

### Worldwide presence

DAFA has extensive experience in the wind turbine industry. We have close, long-standing business relationships with most of the largest wind turbine manufacturers worldwide.

At the same time, we are an active part of a network in the wind turbine industry. We are members of **Green Power Denmark, Danish Wind Export, and Danish Export Association Wind China.** 

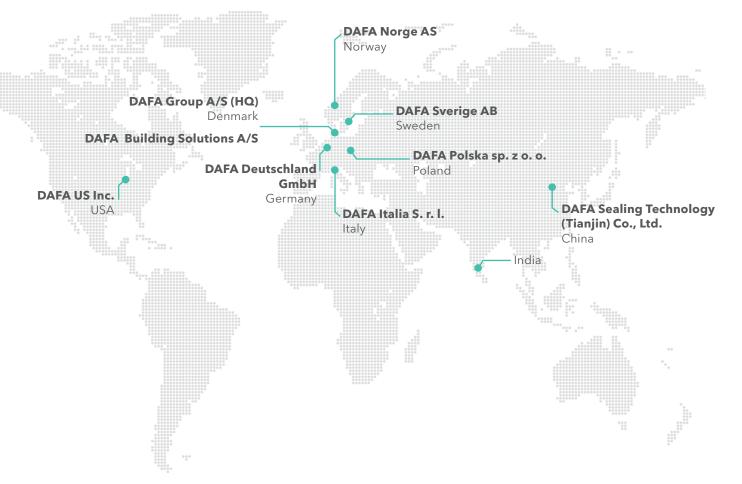


We combine decades of experience and technical insight with principles of sustainability in our business decisions to create value for both you and the environment.

We constantly innovate your options for customization so that you can choose less environmentally impacting materials when finding your solution.

Read more about our approach to sustainability and our goals here:

dafa-group.com/en/sustainability



### Improving functions and solutions to the wind turbine industry



Benefit from DAFA's foam and rubber solutions that enhance the design and strength of the wind turbine blades, making them last longer.

Choose DAFA's sealing solutions for blades to prevent oil and water from passing through the joints around the rotating pitch systems.





### **Transportation**

Benefit from DAFA's transportation solutions, carefully designed to help wind turbine components move safely from A to B.



### Nacelle

Benefit from DAFA's many and varied solutions for the nacelle. They help structures and electronic components in the nacelle withstand stress and perform better, making them last longer.



### Tower

Benefit from DAFA's solutions for tower structures that improve safety, so maintenance is easier, and accidents are prevented. This minimizes the operating costs and increases the durability and service life of the tower.

## A long-time partner in the wind turbine industry

DAFA has taken part in the wind energy adventure from the very beginning. For about 30 years, we have provided wind turbine manufacturers and their suppliers with top-quality foam and rubber solutions that seal, absorb, and protect. In fact, DAFA is now part of more than 100,000 operating wind turbines globally - onshore and offshore.

Today, the wind turbine industry is as vibrant as ever. We invest heavily in innovation and constantly challenge ourselves to develop **more sustainable solutions.** Our solutions are designed to **improve the competitive edge** of our customers, as we aim for superiority with respect to quality, performance, delivery, and levelized cost of energy.

The DAFA program covers all parts of the wind turbine. We deliver customized and off-the-shelf solutions for all applications and design delivery plans to fit your production processes. In short, as your total solution provider, we help you procure in the leanest possible manner.

We grew up with the pioneering Danish wind industry, but today we collaborate with a wide variety of international OEMs and suppliers. If you see the benefit of working with the **most experienced and wide-ranging supplier** in the field, we would like to hear from you and discuss how we can contribute to your business.

Steen Bødtker Group CEO







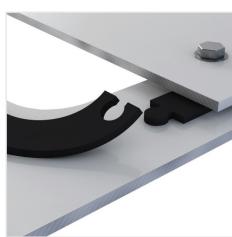
### Create the perfect seal between different materials

It can be challenging to prevent water, salt, sand, and dust from entering the wind turbine when different materials meet. DAFA's special gaskets for aluminum, fiberglass, steel, and other structures provide the optimal seal.

