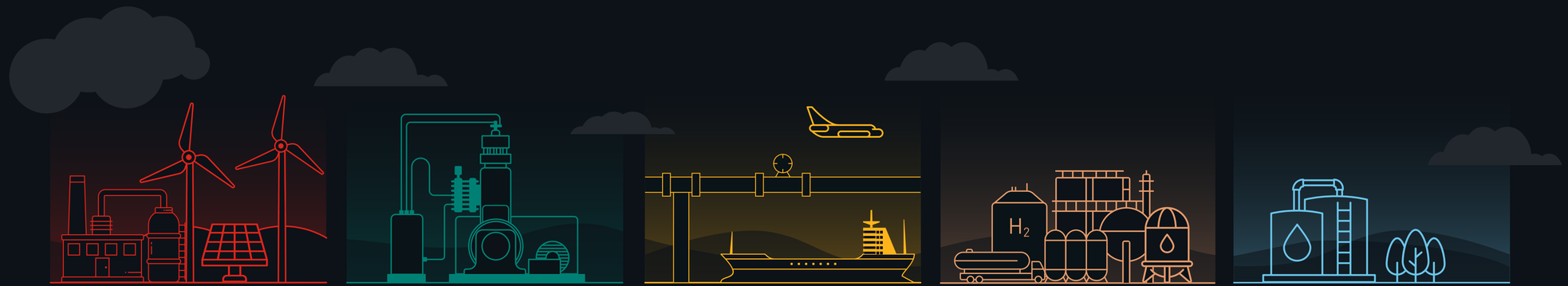
smiths

Hydrogen

Hydrogen is a versatile energy carrier and can be produced in many ways. It is historically produced using fossil fuels that generate CO_2 emissions. However, hydrogen is increasingly produced using emission-free renewable resources. This makes it an important fuel for the energy transition.



PRODUCTION

The two main production methods are steam reforming (where steam is used to produce hydrogen from a methane source, such as natural gas) and electrolysis (splitting water with electricity).

COMPRESSION

Hydrogen needs to be safely compressed or liquified to be transported. Compressed hydrogen is also used to make ammonia (a main ingredient in fertiliser).

TRANSPORATION

Compressed hydrogen is moved from the point of production to the point of use via pipeline or large tanker. Liquid Hydrogen is transported via tankers.

STORAGE

Hydrogen can be stored as a gas in high-pressure tanks, or underground in rock caverns. It can also be stored in liquid form under very low temperatures due to its low boiling point.

END USE

Hydrogen is mostly used for oil refining and chemical production and also as an energy carrier. Gasoline, diesel and fertiliser are currently three of its main end uses. Additional future end uses are green steel, seasonal energy storage, power generation and clean fuels such as clean methanol or ammonia.

Our products support each part of the Hydrogen process:

Mechanical seals: Enable safe flow of liquids & gases in pumps, compressors and turbines, preventing or minimising leakage.

Seal support systems: Extends life-cycle of seals, and can provide real-time, digital monitoring.

Power transmission couplings: Manage power flow and connect the different parts of rotating machinery.

Filtration: Purifies and filters process fluid ensuring purity and safeguarding essential components, as well as product and catalysts.

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