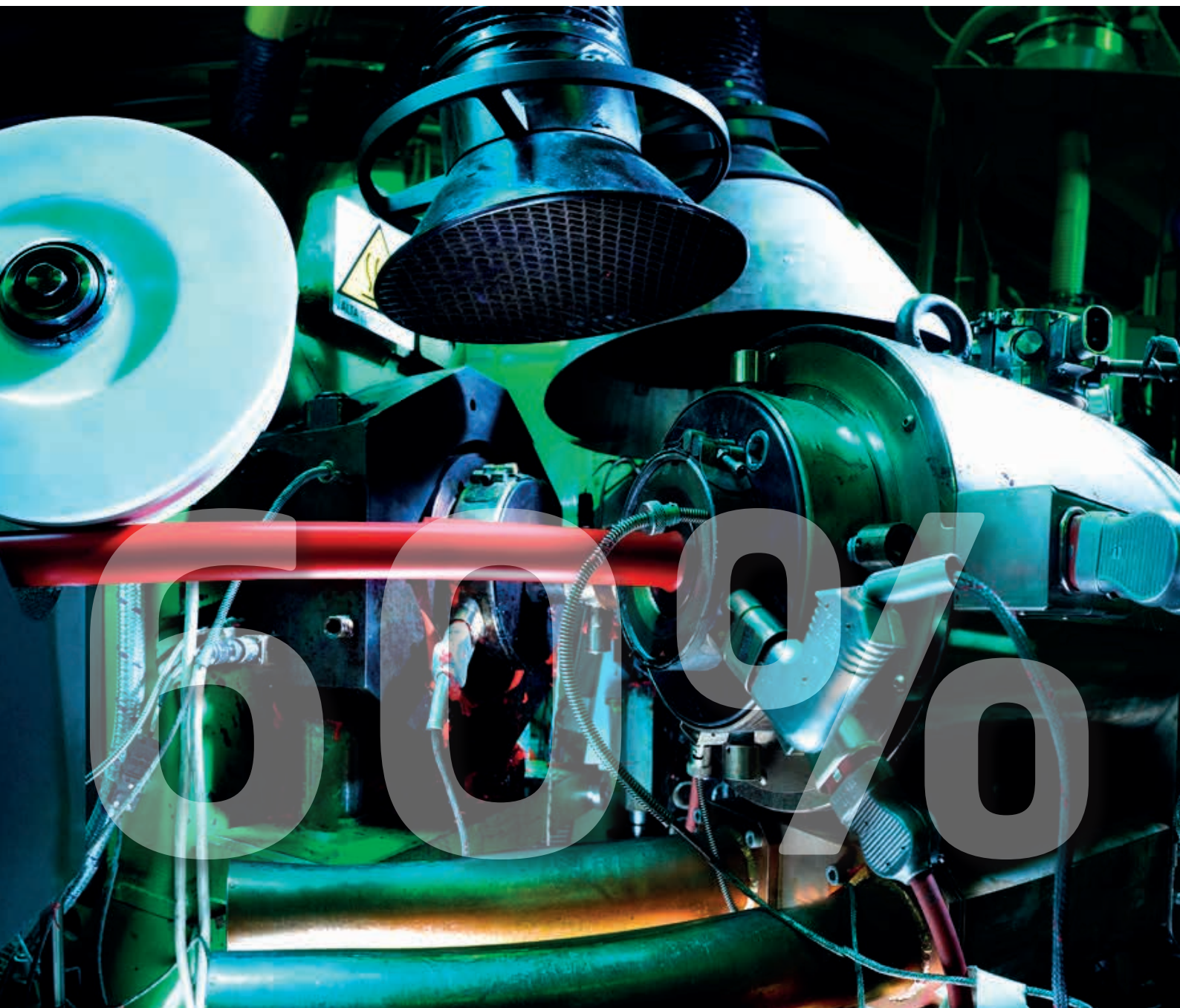


# Prysmian Group reduces the carbon footprint of MV cables

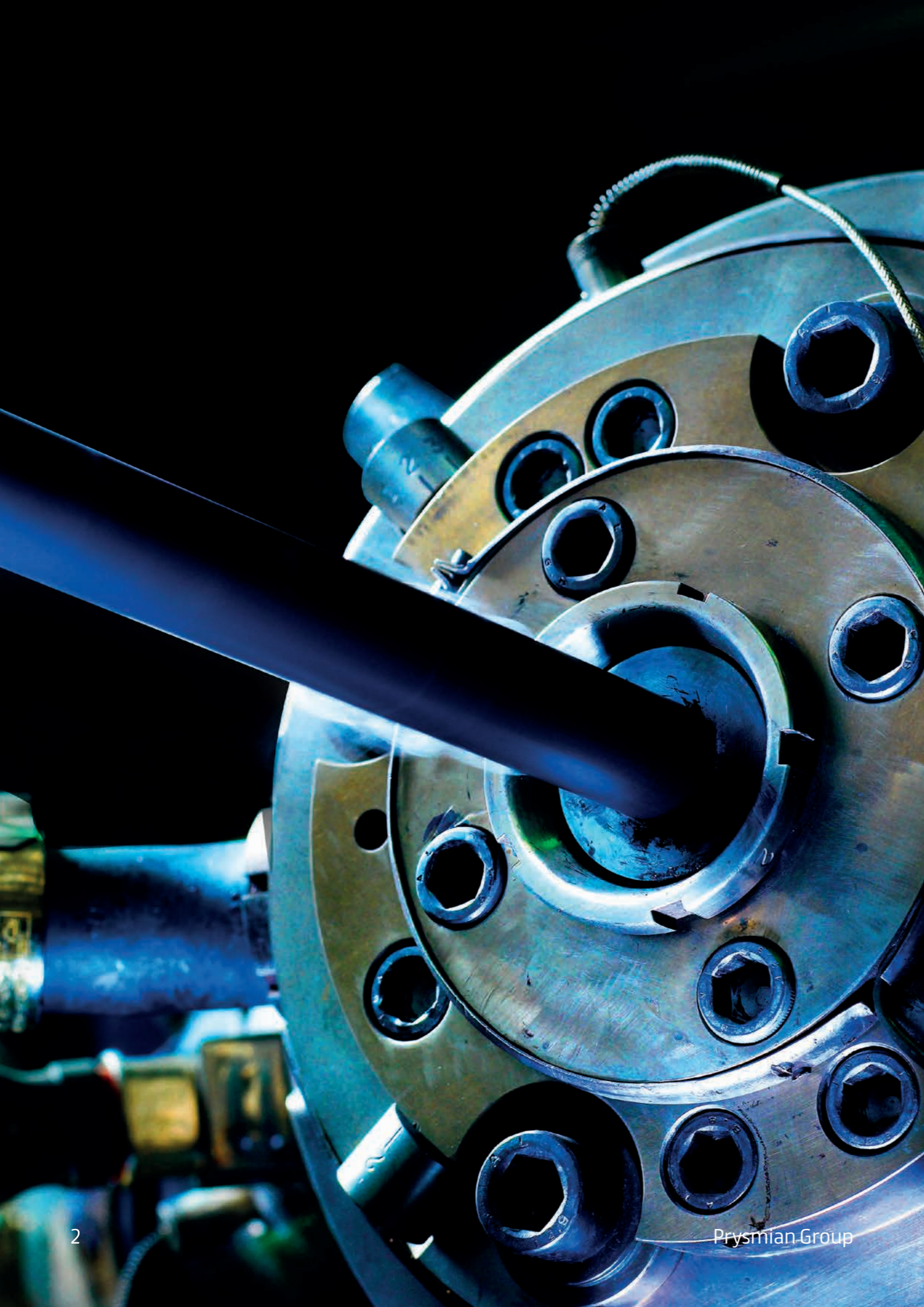
Frank Middel (Sustainability Officer Prysmian Group Netherlands), Alberto Bareggi (Corporate Cable Design Director), Stefano Luciano (Corporate HSE Specialist)