#### **Advantages**

- Flexible products that absorb tolerances
- Solutions that lead to optimized durability
- Quick and easy mounting
- Adherence to steel, fiberglass, and other materials





DAFA Soft, DAFA Cell, DAFA Flex, cellular rubber profiles, and self-adhesive EPDM profiles are some of our tested and proven products used as gaskets in a variety of structures.

### DAFA Sound for effective sound reduction

Noise from wind turbines can be a real nuisance, and effective sound damping is essential.

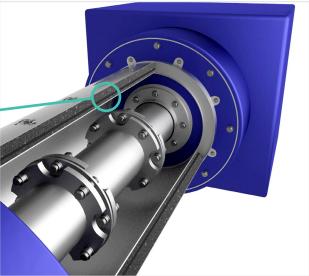
DAFA Sound is a complete industrial sound damping concept designed and developed to combine sound absorption, sound insulation, and structural sound damping - in one or more varieties.

#### Materials used in the DAFA Sound concept:

- DAFA Sound ABS<sup>™</sup> for sound absorption based on fire retardant PUR foam
- DAFA Sound ISO™ for sound insulation based on high-density PUR foam

- DAFA Sound Blocker<sup>TM</sup> heavy-duty foils based on EPDM rubber, cardboard or bitumen
- DAFA Sound Combi<sup>™</sup> combines products with different characteristics, e.g., bitumen and PUR foam







**Sound absorption** to reduce the reflection of airborne sound.



**Sound insulation** to insulate or screen off the source of the sound from its environment.



**Structural sound damping** to prevent the transfer of vibrations.

## Seal easily rotating parts from both ingress and leaks

**DAFA RotaSeal®** is designed for rotating parts in the wind turbine and prevents salt, sand, water, and dust from entering vital parts. Use also DAFA RotaSeal® to avoid leakages coming from the turbine. The solutions meet the most stringent requirements for sealing the wind turbine.

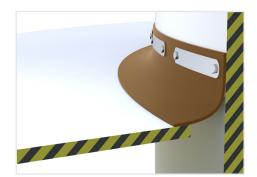
#### **Advantages**

- Long-lasting and durable solutions
- Fast and safe mounting
- Efficient absorption and equalization of tolerances
- Designed with a focus on low friction and abrasion
- Dampening of cold, heat, and sound
- Reduced entrance of salt, sand, water, and dust
- Optimized uptime, as the ingress into critical parts is reduced
- Designed for several constructions

- Ideal for fiberglass, steel, and aluminum flanges and other structures
- Steel inserts in profiles are produced with stainless steel EN 1.4301
- Tested up against common hydraulic and gear oils, antifreeze fluids, and greases according to DIN 53504
- Tested for abrasion properties according to DIN ISO 4649
- Tested for wear according to ASTM G99







DAFA RotaSeal® PUR S sealing for rotating parts. Mechanically fastened on the tower or nacelle bottom cover.



DAFA RotaSeal® Straight Profile sealing for rotating parts. Mechanically fastened on the horizontal flange on the nacelle bottom cover.



DAFA RotaSeal® Angle Profile sealing for rotating parts. Mechanically fastened on the vertical flange on the nacelle bottom cover.



This solution is also suitable for towers and blades

DAFA RotaSeal® solutions are designed for optimal long-life sealing solutions for rotating parts in wind turbines.

### Durable solutions for a long service life

Prevent rain from entering through doors, hatches, and skylights with DAFA's solutions. The solutions have a long service life due to their high durability.

#### The solution consists of products which:

- Ensure easy mounting
- Provide efficient sealing
- Equalize tolerances
- Ensure a long service life and durability



Doors and skylights are sealed using cellular and rubber profiles that can be supplied as rings to ensure a sealed joint. For hatches, self-adhesive sealing strips are used in various elastic materials.



Our folding gaskets are delivered in a compact and practical format to be easily unfolded and mounted on-site, which generates a minimum of waste and takes up less space during transportation.





## Sealing of large surfaces - ideal for roof hatches

The roof hatch of the nacelle has large surfaces with large tolerances, which must be sealed and capable of diverting water. DAFA offers standard solutions, but we also design and produce customized solutions to fit your specific needs.

