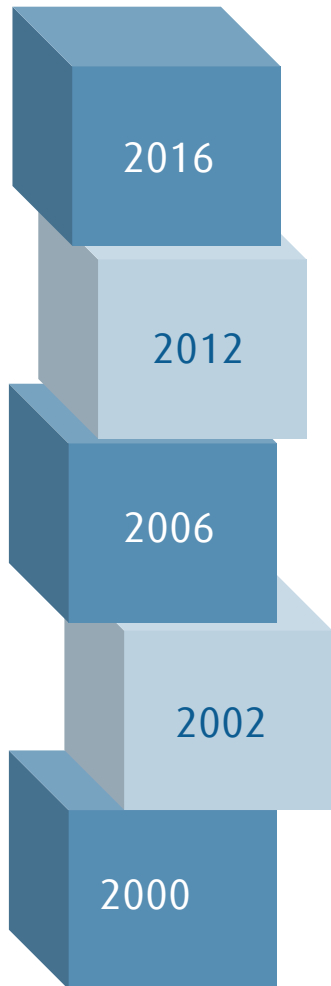


# Linde ATZ Overview

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## Advanced Technology Center



### Constant Pressure Tube

ATZ issued the patent for the constant pressure tube and installed the first commercial application in Pärnu, Estonia

### Small Serial Production

A new production hall was inaugurated for small serial production of compressors and H<sub>2</sub> refuelling stations

### Ionic Compressor

ATZ issued a patent for the ionic compressor, which is the groundwork for all future stations and systems

### First H<sub>2</sub> Refuelling Station

The first H<sub>2</sub> refuelling station was developed for Daimler and installed in Sindelfingen, Germany

### ATZ Founded

The ATZ was founded by Robert Adler as a Linde R&D center for high pressure gas applications

