



# POWERING THE PUSH FOR CLEAN HYDROGEN.

## Hydrogen @ KSB

South Africa & Namibia: Green Hydrogen and Power-to-X

Ulrich Stahl | September 2023

**KSB is one of the world's leading suppliers of pumps and valves as well as comprehensive services.**

# KSB in figures - Financial Year 2022

## Employees



**15,693**

as at 32 December 2022

## Sales revenue



**2,573**

€ million

## EBIT



**169.1**

€ million

## Global presence



**300**

locations worldwide

**Experience. Since 1871.  
State of the Art for more than 150 Years**

Comprehensive service - close to you!

## KSB South Africa



KSB Pumps (SA), established in 1959 and based in Johannesburg, is a subsidiary of the KSB Group a leading pumps and valves supplier with more than 150 years of experience.

CORNER NORTH REEF ROAD & ACTIVIA ROAD, GERMISTON  
(JOHANNESBURG), 1401, REPUBLIC OF SOUTH AFRICA

### KSB Pumps & Valves (PTY) Ltd SA

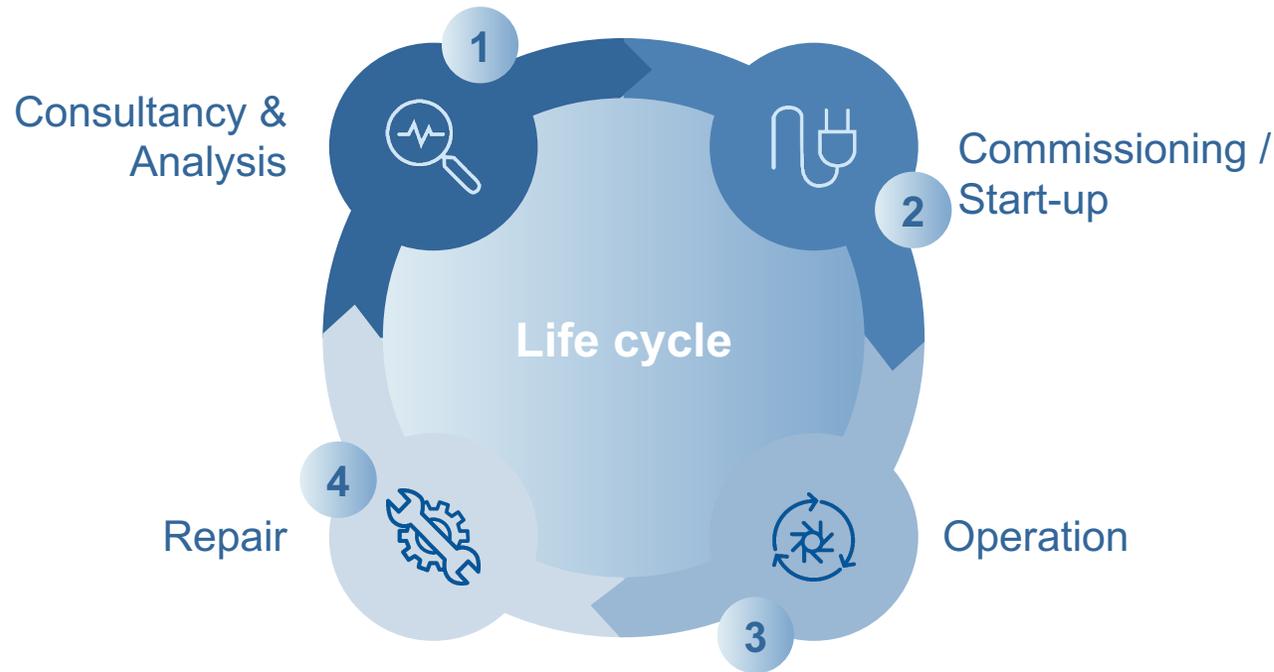


KSB South Africa has modern manufacturing and sales facilities for pumps and valves in Johannesburg. **KSB South Africa is one of the largest KSB Manufacturing entities outside of Germany and France,**

- ✓ **9 additional Sales and SupremeServ branches** in Cape Town, Durban, Nelspruit, Port Elizabeth, Secunda, Upington, Vereeniging, Richards Bay and Rustenburg, Ghana in West Africa and several Project departments (for Sub Saharan Africa) located in KSB's headquarter in Johannesburg
- ✓ **legal entities** in Sub-Saharan Africa in Nigeria, Kenya, Angola, Zambia and Namibia

Comprehensive service - close to you!

# KSB South Africa - Our Services



## KSB South Africa has fully equipped operations facilities

- ✓ Machining
- ✓ Welding
- ✓ Assembling
- ✓ Testing

ISO certificated

Besides pumps produced by KSB our KSB Service team has the availability to **repair almost all centrifugal pumps and wet motors as well**

## Valves repair Centre

specialising in high pressure steam valve repair in accordance to SANS 347 and SA Pressure equipment regulations.

Comprehensive service - close to you!