- Solutions that lead to optimized durability
- Capable of absorbing large tolerances and movements
- Based on proven and tested technology and materials
- Fast and safe mounting



EPDM cellular rubber gaskets and large EPDM profiles are particularly suitable for large roof hatches.



### When sharp edges must be soft and round

Sharp edges can make for a particularly unpleasant encounter for maintenance workers. Sharp edges can also ruin leads and cables, causing damage over time.

Use DAFA's standard profiles for preventing damage and ensuring safe maintenance.

#### **Advantages**

- Contribute to a safer working environment
- Reduce repair and maintenance costs
- Are easy to replace and can be retrofitted

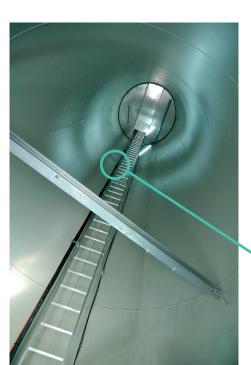


## Reliable molding process with sealed joints

DAFA's complete sealing solutions for molding fiberglass elements are designed to optimize and streamline the production process. The solutions ensure operational reliability and a uniform molding process to provide high-quality final products.

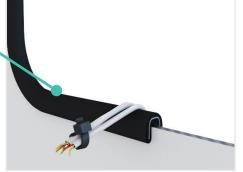
- Reliable sealing
- Temperature resistant
- Resistant to the materials used for the molding processes

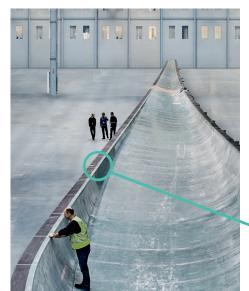




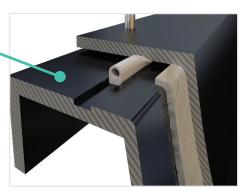












### Vibration damping

The challenge is to dampen vibrations and prevent them from spreading to and straining the vital parts and structures of the nacelle. DAFA's vibration dampening solutions improve the wind turbines' operational reliability and extend service life.

#### **Advantages**

- Reduces vibrations
- Increased operational reliability
- Fewer production shutdowns
- Extended service life
- Reduced maintenance costs





### Prevent leaks around cables and pipes

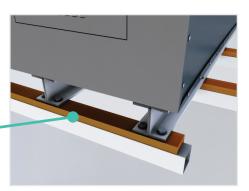
Insufficient sealing around cables and pipes can lead to leaks. That is why effective sealing products are essential when cables, leads, and pipes have to penetrate walls, floors, and other structures.

- Flexible, universal products
- Standard or customized solutions
- No special tools, sealing, or glue required
- Reduced repair and maintenance costs
- Can be designed to comply with IP (ingress protection) requirements















## Ensure a tight seal with sealing strips

For sealing between components in the nacelle, such as wall and roof panels - DAFA's sealing strips are ideal. Use self-adhesive strips and expanding DAFA Flex sealing strips for easy mounting and fitting doors, hatches, and panels. Benefit from these strips during service and maintenance processes.

#### **Advantages**

- Optimal sealing with customized or standard sealing strips or profiles
- Solutions that lead to better durability
- Minimized risk in mounting and dismantling
- Quick and easy mounting at the production facility or on-site
- No waste of precious time for curing, as with joint sealant
- Excellent elasticity to withstand extreme movements
- Expanding sealing strips for structures with large tolerances



Easy removal and fitting of doors, hatches, and panels using self-adhesive strips and expanding DAFA Flex sealing strips for sealing between components.





This solution is also suitable for towers and blades

## Formed in place foam gaskets (FIPFG)

FIPFG is the solution when you need perfectly fitted foam gaskets for your components. FIPFG is a direct application of liquid PUR to a component, after which the substance expands and adheres to form the desired gasket.

With our FIPFG technology, the gaskets are applied directly to components in a one-stop cycle and with CNC-controlled precision. The result is a top-quality, uniform seal, excellent finish, and efficient production, making the method highly competitive.