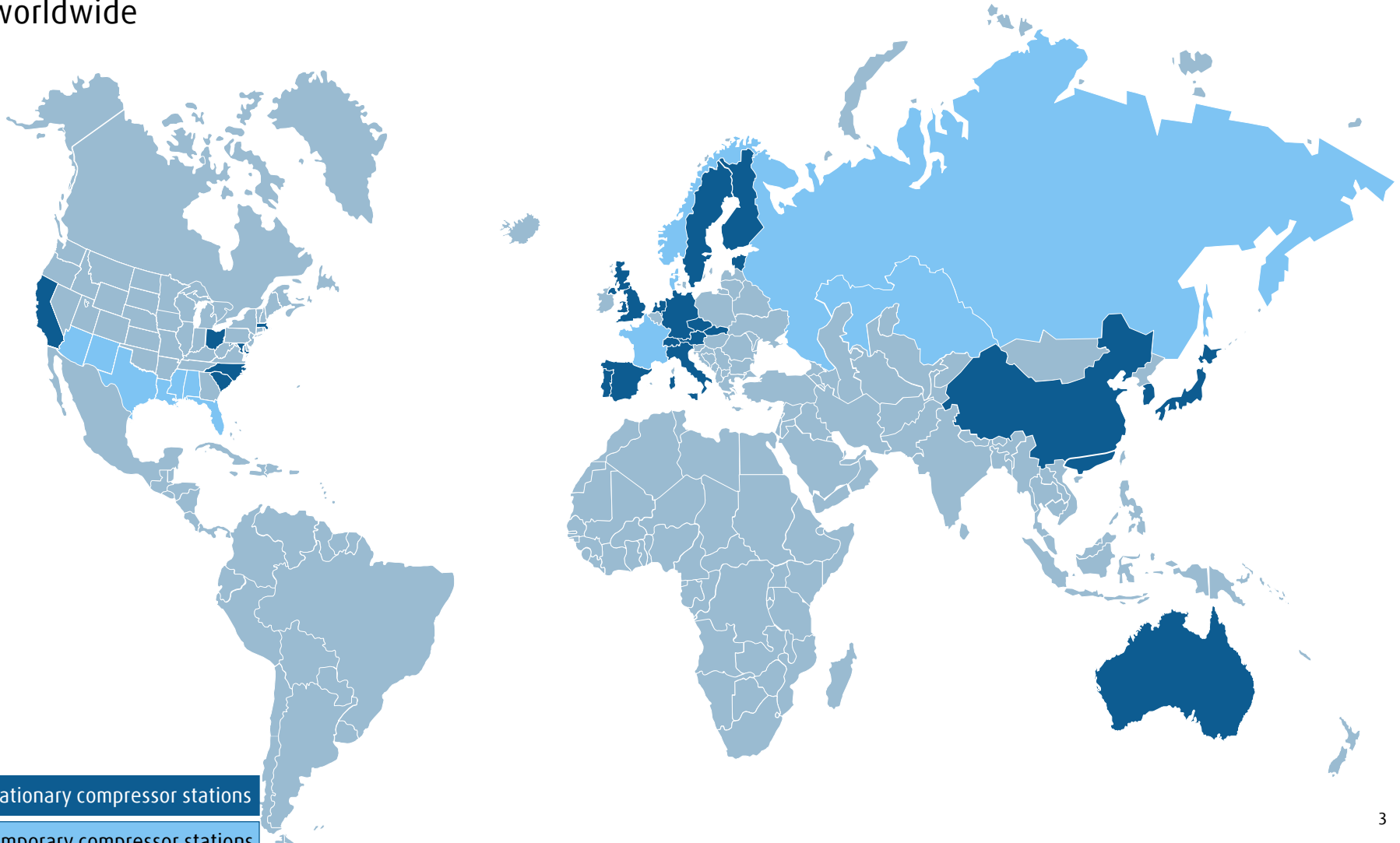
# Linde - ATZ

## Projects worldwide

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More than **160 H2 compressor stations** and over 400 compressors for other gases like CNG, Ar or N2 worldwide

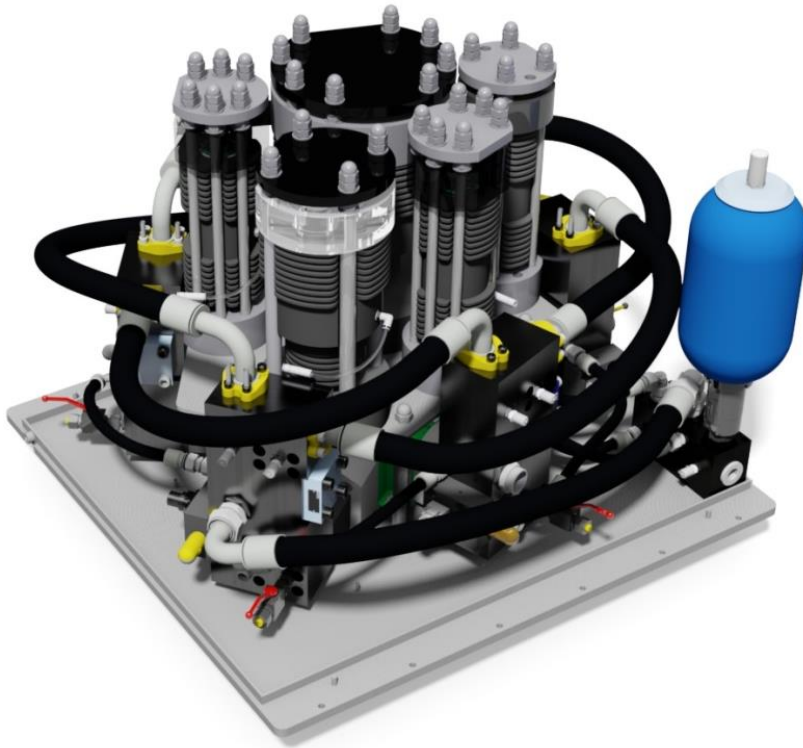


# Compressor Overview

## IC 90

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### Ionic Compressor 90

Type	Ionic compression
Compressor stages	5 stage compression
Max. delivery rate	370Nm <sup>3</sup> /h ~ 33,6kg/h
Input Pressure	5 – 200 bara
Max. output	1.000 bar
Power consumption	75kW