Delft and Milan, December 2020



**Prysmian**  
Group

Linking  
the future



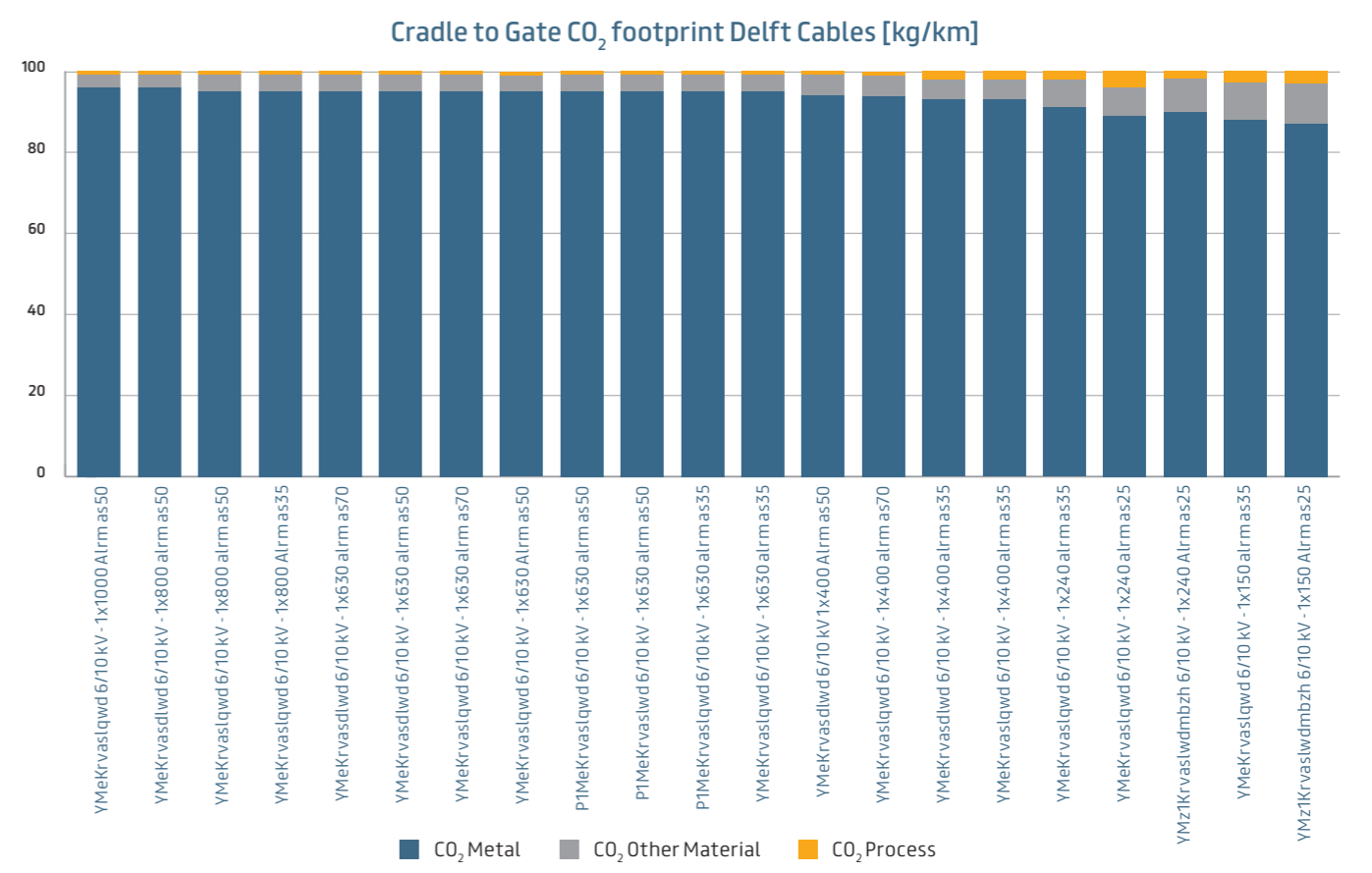
MV cables manufactured by Prysmian Group Delft in August 2020 and those manufactured in September 2020 look exactly the same. The cables will also perform exactly the same. Yet, there is a significant difference. The cradle to gate carbon footprint of the cables has been reduced by about 60%.