- High durability
- Efficient application process
- CNC-controlled precision
- Shape is retained over time
- Direct application of foam gaskets to components









### Molded parts - customized for individual applications

DAFA's molded parts are customized for individual applications. They meet requirements for sealing functions, flexibility, damping, durability, and resistance to chemicals all at once.

#### **Advantages**

- Available in a wide range of raw materials
- Custom-specific solution
- Multiple production methods
- Available in small and large sizes

DAFA develops and delivers customized molded components in both small and large sizes. Depending on the complexity of the component and its design, we develop and produce a customer-specific tool that is perfectly adapted to the individual application using one of the following production methods:

- Compression molding
- Transfer molding
- Injection molding
- Vulcanized corners





This solution is also suitable for towers, blades, and transportation

#### A wide range of raw materials

Developing and producing molded parts requires access to a wide range of raw materials.

The varying properties of the raw materials form the basis for combinations that create unique and • PUR rubber individual components perfectly customized to the individual task.

- NR rubber
- EPDM rubber
- Silicone rubber
- EPDM sponge rubber
- CR rubber
- NBR rubber
- TPE





## Safe molding process for top performance

The process of molding fiberglass elements must proceed efficiently and with maximum safety. Our sealing profiles in silicone and butyl contribute to optimizing the production process.

- Ensures quality due to reliable and uniform molding process
- $\bullet$  Improves efficiency by reducing and facilitating work processes
- Products with excellent adhesive properties
- Temperature-resistant products
- Resistant to the materials used in the molding processes







Butyl and silicone profiles for sealing in molding processes.

## De-icing and anti-icing systems

In some cold areas, de-icing and anti-icing systems are necessary for large blades to ensure optimum energy production.

DAFA's various insulation materials are suitable for insulating the blade construction or ducts for hot air transportation.

- Customized solutions
- Resistant to temperature extremes
- Flexible materials
- Flame-retardant materials
- Light-weight insulation materials
- Materials in various densities





Insulation materials for de-icing and anti-icing systems.









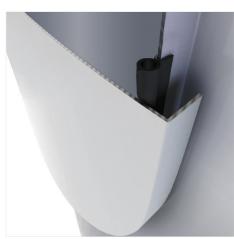
### First-class sealing of doors using standard or customized profiles

Ensuring that the tower door can withstand rain, dust, and sand is crucial. Seal the door efficiently using a standard or customized sealing profile with or without joints. Mounting is simple - both when installing the seal and during maintenance.

- Quick and efficient mounting
- Easy to retrofit during maintenance
- Effective absorption of tolerances and movements
- Superior durability and exceptional service life
- Delivered in running meters or customized sealing rings to avoid manual cutting and gluing process







EPDM cellular rubber profile with steel or plastic insert for sealing tower doors.

## Prevent oil and other liquids from leaking inside the tower

Dampen vibrations and equalize tolerances to prevent water and oil from leaking downwards inside the tower. Use DAFA's sealing strips and profiles for platforms.

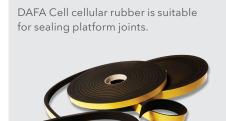
#### **Advantages**

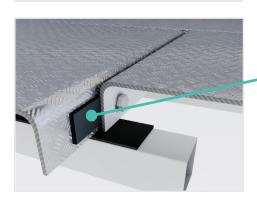
- Quick and efficient mounting
- Easy to retrofit during maintenance
- Effective absorption of tolerances and movements
- Superior durability

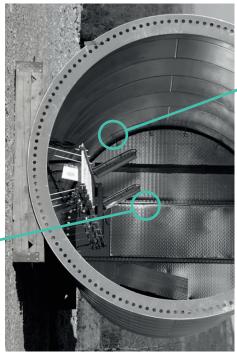
### Secure platforms with sealing solutions

The challenge is to seal the platforms in order to prevent loose objects, tools, or equipment from having free passage. Use our sealing solutions to prevent injuries to personnel. In addition, the seal provides a neat finish against the side of the tower.