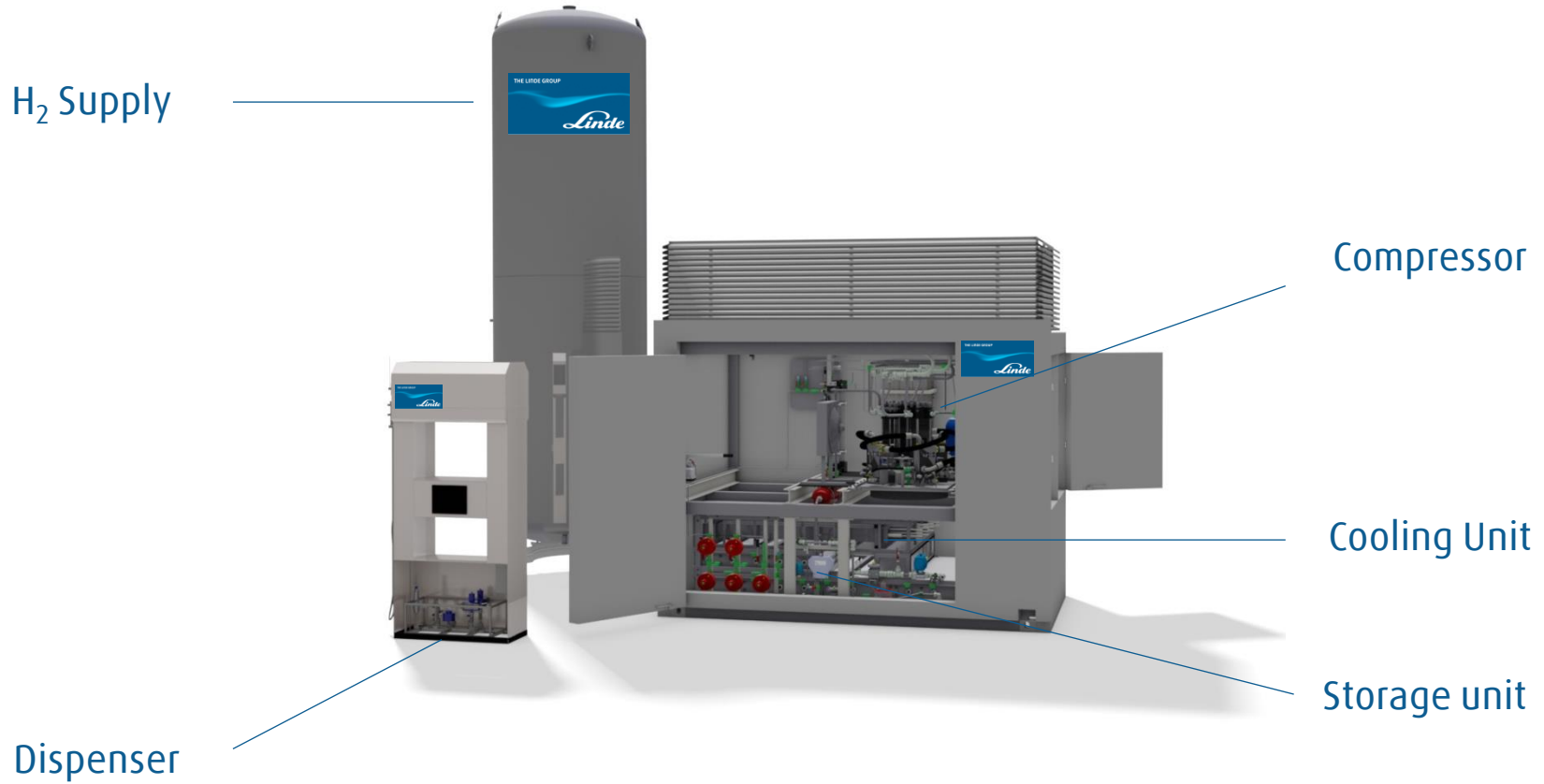
The IC 90 is a highly efficient and powerful compressor with a flexible design. It can handle changing inlet and outlet pressures while keeping energy consumption at a minimum.

# Refuelling stations

## Functionality

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## Reference Projects: Bolzano, Italy

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### IIT – Bus/ car H<sub>2</sub> Refuelling Station

- Supply H<sub>2</sub> for bus fleet of city of Bolzano
- Inauguration 2014
- On-site production through 3 electrolyzers that only need power and water
- 100% renewable since the power comes from nearby hydroelectric power stations
- Supplying a car fleet of H<sub>2</sub> cars of local companies

# Reference Projects

## H<sub>2</sub> HRS in Hunzenschwil, Switzerland

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### COOP – Truck H<sub>2</sub> Refuelling Station

- First commercial H<sub>2</sub> refuelling station in Switzerland
- First Project with H<sub>2</sub> Trucks
- Inauguration November 2016
- Follow-up projects to make the whole COOP supply chain emission free
- Innovative ionic compression principle for fuelling
- Layed out for high volume use

# Thank you

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