**Prysmian Group has the ambition to reduce the carbon footprint of cables**

Prysmian Group is highly committed to supporting the development of greener and smarter power grids... We aim to become a thought leader in our industry and a positive contributor towards environmental issues. Given that the aluminium production process requires considerable electricity consumption, Prysmian has included the carbon footprint associated with the various production processes as a supplier selection criterion, assigning a consideration portion of the business portfolio to suppliers capable of supplying aluminium with a lower environmental impact.

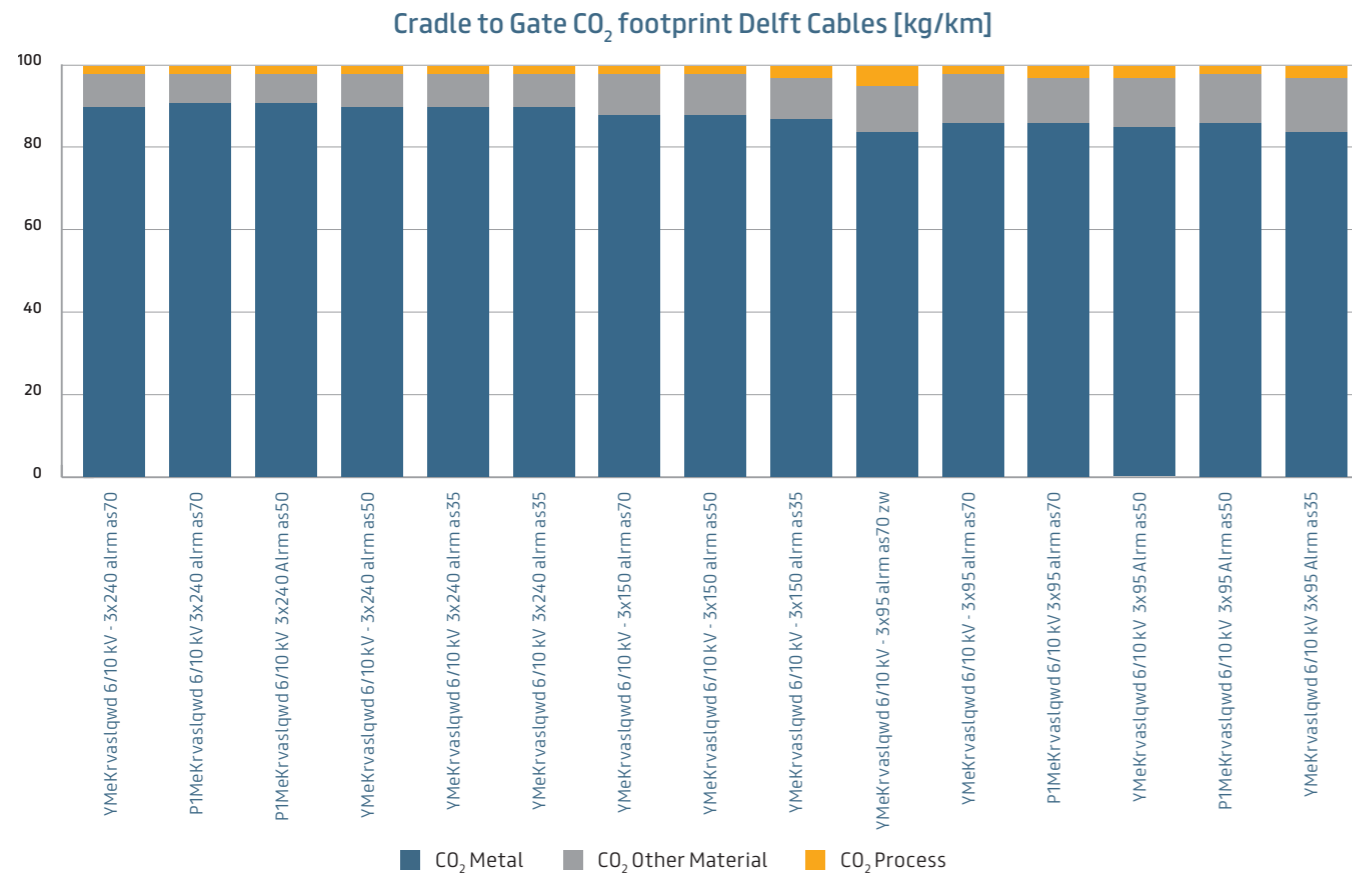
**Prysmian Group calculates and understands product carbon footprints**