- Quick and efficient mounting
- Easy to retrofit during maintenance
- Absorbs tolerances and movements
- For small or large gaps
- Flexible materials and solutions
- Foam platform sealing profiles can be supplied in flame-retardant material













### Ensure a safe and durable seal between tower sections

A tight and strong seal is required when tower sections are assembled. When you use DAFA's rubber profiles or self-adhesive and flexible sealing strips, you secure tight sealing and avoid leakages. Sealing of cross-sections in modular towers with horizontal or vertical joints/sealings is essential. DAFA offers total sealing solutions that efficiently seal these critical joints and the whole tower construction.

#### **Advantages**

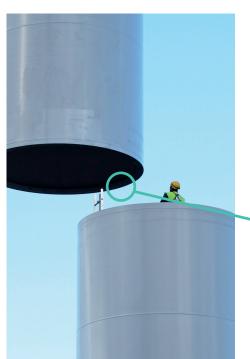
- Weather-resistant
- For cross-sections in modular towers
- Quick and easy mounting with no curing time
- Retained flexibility and elasticity over time
- For both concrete and steel towers
- Solutions with high-bonding adhesives for various constructions and surfaces

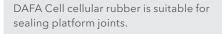
### Reduce the airflow interference

DAFA Helical Wind Guide is a foam solution that lowers the vibrations from the wind and stabilizes the tower during installation.

#### **Advantages**

- Standard modular solution available in different dimensions
- Easy and fast installation
- Lightweight and non-marking foam material



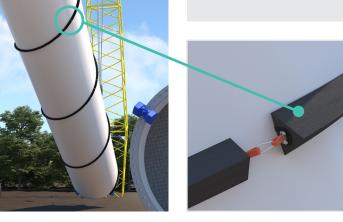








This solution can be made of DAFA Rec EPE foam, which is both 100% recyclable and contains 25% recycled content.







# DAFA materials and solutions for protection during transportation

Transporting large towers weighing many tons requires a safe, protective underlay capable of distributing the pressure of the load.

- Safe transportation without damage or repairs
- Easy to handle
- Large load-bearing capacity
- High slip resistance
- Suitable for high friction
- No deterioration
- Reusable with its functionality intact
- Long service life due to weather resistance





DAFA materials and solutions for protection during transportation.

### **DAFA Universal Tip Protector**

Protecting the fragile blade tips during handling and transportation is crucial.

DAFA Universal Tip Protector prevents damage, ensures increased visibility and protects against personal injuries when people are near the blades.

- Optimal protection during transportation, handling, and on-site storage of blades
- Increased visibility night and day
- Prevent costly delays due to damage and repairs
- Universal solutions that fit all blade types
- Safer working environment
- Easy mounting, no tool costs





Fleixble
DAFA Universal Tip Protector is a unique one-size-fits-all solution.



**Visible**Convenient tip marking provides greater visibility during transportation.



Fit your need
Various options are available depending on your needs. Lighting equipment can be attached to all options for added visibility.

### **DAFA Blade Protection Kit**

DAFA Blade Protection Kit offers visibility and protection to the blade tip, trailing edge, and leading edge.

The products in DAFA Blade Protection Kit can be used together or separately, depending on your need for visibility and protection.

Both for blades with and without serrations.

#### **Advantages**

- Visibility and increased safety
- Protection during storage and transportation
- Universal fit
- Optimized for short installation time



# **CargoPro® Transportation** DAFA Leading Edge Protector DAFA Trailing Edge Protector DAFA Trailing Edge Reflector DAFA Leading Edge Reflector



### Safe protection of the trailingand leading edges, and surface

The solutions are primarily intended to protect and secure the trailing, edge, and surface of the blade. The solutions are attached using, e.g., transportation straps.

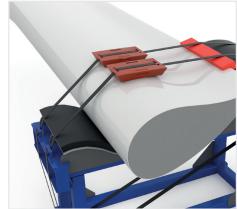
#### **Advantages**

- Fewer repairs
- Flexible and universal fit
- Bright signal colors for increased safety
- Easy mounting and handling
- Long service life and durability



Universal and flexible solutions for protection of trailing edge and surface.

