kg Hot rolled structural steel

Steel is a ferrous metal and is an alloy of iron and carbon, as well as potential other elements. It has a very high tensile strength. Steel has been used in the construction industry for over a century.

The core material for making steel is iron, which is found in iron ore. Iron is extracted from iron ore in blast furnaces through the smelting process, while controlling for the content of carbon. The molten steel is usually further processed before being cast for its final use.

Steel is commonly used in the construction industry, mainly as a structural material. Hot rolled structural steel is used to produce a range of structural elements, such as reinforcement bars, I-beams and railroad tracks.

Category *Metals*

Type *Steel*

Functional unit *kg*

Specific heat *490 J/(kg·K)*

Density *7 850 kg/m³*

Common uses
Reinforcement bars, beams, railroad tracks

Process name
Steel hot rolled (custom)

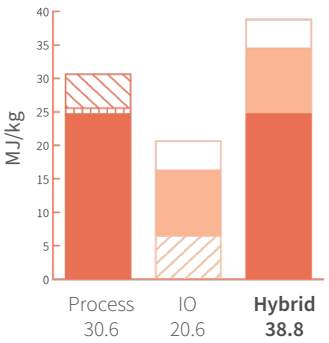
Input-output sector
Structural Metal Product Manufacturing

Further information
doi.org/10.26188/5da55550a40e9

Material variations	Unit	Energy (MJ/unit)	Water (L/unit)	GHG emissions ($kgCO_2e$/unit)
Hot rolled structural steel	*kg*	*38.8*	*37.1*	*2.9*
Steel reinforcement bar - 6 mm dia.	m	8.6	8.2	0.6
Steel reinforcement bar - 8 mm dia.	m	15.3	14.6	1.1
Steel reinforcement bar - 12 mm dia.	m	34.5	32.9	2.6

TOP THREE INPUTS

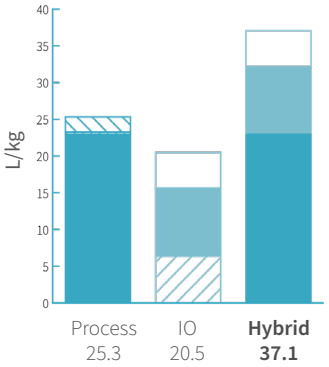
- 53.6% Steel, converter, low-alloyed, at plant/RER U/ AusSD U
- 10.0% Hot rolling, steel/RER U/ AusSD U
- 6.9% Basic Non-Ferrous Metal Manufacturing



ENERGY
38.8 MJ/kg

TOP THREE INPUTS

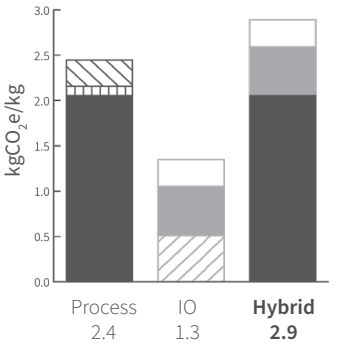
- 44.8% Steel, converter, low-alloyed, at plant/RER U/ AusSD U
- 17.1% Hot rolling, steel/RER U/ AusSD U
- 3.8% Basic Non-Ferrous Metal Manufacturing



WATER
37.1 L/kg

TOP THREE INPUTS

- 60.9% Steel, converter, low-alloyed, at plant/RER U/ AusSD U
- 10.2% Hot rolling, steel/RER U/ AusSD U
- 4.4% Basic Non-Ferrous Metal Manufacturing



GREENHOUSE GAS EMISSIONS
2.9 $kgCO_2e/kg$