



Material use in Vestas turbines

This brochure provides an overview of the materials used in all wind turbines in Vestas' current portfolio.

Main materials used

- Steel and iron materials
- Aluminium and alloys
- Copper and alloys
- Polymer materials
- Glass / carbon composites
- Electronics / electrics
- Lubricants and fluids

By knowing how Vestas' products and materials contribute to the environmental performance of the wind plant, it is possible to make fact-based and informed decisions that will minimise overall environmental impacts. Life Cycle Assessments are used to provide detailed knowledge regarding the material composition of the wind plant.

The figures on the following pages show the typical material breakdown of Vestas' turbines.

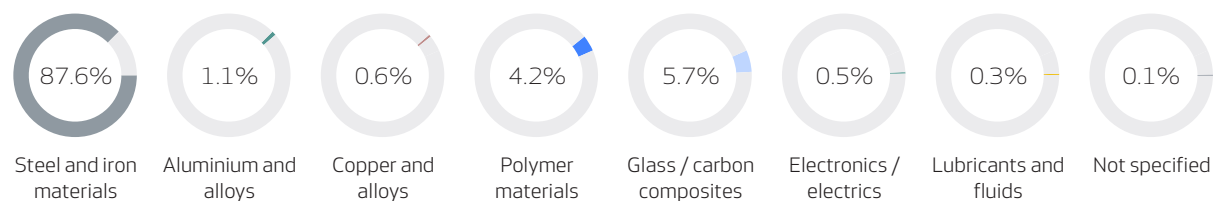
For example, a V162-6.2 MW™ turbine is composed of around 88% metals (e.g. steel, iron, copper and aluminium), 10% polymers and composite materials, and the remainder a mixture of electronics/electrical items, lubricants and fluids, etc.

EnVentus™ Platform Turbines



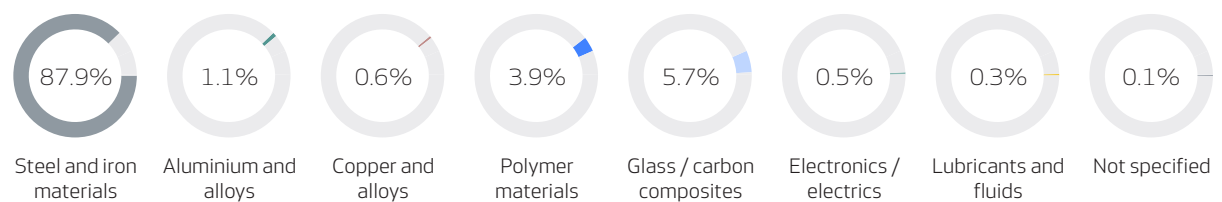
V172-7.2 MW™

166m hub height and wind class IECS. Total mass: 928 tonnes*



V162-7.2 MW™

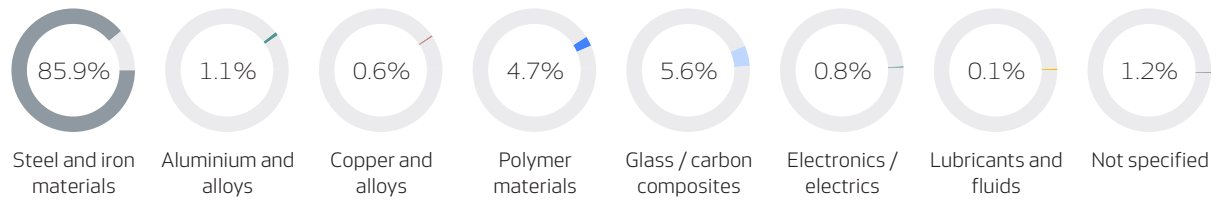
166m hub height and wind class IECS. Total mass: 894 tonnes*