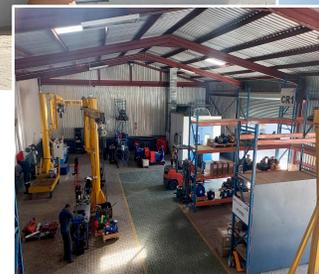
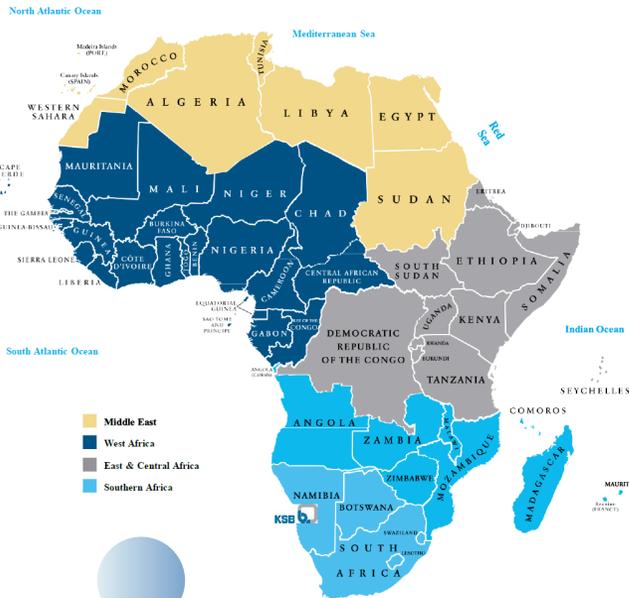
# KSB Namibia services and benefits



KSB Pumps and Valves always strive to meet customer's needs with regards to efficiency, lowest possible cost and improved reliability.

BIRMINGHAM STREET 27, 10000 WINDHOEK

## KSB Pumps & Valves (PTY) Ltd Namibia



### Your benefits

- ✓ **Local contact** for all service requirements involving rotating equipment and valves
- ✓ **Highly trained, qualified** service engineers
- ✓ **Added safety** based on know-how only a manufacturer can provide
- ✓ **Quality standard** according to DIN EN ISO 9001
- ✓ **Warranty** on all repair



## What do we strive for the following days?

We would like **to get in touch with the relevant players...**

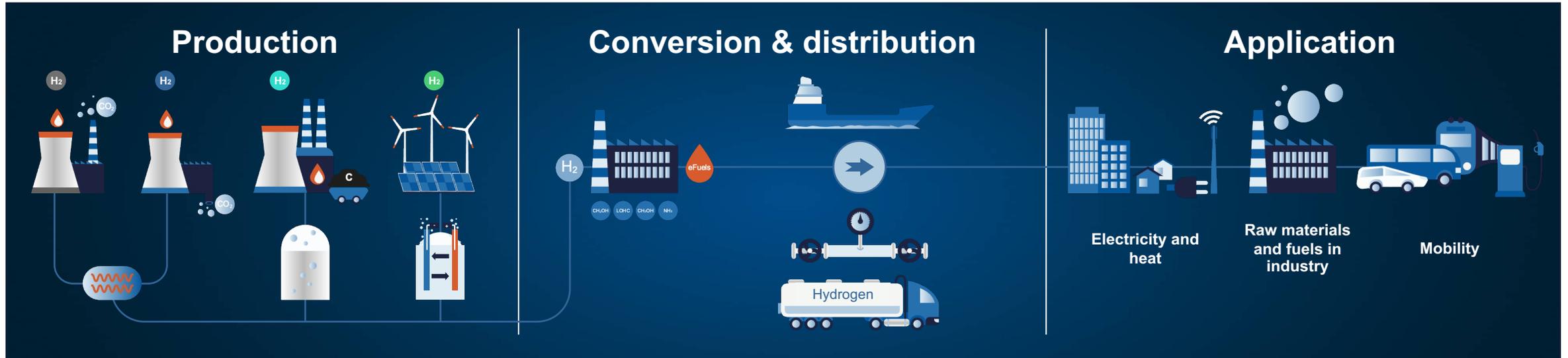
... to present the strengths of our **products**, our core **competencies around know how, technology, quality, materials**

... to present the strengths of our **production, sales and service presence on site** in South Africa and Namibia

... to step into the planning and implementation of the **Hydrogen/PtX related projects**