Since 2018, Prysmian Group has introduced cradle to gate carbon footprint calculations in its product data management system that is used worldwide by all the Prysmian Group design departments. This functionality shows for each cable design the breakdown of the carbon footprint into the contribution of the metals, the other materials and the contribution of the manufacturing processes. The carbon footprint data per weight unit for the metals and other materials is taken from the widely recognized EcoInvent database. And as Prysmian Group is a globally operating company, the standard practise is to use globally valid data.



bar chart showing cradle to gate carbon footprint breakdown of Delft MV 1-core cables with solid aluminium conductors scaled to 100%

<sup>1</sup> <https://www.prysmiangroup.com/en/sustainability>, 28 October 2020  
<sup>2</sup> [https://www.prysmiangroup.com/sites/default/files/atoms/files/Prysmian\\_DNF\\_2019\\_ENG\\_DEF.pdf](https://www.prysmiangroup.com/sites/default/files/atoms/files/Prysmian_DNF_2019_ENG_DEF.pdf), page 42



bar chart showing cradle to gate carbon footprint breakdown of Delft MV 3-core cables with solid aluminium conductors scaled to 100%

From these charts it is clear that the metal part has the biggest contribution to the cradle to gate carbon footprint of the Prysmian MV cables with solid aluminium conductor and copper wire screen produced in Delft, the Netherlands. In all cases more than 75% of the footprint. And it is also very clear that the contribution of the manufacturing processes is the smallest. In all cases less than 5% of the total cradle to gate footprint.

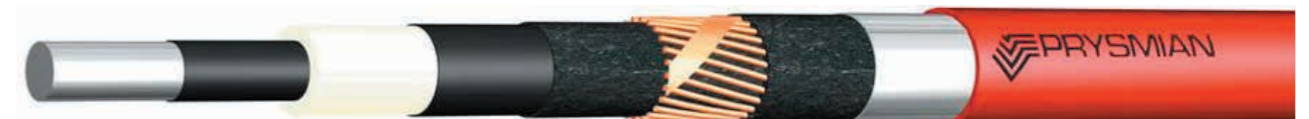
### Prysmian Group acts and delivers

In September the supplier of aluminium for conductors that are used in MV cables started to supply so-called "low carbon aluminium". The product's composition, mechanical and electrical properties have not changed, but according to the certified Environmental Product Declaration of this European supplier the carbon footprint of the aluminium rod is only 4.0 kg CO<sub>2</sub>/kg Al, due to the fact that only renewable energy would be used to manufacture the aluminium rod. This is a massive reduction compared to the global EcoInvent value of 25.3 kg CO<sub>2</sub>/kg Al, also when compared to the Europe EcoInvent value of 9.9 kg CO<sub>2</sub>/kg Al.

The positive impact is illustrated for five very common MV power distribution cables in The Netherlands, two 3-core and three 1-core cables. All cables have solid aluminium conductors. Some are XLPE insulated, some are insulated with thermoplastic P-laser insulation. All have a copper wire screen and a PE outer sheath.



Delft MV 3-core cable with solid aluminium conductors, XLPE or P-laser insulation, copper wire screen and PE outer sheath