* Values are based on an internal streamlined Life Cycle Assessment

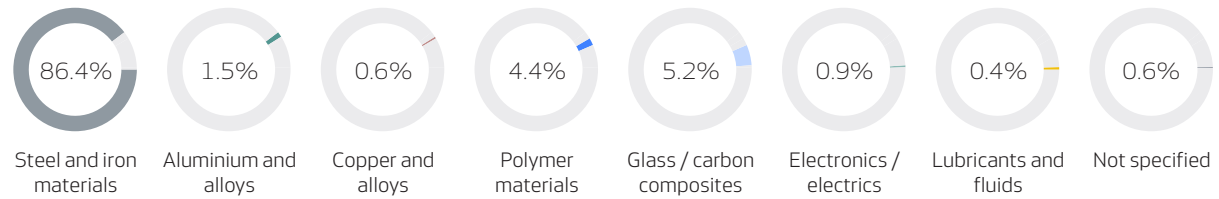
V162-6.2 MW™

149m hub height and wind class IECS. Total mass: 801 tonnes *



V150-6.0 MW™

155m hub height and wind class IECS. Total mass: 773 tonnes *



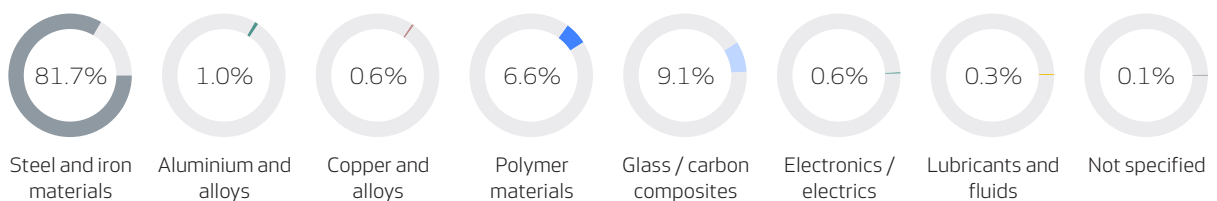
* Values are based on an externally reviewed Life Cycle Assessment available on vestas.com

4 MW Platform Turbines



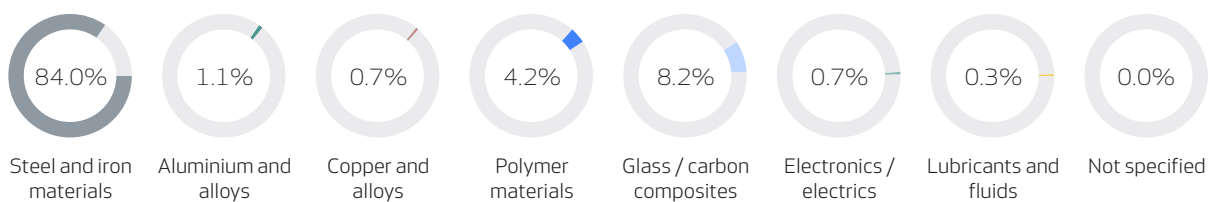
V163-4.5 MW™

98m hub height and wind class IECS. Total mass: 501 tonnes *



V155-3.6 MW™

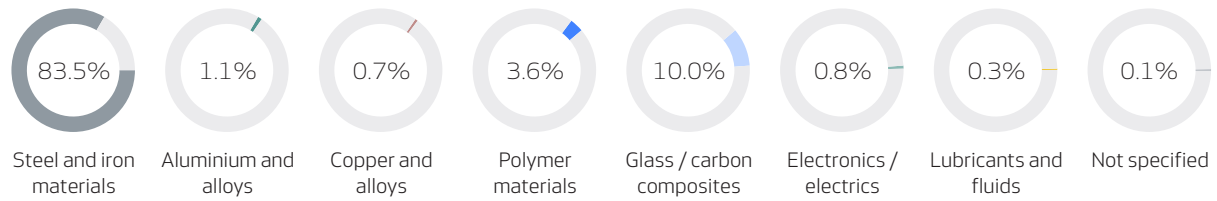
105m hub height and wind class IECS. Total mass: 441 tonnes *