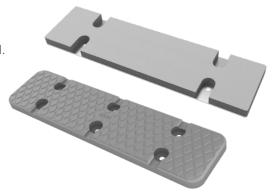


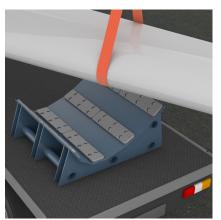


## Bolted universal friction pads for blade and tower transportation

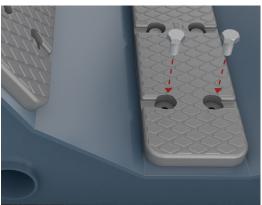
DAFA Modular Transport Pads are fastened using bolts, meaning installation time is reduced, and the pads can be reused.

- Time-saving mechanical fastening
- Modular universal system
- Solid PUR/EPDM/steel pad
- Grey non-marking material
- High friction
- Customized dimensions upon request





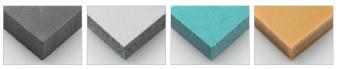




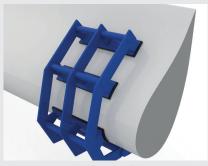
## Transportation protection and safe storage

The blades must arrive safely on-site and should be stored properly. DAFA CargoPro foam, rubber, and elastomer solutions keep the blades intact.

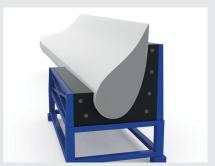
- Safe transportation without damage or repairs
- Easy to handle
- Weather resistant, with a long service life
- No deterioration
- Reusable with functionality intact
- Large load-bearing capacity
- High friction







DAFA CargoPro clamp solution.



DAFA CargoPro cradle for storage.



DAFA CargoPro cradle for transportation.



### Innovation, the lifeblood of DAFA

We keep the same high pace as the wind turbine industry. Technology progresses almost exponentially, and we are constantly working to develop tomorrow's solutions and processes.

Our Innovation department and wind team is run by dedicated professionals brimming with ideas on how to upgrade existing concepts and design new ones. Their experience and technological insight are unrivaled, enabling us to bring best-in-class offerings to the market.

Our specialists are ready to partner up with you on all questions about sealing, absorption, and protection applications, such as:

- New product research, including determining product specifications, production costs, technologies, and production timeline
- New product development, from proposal and prototype to series production
- Existing product updates, including optimization of material usage
- Tests, experiments, and quality verifications, including documentation required by the customer, such as APQP4Wind
- Innovation, research, and analysis of products to maintain competitiveness
- Ensuring a high level of consistency throughout the supply chain





#### Who we are

Making small invisible changes with a big impact...

#### At DAFA, we seal, we absorb, and we protect.

With a passion for foam and rubber, we are specialized in making small invisible changes with a big impact. We seal cold air from hot air - and absorb sound to create silence. We dampen vibrations, and we protect objects against shocks and damage. And while our products may seem unnoticeable, they are always irreplaceable.

#### It all started in 1939 in Denmark.

What began as an entrepreneurial family business producing sealing strips of bronze has today expanded into an international operation - manufacturing the unimaginable across three continents. We cut, we print, and we innovate new solutions. From small nose pads for face masks to protecting large wind turbine blades during transportation, we combine cutting-edge production equipment with great engineering skills and know-how to develop solutions geared to the demands of the future.

#### But it all begins with our people.

Engineers, operators, or quality controllers. At DAFA, everyone is a master of their craft, united into a culture like a family. Our ambitions are global, but our values are practical and local.

World-class solutions driven by our passion for innovation and sustainability. Like our products, being visible to the world is not the most important for us. We simply care about being good at what we do and the difference we can make. We go to work every day to earn the trust of each other and our customers – together shaping the future of manufacturing by pushing the industry standards for quality and more sustainability.

We want our 'invisible' products to bring a noticeable impact and make DAFA the best in the world at what we do. Seal, absorb, and protect. One innovative solution at a time.











- Applies to: DAFA A/S, DAFA Sverige AB, DAFA Deutchland GmbH, DAFA Sealing Technology (Tianjin) Co., Ltd.,
  DAFA US Inc., DAFA Polska sp. z o.o.
- \*\* Applies to: DAFA A/S, DAFA Sverige AB, DAFA Deutchland GmbH, DAFA Sealing Technology (Tianjin) Co., Ltd., DAFA US Inc.

