



Model Name: Connecting Rod

Material: 1350 Alloy
Recycled content: 0.00 %
Weight: 5608.71 g

Manufacturing process: Milled

Surface Area: 2.90E+5 mm²

Built to last: 10 year

Duration of use: 10 year





The choice of manufacturing region determines the energy sources and technologies used in the modeled material creation and manufacturing steps of the product's life cycle.



The use region is used to determine the energy sources consumed during the product's use phase (if applicable) and the destination for the product at its end-of-life. Together with the manufacturing region, the use region is also used to estimate the environmental impacts associated with transporting the product from its manufacturing location to its use location.

Summary

Learn more about Life Cycle Assessment 🧼

Sustainability Report

Material: Connecting Rod 1350 Alloy Weight: 5608.71 g Manufacturing process: 2.90E+5 mm² Surface Area: Milled 0.00 % Recycled content: Built to last: 10 year Duration of use: 10 year

1350 Alloy **Material** 0.00 %

2.20 USD/kg **Material Unit Cost**

Manufacturing Use

Region: Asia Region: Asia Process: Milled Duration of use: 10 year

Electricity consumption: 0.00 kWh/lbs Natural gas consumption: 0.00 BTU/lbs Scrap rate: 0.00 % Built to last: 10 year No Paint

End of Life Transportation

Truck distance: 1600 km Recycled: 15 % Train distance: 0.00 km Incinerated: 2.0 % Ship distance: 6100 km Landfill: 83 %

Airplane Distance: 0.00 km

Comments

Part is painted:

Sustainability Report

Connecting Rod Material: 1350 Alloy Weight: 5608.71 g Manufacturing process: Surface Area: 2.90E+5 mm² Milled Recycled content: 0.00 % Built to last: 10 year Duration of use: 10 year

Environmental Impact (calculated using CML impact assessment methodology)

Carbon Footprint



Material: 70 kg CO₂e Manufacturing: 0.00 kg CO₂e Transportation: 0.537 kg CO₂e End of Life: 0.200 kg CO₂e

Total Energy Consumed



Material: 870 MJ Manufacturing: 0.00 MJ Transportation: 7.2 MJ End of Life: 0.860 MJ



Air Acidification

0.480 kg SO₂e

- Material: 0.474 kg SO₂e
- Manufacturing: 0.00 kg SO₂e
- Transportation: 5.1E-3 kg SO₂e
- End of Life: 4.7E-4 kg SO₂e

Water Eutrophication



Manufacturing: 0.00 kg PO₄e

Material:

7.2E-4 kg PO₄e Transportation:

0.015 kg PO₄e

End of Life: 7.0E-5 kg PO₄e

Material Financial Impact 12.20 USD

Comments

SOLIDWORKS





Glossary

Air Acidification - Sulfur dioxide, nitrous oxides other acidic emissions to air cause an increase in the acidity of rainwater, which in turn acidifies lakes and soil. These acids can make the land and water toxic for plants and aquatic life. Acid rain can also slowly dissolve manmade building materials such as concrete. This impact is typically measured in units of either kg sulfur dioxide equivalent (SO₂), or moles H+ equivalent.

Carbon Footprint - Carbon-dioxide and other gasses which result from the burning of fossil fuels accumulate in the atmosphere which in turn increases the earth's average temperature. Carbon footprint acts as a proxy for the larger impact factor referred to as Global Warming Potential (GWP). Global warming is blamed for problems like loss of glaciers, extinction of species, and more extreme weather, among others.

Total Energy Consumed - A measure of the non-renewable energy sources associated with the part's lifecycle in units of megajoules (MJ). This impact includes not only the electricity or fuels used during the product's lifecycle, but also the upstream energy required to obtain and process these fuels, and the embodied energy of materials which would be released if burned. Total Energy Consumed is expressed as the net calorific value of energy demand from non-renewable resources (e.g. petroleum, natural gas, etc.). Efficiencies in energy conversion (e.g. power, heat, steam, etc.) are taken into account.

Water Eutrophication - When an over abundance of nutrients are added to a water ecosystem, eutrophication occurs. Nitrogen and phosphorous from waste water and agricultural fertilizers causes an overabundance of algae to bloom, which then depletes the water of oxygen and results in the death of both plant and animal life. This impact is typically measured in either kg phosphate equivalent (PO₄) or kg nitrogen (N) equivalent.

Life Cycle Assessment (LCA) - This is a method to quantitatively assess the environmental impact of a product throughout its entire lifecycle, from the procurement of the raw materials, through the production, distribution, use, disposal and recycling of that product.

Material Financial Impact - This is the financial impact associated with the material only. The mass of the model is multiplied by the financial impact unit (units of currency/units of mass) to calculate the financial impact (in units of currency).

Learn more about Life Cycle Assessment