* Values are based on an internal streamlined Life Cycle Assessment

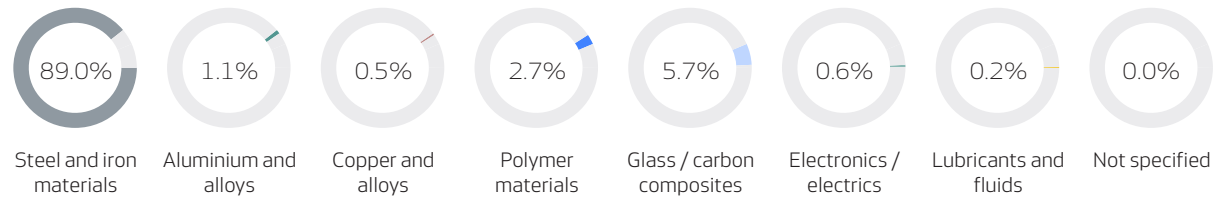
V150-4.5 MW™

105m hub height and wind class IEC3B. Total mass: 446 tonnes *



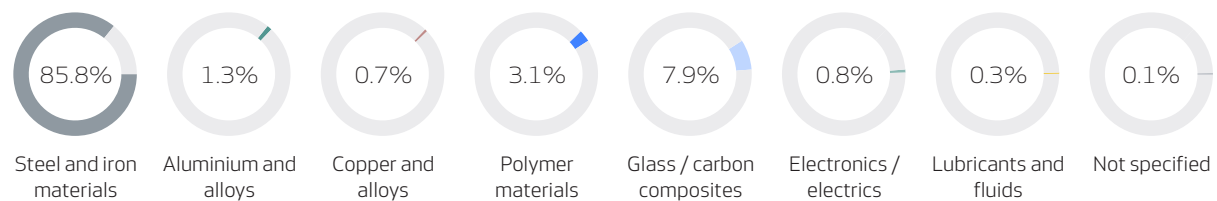
V150-4.2 MW™

155m hub height and wind class IEC3B. Total mass: 682 tonnes *



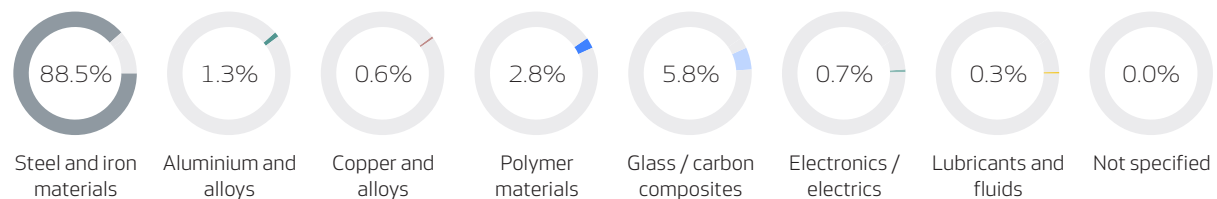
V136-4.5 MW™

112m hub height and wind class IEC2B. Total mass: 466 tonnes *



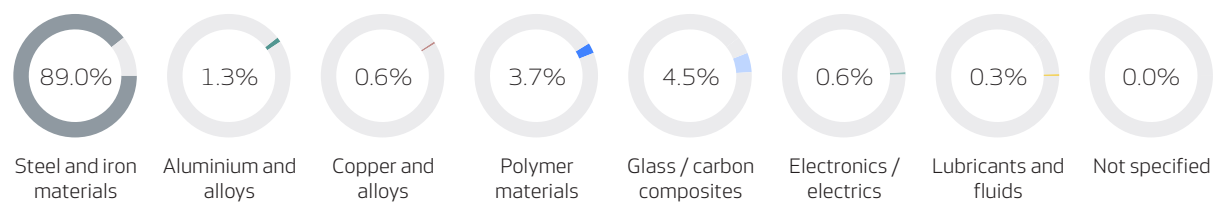
V136-4.2 MW™

112m hub height and wind class IEC2B. Total mass: 544 tonnes *



V136-3.45 MW®

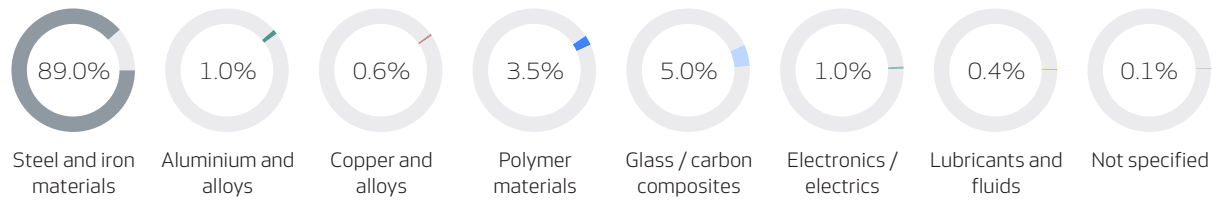
112m hub height and wind class IEC3A. Total mass: 570 tonnes *



