# IRIS: The next-generation airtight platform seal

## ADVANCED ENGINEERING FOR A SUSTAINABLE FUTURE

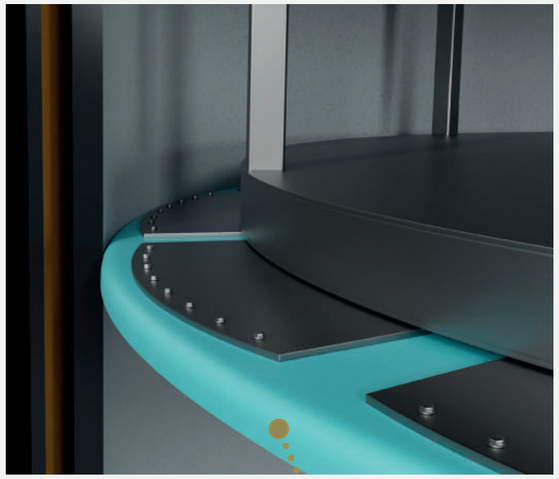
# A game-changing new approach reducing structural stress while optimizing costs

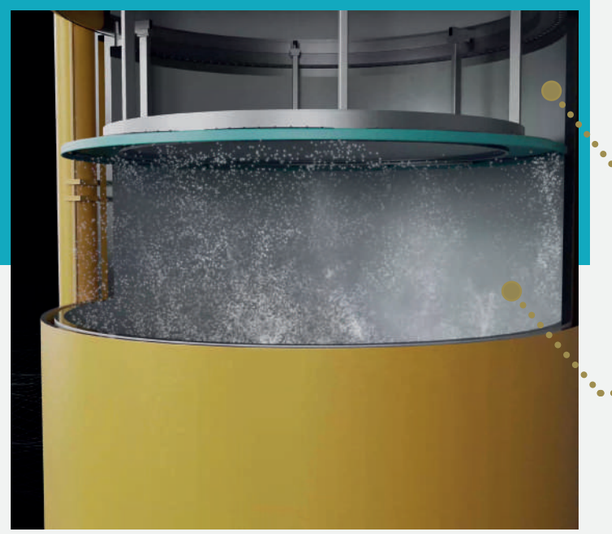
**Introducing IRIS, an innovative airtight platform seal designed to minimize labor and costs by eliminating the need to weld heavy steel landing rings in offshore wind monopiles.**

IRIS enhances the installation of monopile foundations by eliminating the need for a landing ring, thereby reducing stresses associated with monopile hammering. This innovative solution optimizes the installation process of airtight platforms by allowing for seamless onshore mounting and efficient offshore activation.

Additionally, this solution advances safety by effectively preventing the escape of harmful gases from the monopile, thus ensuring a secure work environment for personnel. Designed to last even longer than the lifespan of the wind turbine itself, IRIS offers a cost-effective and secure alternative to conventional airtight platform seals with welded landing rings that addresses economic, safety, and maintenance concerns in wind farm operations.

- **Innovative design without welded landing rings**
- **Cost savings in primary steel, welding and engineering**
- **Reduced stress from monopile hammering**
- **Durable with 30+ year lifespan**
- **Reduces maintenance needs and operational costs**






## THE INNOVATIVE DESIGN

The foldable design of IRIS eliminates the need for a welded landing ring inside the monopile. By mounting the seal directly to the airtight platform (ATP) and attaching clamping strips to it onshore, manufacturing is done in a controlled environment, avoiding defects or reworks and ensuring the design requirements are met. The transition piece (with the ATP and IRIS) is then brought offshore and positioned on the monopile for activation.
Traditionally, this operation would require an expensive, heavy steel landing ring carefully welded inside the monopile and thoroughly inspected to ensure airtightness. Once this is done and after installation of the monopile offshore by hammering, the airtight platform would have to be lowered towards the landing ring until airtightness is ensured thanks to conventional platform seals.

The problem with this traditional method is that the stress caused by hammering on the monopile could potentially cause welding cracks to the landing ring through which dangerous and corrosive gases might escape.
IRIS addresses this risk by eliminating the need for a landing ring. When the transition piece and the platform are in place on the monopile, IRIS is folded from a vertical position back horizontally and kept into place by hinges, activating the secure, airtight connection in less than one hour of offshore time. This game-changing solution minimizes resource consumption and reduces environmental impact, making it a durable and more sustainable choice that perfectly aligns with the values driving the renewable energy industry.

## OFFSHORE - AFTER INSTALLATION

### BOTTOM VIEW

### TOP VIEW

## TECHNICAL SPECIFICATIONS

| PRODUCT LINE | IRIS |
|---|---|
| Product type | Design to project specification |
| Working principle | In-/Outwards folding |
| Fixation | Bolted clamping strips |
| Temperature range | -20 [°C] to +50 [°C] |
| Maximum storage period | 5 years according to ISO-2230 |
| Theoretical design life | Minimum 30 years |
| **RUBBER MATERIAL** | **DUAL COMPOUND** |
| Body grade | 16-3709 |
| Body hardness | 62 +/- 5 [Sh.A] |
| Nose grade | 14-1753 |
| Nose hardness | 43 +/- 5 [Sh.A] |

| FLAPS | HINGED TO PLATFORM |
|---|---|
| Offshore activation | Down to horizontal |
| Range of motion | 90 [°] |
| Maximum spacing* | 260 [mm] at flap tip |
| Minimum spacing* | 70 [mm] at flap root |
| **PERFORMANCE*** | |
| Maximum pressure* | 0.2 [bar] |
| Maximum gap* (flap - MP wall) | 85 [mm] |
| Minimum gap* (flap - MP wall) | 45 [mm] |

**Note:** IRIS is designed to specific project requirements, provided values are indicative only.

# Your trusted partner at every stage

Trelleborg has been pioneering the development of offshore wind foundation seals since 2007. Our vision of design and fabrication of critical seals in offshore wind has proven to perform time and time again, but it does not stop here. As the market charges forward, so do we — continuously developing and testing innovative foundation sealing systems with developers, designers and fabricators worldwide to meet new challenges.

With a track record of more than 5000 grouted monopile foundations, 1900 pre-piled jacket foundations and 400 post-piled jacket foundations since 2007, partnering with Trelleborg means gaining access to a dedicated team of experts committed to delivering sealing systems tailored to your project's specific needs.

From using rigorously tested materials in manufacturing to providing comprehensive on-site inspection and maintenance services, Trelleborg ensures a complete, end-to-end service you can trust.

### GLOBAL CAPABILITIES WITH LOCAL PRESENCE

From our unrivaled global reach, with feet-on-the-ground local presence, to our cross-industry expertise and in-house end-to-end solution capabilities that accelerate performance, we deliver improved integrity, sustainability, and efficiency to give you confidence in the success of your projects for years to come.

**GET IN TOUCH**

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**LEARN MORE ABOUT IRIS**