... reach possible **cooperations** and **consideration** of KSB

# KSB hydrogen business: Experience along the hydrogen value chain



> 22 Mio. €

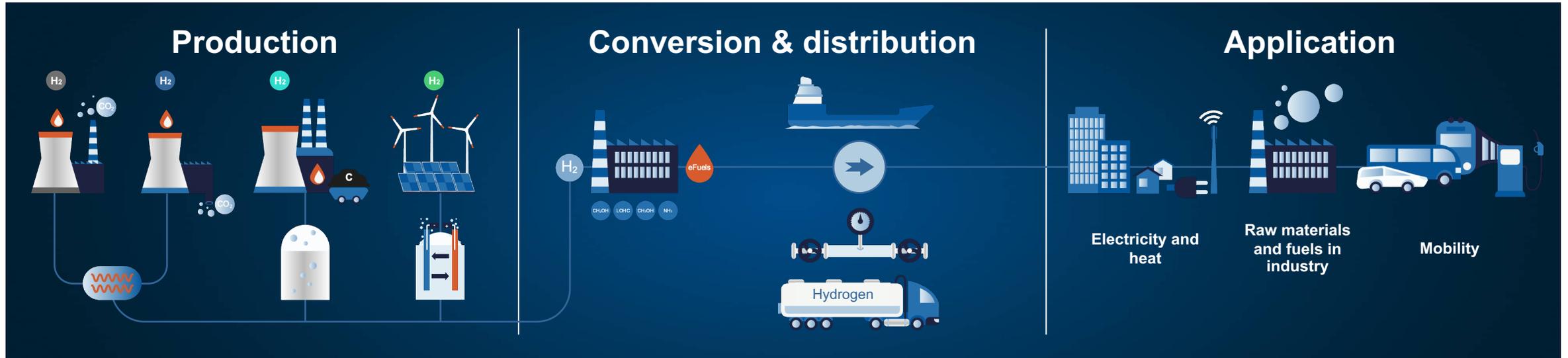
Sales revenue

> 170

Ongoing projects

Experience with hydrogen scenarios is already available in many areas: **KSB is „H<sub>2</sub> active“!**