* Values are based on an externally reviewed Life Cycle Assessment available on vestas.com

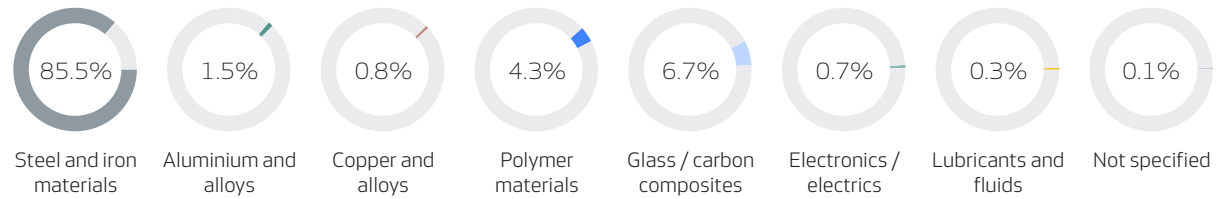
V126-3.45 MW[®]

117m hub height and wind class IEC2A. Total mass: 530 tonnes *



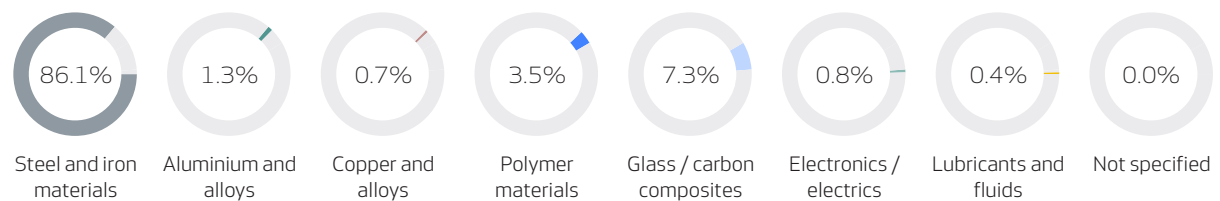
V117-4.2 MW[™]

91,5m hub height and wind class IEC1B. Total mass: 425 tonnes *



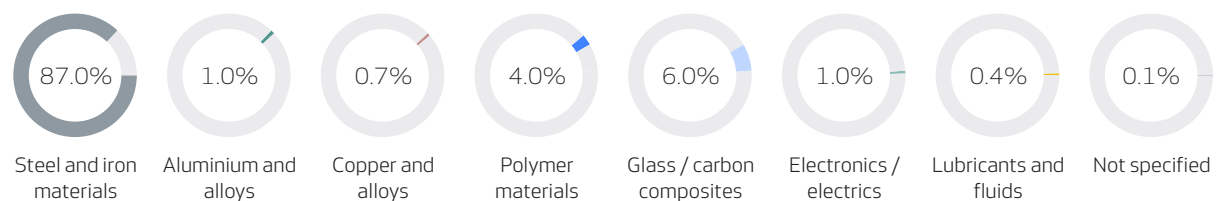
V117-3.45 MW[®]

91,5m hub height and wind class IEC1B. Total mass: 436 tonnes *



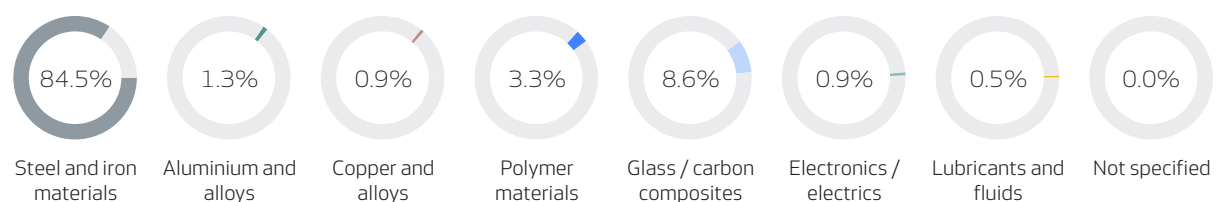
V112-3.45 MW[®]