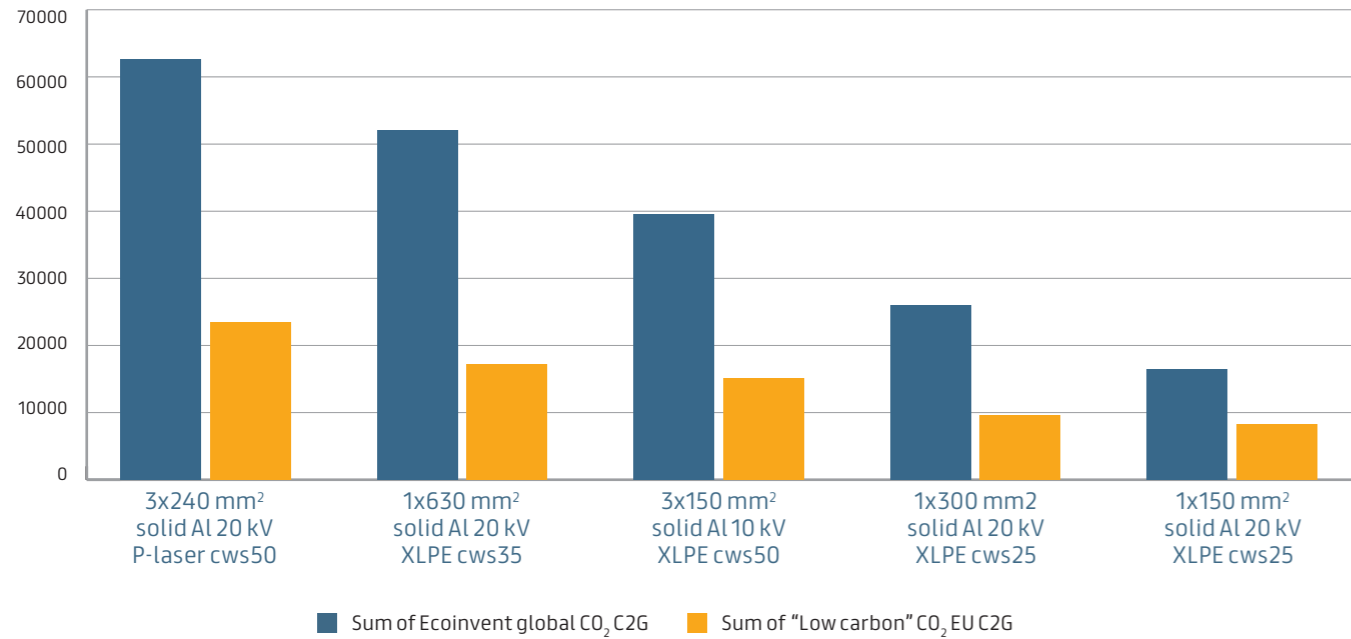


Delft MV 1-core cable with solid aluminium conductor, XLPE or P-laser insulation, copper wire screen and laminated PE outer sheath



Delft MV 1-core cable with solid aluminium conductor, XLPE or P-laser insulation, copper wire screen and PE outer sheath

The graphic and the tables show the reduction of the cradle to gate carbon footprint sorted from the cable with the biggest footprint to the one with the smallest.