# The existing KSB pump and valve range covers a wide spectrum of different requirements for the hydrogen economy

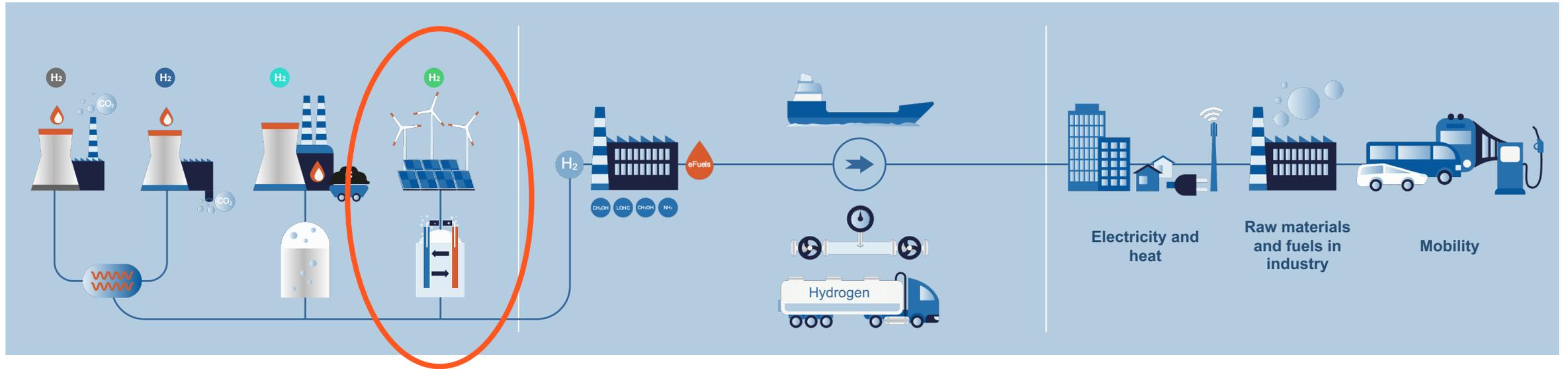


# The hydrogen value chain - **Electrolysis**

## Production

## Conversion & distribution

## Application



# Hydrogen and CCU/CCS

## KSB Electrolyser

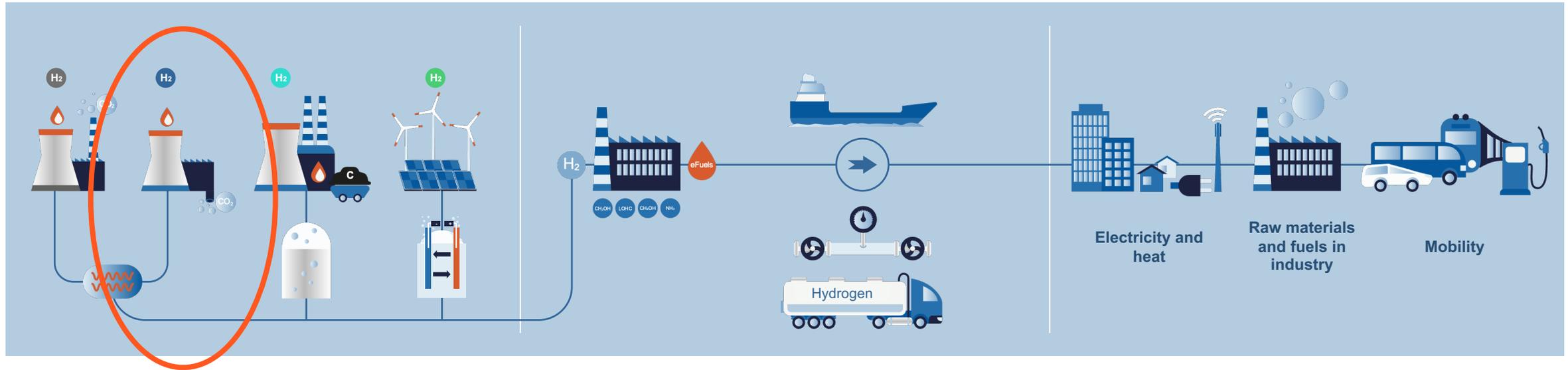


# The hydrogen value chain - Carbon Capture, Utilization and Storage

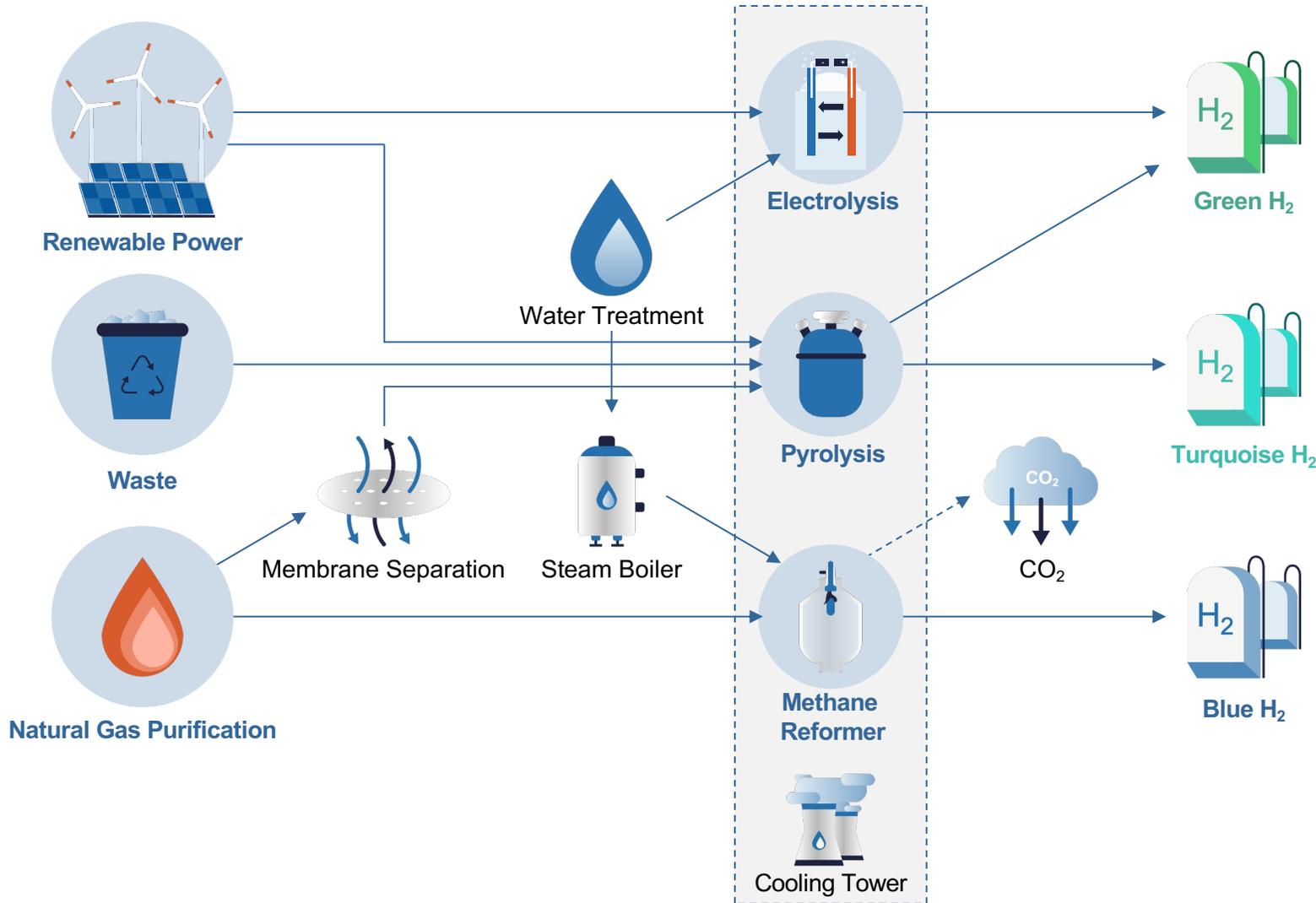
## Production

## Conversion & distribution

## Application



# KSB pumps lead products in