94m hub height and wind class IEC1A. Total mass: 438 tonnes *



V105-3.45 MW[™]

72,5m hub height and wind class IEC1A. Total mass: 357 tonnes *



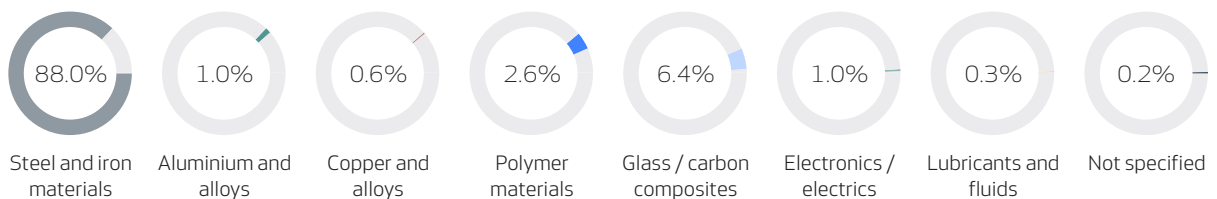
* Values are based on an externally reviewed Life Cycle Assessment available on vestas.com

2 MW Platform Turbines



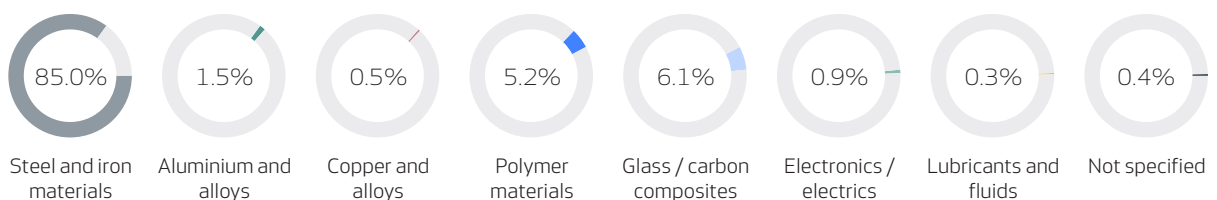
V120-2.2 MW™

122m hub height and wind class IECS. Total mass: **317 tonnes** *



V110-2.0 MW™

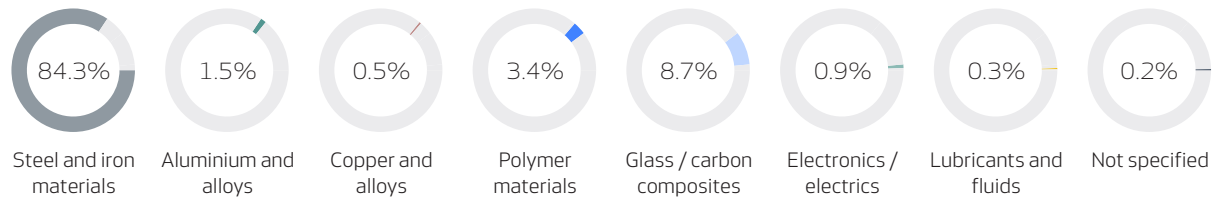
80m hub height and wind class IEC3A. Total mass: **248 tonnes** *



* Values are based on an externally reviewed Life Cycle Assessment available on vestas.com