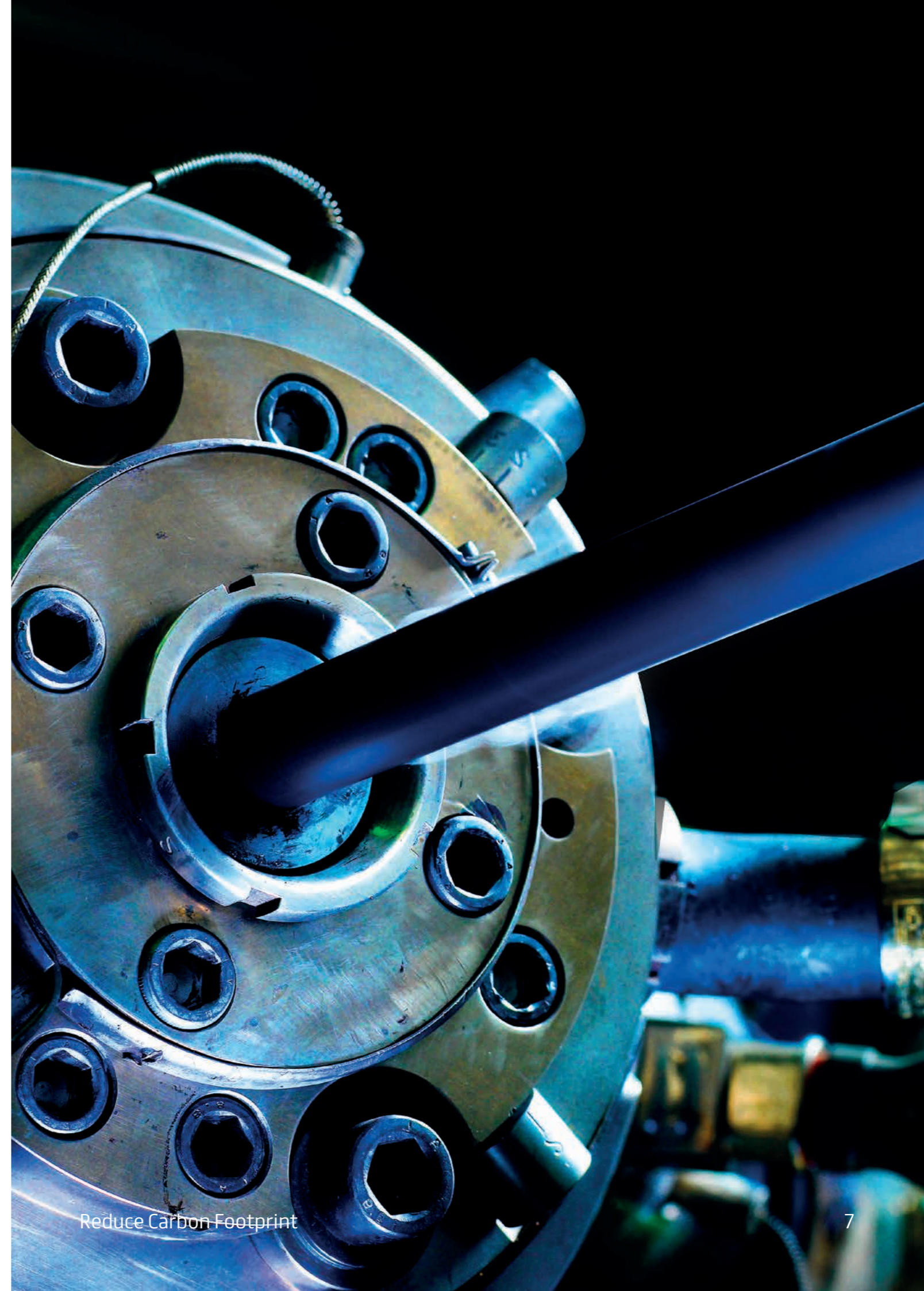
Cable type	CO <sub>2</sub> metal "global"	CO <sub>2</sub> other material	CO <sub>2</sub> manufacturing	Total CO <sub>2</sub> "global"	Metal part of footprint
3x240 mm <sup>2</sup> solid Al 20 kV P-laser cws50	54.963	6.352	1.392	62.707	88%
1x630 mm <sup>2</sup> solid Al 20 kV XLPE cws35	48.203	3.031	879	52.113	92%
3x150 mm <sup>2</sup> solid Al 10 kV XLPE cws50	34.498	4.065	934	39.497	87%
1x300 mm <sup>2</sup> solid Al 20 kV XLPE cws25	23.208	2.234	598	26.040	89%
1x150 mm <sup>2</sup> solid Al 20 kV XLPE cws25	14.181	1.794	465	16.440	86%

Cable type	CO <sub>2</sub> metal EU "low carb"	CO <sub>2</sub> other material	CO <sub>2</sub> manufacturing	Total CO <sub>2</sub> EU "low carb"	Metal part of footprint	Low carb vs global
3x240 mm <sup>2</sup> solid Al 20 kV P-laser cws50	15.726	6.352	1.392	23.470	67%	-63%
1x630 mm <sup>2</sup> solid Al 20 kV XLPE cws35	13.266	3.031	879	17.176	77%	-67%
3x150 mm <sup>2</sup> solid Al 10 kV XLPE cws50	10.121	4.065	934	15.120	67%	-62%
1x300 mm <sup>2</sup> solid Al 20 kV XLPE cws25	6.815	2.234	598	9.647	71%	-63%
1x150 mm <sup>2</sup> solid Al 20 kV XLPE cws25	6.070	1.794	465	8.329	73%	-49%

### Next steps for further reduction of the footprint

Further opportunities to reduce the cradle to gate carbon footprint of MV cables from Delft will be explored. Without going into the detail, it should be possible to source low carbon metal for more applications, increasing the recycled content of metals and other materials will help as well. This is the way forward Prysmian Group will follow together with the material suppliers.

It is also recommended to explore together with the Prysmian customers, reduced cable dimensions below the present cable standard requirements. This should be tested following type test plans and in real life pilots.



**Prysmian Group**

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