H<sub>2</sub> applications and coverage of requirements



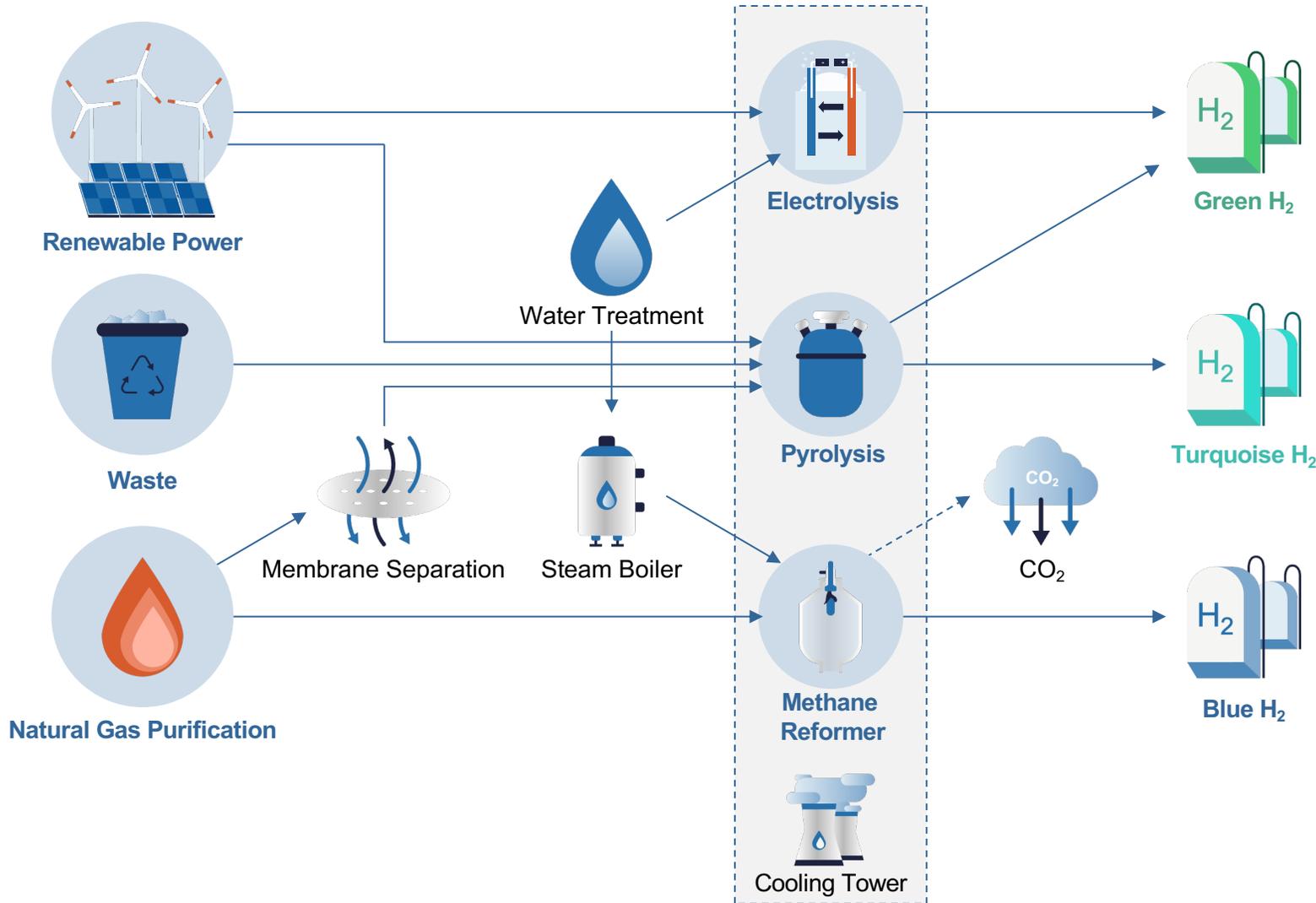
## AEL/PEM Electrolysis

<b>MACB</b>	75 °C	20 bar.g
	Alkaline solution 67 m³/h	
<b>MegaCPK</b>	54 °C	9 bar.g
	Deionised water 356 m³/h	

## Steam Methane Reforming + CCS

<b>HGC</b>	66 °C	109 bar.g
	Boiler feed water 243 m³/h Chr. steel, plan brgs	
<b>CHTR</b>	113 °C	35 bar.g
	Lean solution+CO2 175 m³/h Double sealed, instrumentation	
<b>RPH</b>	38 °C	33 bar.g
	Condensate+CO2 5m³/h @ 33 bar.g , 38 °C Solvent storage 25m³/h @ 2 bar.g, 38 °C Mech design temp -140 °C	