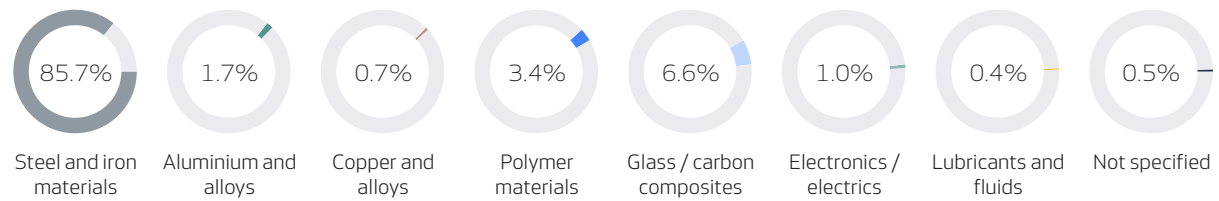
V100-2.0 MW[®]

80m hub height and wind class IEC2B. Total mass: 230 tonnes *



V90-2.0 MW[™]

80m hub height and wind class IEC3A. Total mass: 240 tonnes *



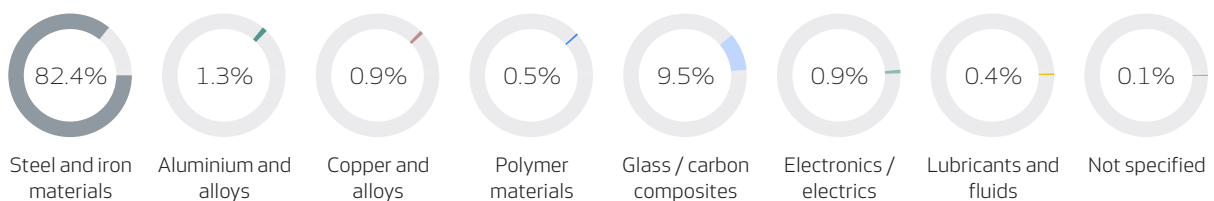
* Values are based on an externally reviewed Life Cycle Assessment available on vestas.com

Offshore Platform Turbines



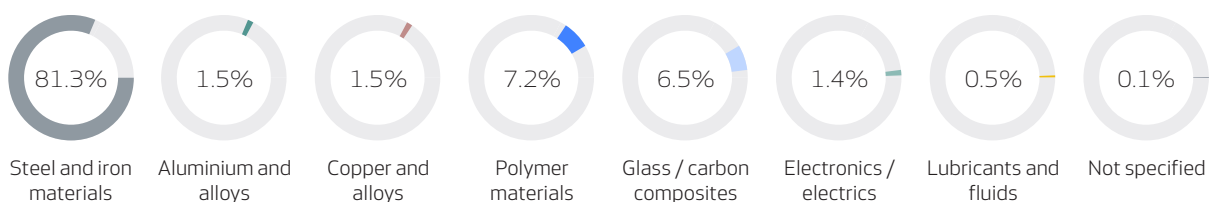
V236-15 MW™

143m hub height and wind class IEC S. Total mass: 1530 tonnes *



V174-9.5 MW™

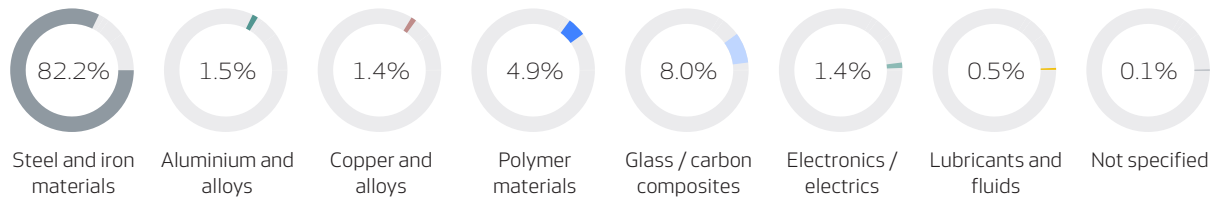
119m hub height and wind class IEC 1B. Total mass: 893 tonnes *



* Values are based on an internal streamlined Life Cycle Assessment

V164-9.5 MW™

87m hub height and wind class IECS. Total mass: 909 tonnes *



* Values are based on an internal streamlined Life Cycle Assessment

Vestas Wind Systems A/S

Hedeager 42 . 8200 Aarhus N . Denmark

Tel: +45 9730 0000 . Fax: +45 9730 0001

vestas@vestas.com . vestas.com