



WE THINK THE WORLD OF PLASTICS



HYBRID ARMOURING  
FOR SUBMARINE CABLES

**PRIMO**  **Offshore**



# **INNOVATIVE FIBER SOLUTIONS WITH HYBRID ARMOURING FOR IMPROVED SUBSEA CABLING**

Hybrid Armouring combines the benefits of high-performance fibre and thermoplastic materials to give submarine cables a unique balance of mechanical strength, low weight and long service life.

By integrating reinforcing fibres in combination with shape fillers, the design achieves both structural rigidity and high resistance to bending, torsion, extreme loads and fatigue.

**Key Benefits of Hybrid Armouring:**

- Reduce weight, Easier handling and lower installation costs. Up to 30-40% lighter than all-steel armouring, enabling greater cable lengths per installation vessel load-out and reducing laying tension.
- Corrosion free – Extended lifetime in aggressive marine environments.
- High Tensile Strength – Ensures cable integrity during deployment and operation.
- Enhanced Flexural Performance - Improved bend radius capability and fatigue resistance for deployment in complex seabed topographies.
- Cost Efficient – Reduces need for heavy steel armouring







### **Technology behind the solution:**

- Hybrid Armouring uses high-modulus fibres to carry tensile loads and thermo-plastic fillers to fill and protect the cable's internal components. This provides an armouring solution that:
- Maintains cable roundness
- Minimizes friction between components
- Enhances structural stability over time

### **Applications**

- High-voltage export cables for offshore wind farms
- Inter-array and interconnector systems
- Submarine telecommunication
- Dynamic cables for floating offshore energy systems
- Static Umbilicals for subsea units



**Polymer selection** is based on application, temperature resistant, friction and the necessity of chemical adhesion

## FIBER PROPERTIES

	GLASS FIBER	POLYESTER FIBER	ARAMID FIBER	CARBON FIBER
<b>N/tex<sup>1</sup></b>	0,59	0,60	2,30	1,67
<b>N/mm<sup>2</sup></b>	1 520	830	3 330	3 000
<b>Elongation [%]</b>	2-3	8-15	2-3,7	0,4-1,8
<b>Working temperature [°C]</b>	240	135	180	530
<b>Sg [g/cm<sup>3</sup>]</b>	2,60	1,38	1,45	1,80

<sup>1</sup>Tex = mass in grams of 1,000 meters of yarn





### JACKETING SELECTION

	GLASS FIBER	POLYESTER FIBER	ARAMID FIBER	CARBON FIBER
<b>Polypropylene (PP)</b>	X	X	X	X
<b>High Density Polyethylene (HDPE)</b>	X	X	X	X
<b>Thermoplastic Elastomer (TPE)</b>	X	X	X	
<b>Poly Polyaramid (PA)</b>	X			

Available sizes range from 3,0 mm – 12,0 mm  
 Rods shape: Round or flat (customer-specific)  
 Packaging: Standard wooden drums between K10 – K14, customized drum or coils.



# INNOVATING OFFSHORE SOLUTIONS TOGETHER

AT PRIMO, WE SPECIALIZE IN SUPPORTING THE DEVELOPMENT AND MANUFACTURING OF CUTTING-EDGE LINEAR OFFSHORE PRODUCT

Our approach is rooted in close collaboration with our customers - as working together is the best way to create the best solutions.

We don't just deliver products; we co-create value. By combining your industry insights with our deep expertise in plastic profile extrusion, we often uncover opportunities to improve performance, efficiency, and sustainability.

## **25 Years of Offshore Experience**

With long experience in the offshore industry, we understand the challenges, standards, and expectations that define your world. This knowledge allows us to speak your language and deliver solutions that are not only innovative but also practical and compliant.

Our strength lies in knowing both our business—extrusion of plastic profiles—and yours. This is what makes us a trusted partner in offshore innovation.

## **Innovation Starts with an Idea**

At Primo, every solution begins with a simple yet

powerful idea—yours. Whether it's a customer-driven concept or the need to introduce a new linear offshore solution, this is where innovation truly takes shape.

Together, we explore your idea from every angle, testing it against:

- Functional and technical requirements
- Ease of use and production agility
- Cost-efficiency and sustainability
- Durability and long-term performance
- Compliance with industry standards and legal regulations

With our team of specialists by your side, your idea evolves into a solution that stands out and makes a real impact.

## **Smart Material Choices for Smarter Solutions**

Choosing the right material is key to optimizing performance. Our experts stay ahead of the curve in plastic development and will guide you to the best possible choice for your specific needs.