# KSB valves lead products in H<sub>2</sub> applications and coverage of requirements



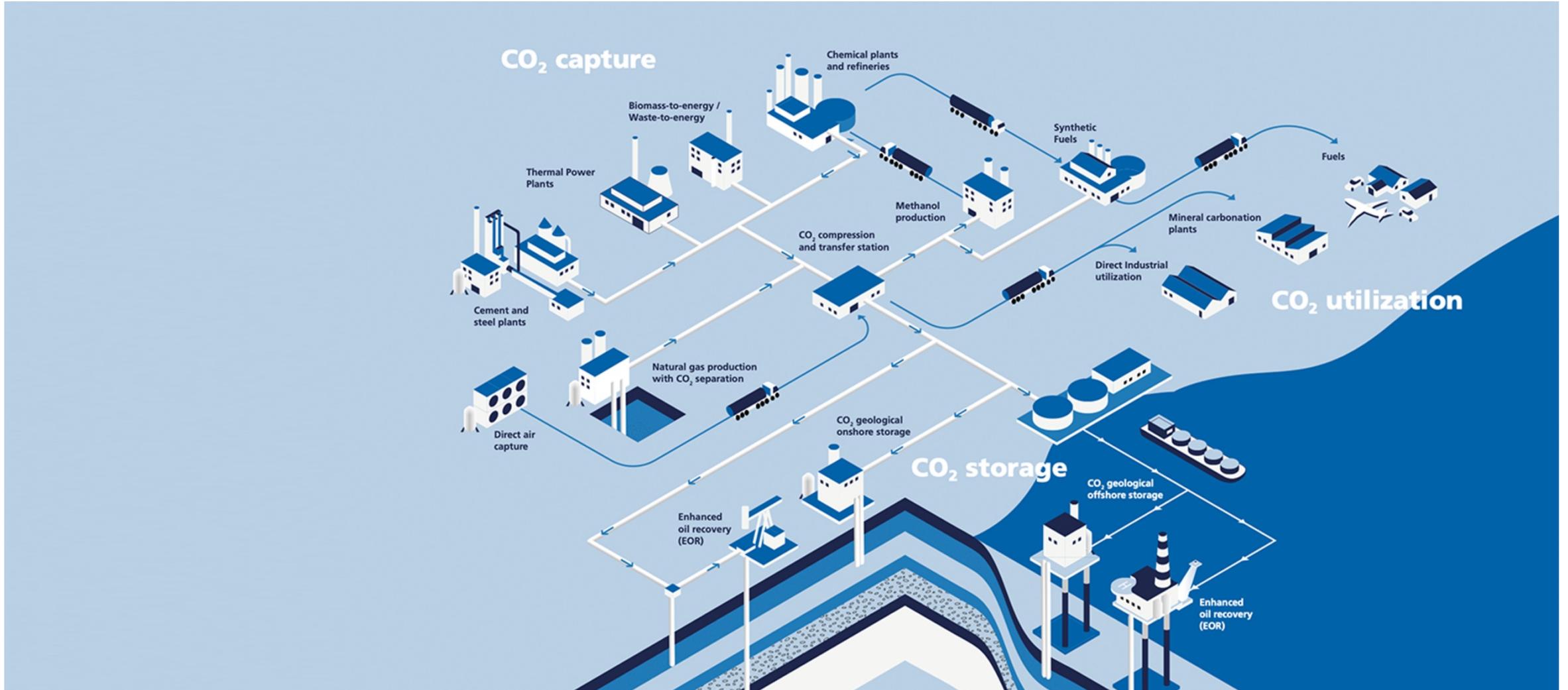
## AEL/PEM Electrolysis

<b>KE PFE / SISTO-20 PTFA</b>	<b>110 °C</b>	<b>1-20 bar</b>
Wet hydrogen, oxygen and demin water, 110 °C		
<b>SISTO-20</b>	<b>70 °C</b>	<b>20 bar</b>
GH <sub>2</sub> saturated with water vapour; Demin water		

## Steam Methane Reforming + CCS

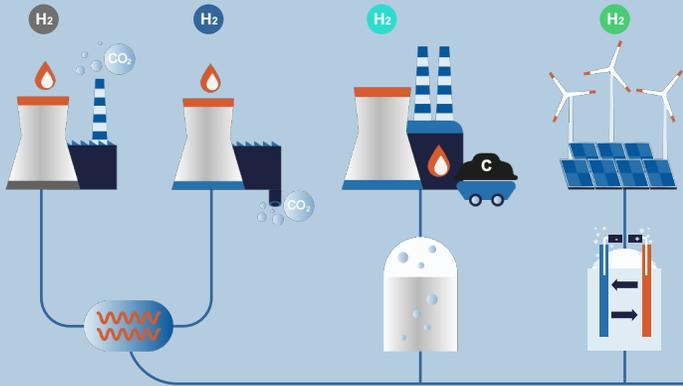
<b>SICCA</b>	<b>540 °C</b>	<b>155 bar</b>
Removal of hydrogen sulfide H <sub>2</sub> S at high temperatures		
<b>MIL 70000</b>	<b>500 °C</b>	<b>450 bar</b>
Super Critical Carbon Di-oxide Extraction		
<b>DANAIS / Triodis</b>	<b>-253°C</b>	<b>16 bar</b>
For liquefied CO <sub>2</sub> and even LH <sub>2</sub> requirements, Fire safe + ATEX requirements 2,		

