-component foam is recommended due to its faster curing.

► Does the use of polyurethane foam lead to health risks?

The use of PUR foam in canisters does not have any associated health risks, provided that each user follows the safety instructions on the label. Foam in canisters is a different product from spray foam used at a building site and mixed on-site by a professional applicator.

► What can I do about a leaking gun?

Take a cardboard box and make sure the flow rate is high by pulling the trigger as far as possible and letting it go at once. Release the trigger like this a number of times, the needle will then close the valve again. Alternative solution: perform a full check-up. Unscrew the canister and follow the instructions under "PU gun maintenance".



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