Primo is also leading the way in sustainable innovation—developing eco-friendly materials and refining manufacturing processes to reduce environmental impact.





### **Design Without Limits**

Extruded plastic profiles offer virtually limitless design possibilities. During the design phase, we help you align your creative vision with the technical properties required for success—whether it's flexibility, strength, or aesthetics.

To ensure a smooth and efficient development process, we use a dedicated project management platform with built-in checkpoints and testing protocols

### **Your Global Partner with Local Insight**

Primo was founded in Denmark in 1959; today, the Primo Group operates in nine countries in Northern and Eastern Europe and in China. You'll get an international partner with local support and business insight.

### **Let's Innovate Together**

Ready to turn your idea into reality? Let's collaborate and create something extraordinary.

### **WHY CHOOSE PRIMO?**

- ✓ Collaborative Development
- ✓ Tailored Solutions
- ✓ Expertise in Offshore Applications
- ✓ Sustainable Manufacturing
- ✓ Global Reach with Local Support

LET'S SHAPE THE

FUTURE OF OFFSHORE

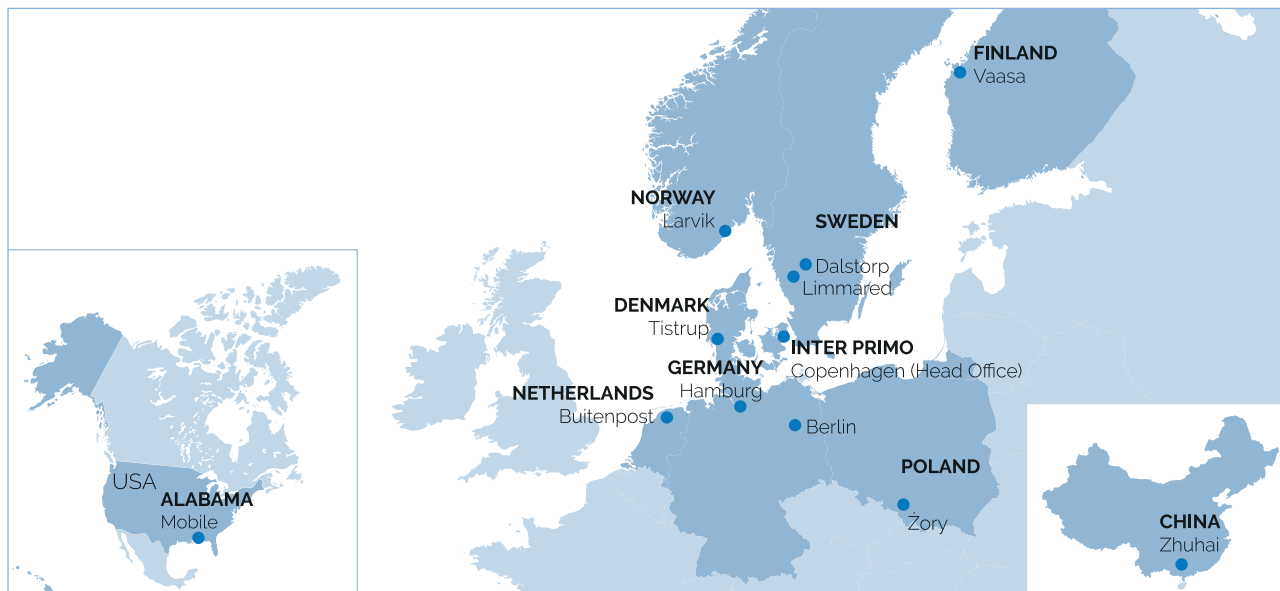
TOGETHER

Whether you're launching a new product or refining an existing one, Primo is ready to help you take the next step. Let's turn your ideas into durable, high-performance solutions.

Let's Shape the  
Future of Offshore  
Together



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## PRIMO GROUP

**PRIMO DESIGNS AND MANUFACTURES TOMORROW'S PROFILES TO OPTIMISE PERFORMANCE AND SAVE RESOURCES.**

Primo creates solutions with our customers to design and extrude the profiles of tomorrow that will optimise performance and save resources.

The Primo Group is a leading, international plastic extrusion technology expert. We develop and produce tailored and competitive solutions, know-how, products and services for the industrial sectors of construction, building offshore, medical and many more. Quality, customer satisfaction, environmental matters and safety are of paramount importance to our operations. Primo's operating units are certified and comply with the industries' management system standards, among others:

ISO 14001:2015 | ISO 9001:2015 | IATF 16949:2016

**INTER PRIMO A/S**  
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