# Carbon Capture, Utilization and Storage

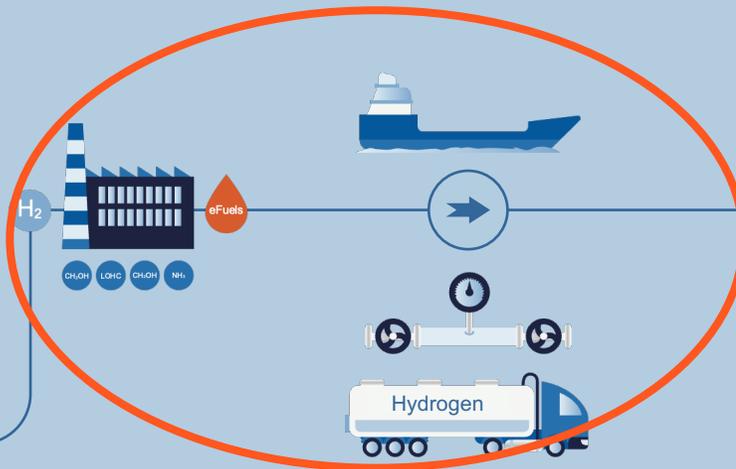


# The hydrogen value chain - Conversion to derivatives and transport

## Production



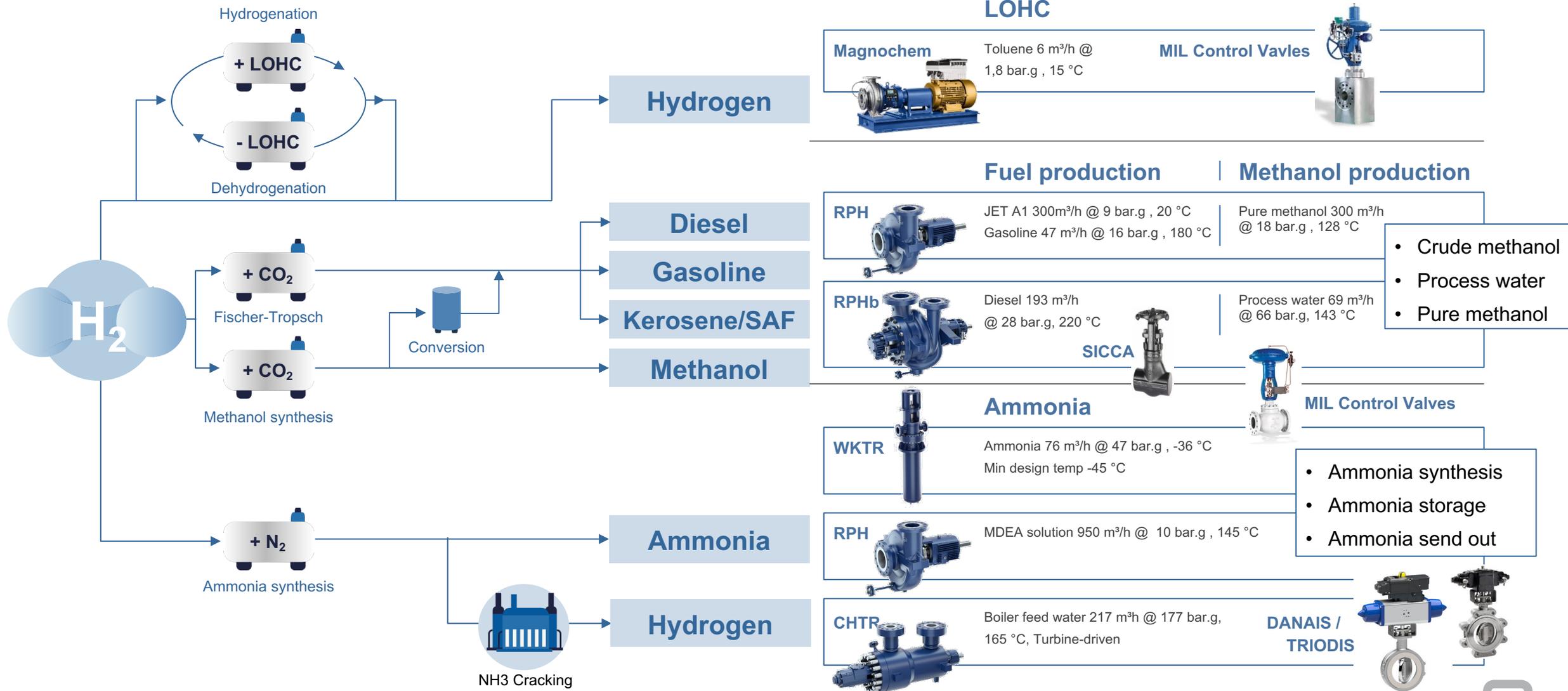
## Conversion & distribution



## Application

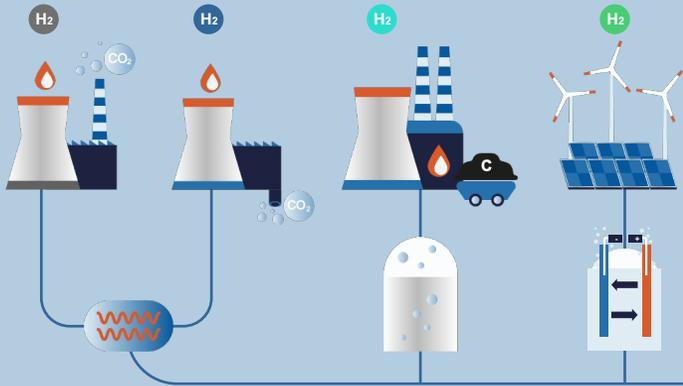


# KSB products in H<sub>2</sub> applications and coverage of requirements

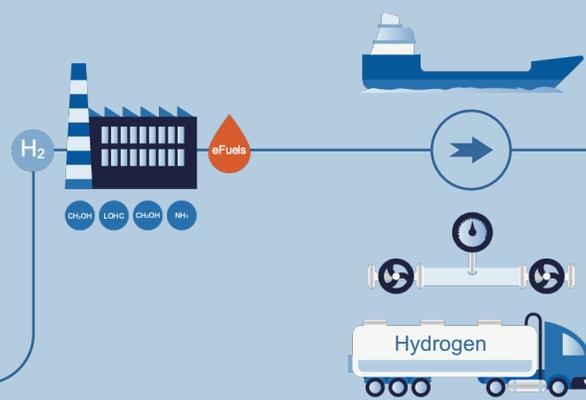


# The hydrogen value chain - Usage of hydrogen

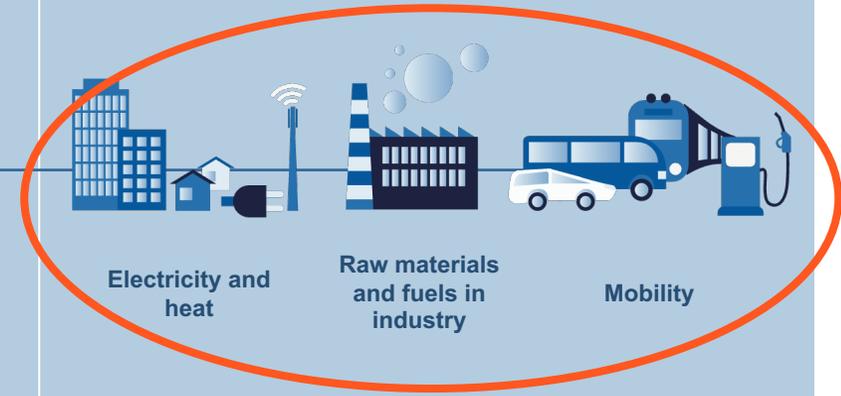
## Production



## Conversion & distribution



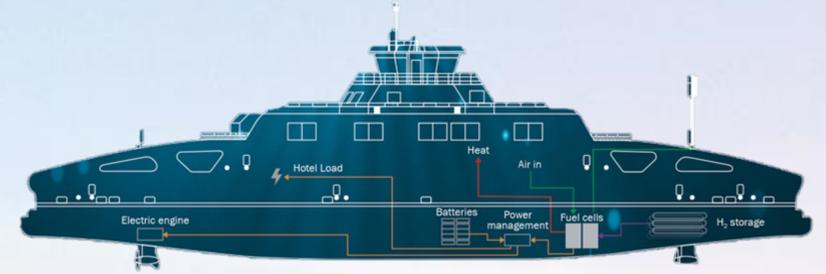
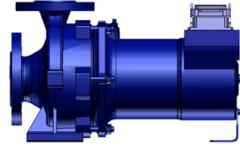
## Application



# Hydrogen and CCU/CCS

## Zero-leakage Pumps

Etaseco pumps are present in the stack cooling circuit of H2 trains



## Marine Pumps

ILN pumps are present in the stack cooling circuit of H2 Ships



## Fuel Cell cooling pump

Etabloc pumps are present in the stack cooling circuit of large scale fuel cell power generation



No matter what the plan is...

**... as a major global technology group, KSB is actively involved in shaping the future hydrogen economy.**

**... with our technological expertise, we are available as a development partner for new solutions.**

Hydrogen

3

Li

Lithium

4

Be

Beryllium

11

12

WE ARE LIKE HYDROGEN:

NUMBER 1.

Thank you!



**Ulrich Stahl**

Project Lead Hydrogen@KSB and Business Strategist

[Ulrich.Stahl@ksb.com](mailto:Ulrich.Stahl@ksb.com)

[+49 \(160\) 2967179](tel:+491602967179)

