IGPH INDUSTRIAL GAS PROJECTS HOUSE

H2 Trailer/MEGC Filling

Key Product Information

Our Expertise

At IGPH, we understand that Hydrogen Trailer Filling is not simply a “bolt-on” process. It is an integrated, operationally-critical part of a modern Hydrogen production and distribution network.

Our expertise extends far beyond design: our senior engineers and project managers bring decades of experience in Hydrogen Plant operation and Trailer Filling within Tier 1 industrial gas companies. This knowledge and experience gives IGPH a unique insight into the customers requirements and allows us to provide solutions that deliver maximum reliability, operational safety and efficiency during the lifecycle of the equipment.

We combine proven design principles with intelligent automation to deliver fully integrated, unmanned Hydrogen Trailer Filling Systems that meet international safety and performance standards.

IGPH’s trailer filling solutions are based on years of proven operation across multiple continents, which is why our customers over many years have considered us a "Safe Pair of Hands" in their Hydrogen projects.

Full asset life cycle
Project Delivery

We deliver fully integrated Hydrogen MEGC and Trailer Filling Systems. By being involved from the early concept through to supporting the long-term operation. Our approach ensures that every solution is engineered, built, and commissioned to the highest standards ensuring safe, reliable and efficient performance throughout the equipment life-cycle.

We begin with detailed FEED studies, process design, and multidisciplinary engineering, ensuring that each system is optimised for the customer's specific production and fulfill operational requirements. Safety is embedded throughout: all projects follow rigorous IEC61511-aligned methodologies, including HAZOP, SIL, and LOPA, to verify that risks are identified, mitigated, and controlled.

Our systems are manufactured using proven components and robust quality processes. Each module undergoes thorough inspection, functional testing, and Factory Acceptance before shipment.

Commissioning is carried out by experienced engineers who support SAT execution, operator training, and the ramp-up phase. Once in operation, our aftersales team provides ongoing maintenance, troubleshooting, upgrade, and spare part support to ensure long-term reliability.

AiFillH2

Advanced Industrial Hydrogen Filling Software

Future-Proof Control

AiFillH_2 is a powerful, future-proof control system built on the trusted Siemens S7-1500 (ET200SP) platform with Ignition SCADA/HMI.

Its modular, standardised software enables fast commissioning, simple operation, and easy local configuration.

Advanced Tools

AiFillH_2 includes advanced tools such as IO debugging.

With global deployments, multi-language support, and secure remote access, AiFillH_2 delivers reliable and scalable performance for hydrogen filling systems worldwide.

Smart Diagnostics

A clear interface with Process View diagnostics supports swift troubleshooting. Dashboards, historical data logging, automatic fill records, and certificate generation provide full transparency of every filling operation.

Individuality

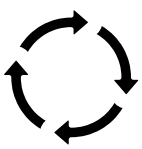
Our competitive edge is flexibility: AiFill H_2 can be configured to match customer-specific requirements and can be interfaced with third-party applications and customer control systems (e.g., DCS/SCADA, ERP, databases, remote monitoring platforms). This enables seamless integration into established operating environments while maintaining a standardised, reliable core platform.

Key Features	
Data exchange with high level DCS	Use of common Siemens platform.
Hose rupture detection and safety shut down	Continuous monitoring of pressure in hose, ensures safe shutdown of unmanned process.
Driver/Operator on system data base	Ensures, only authorised and trained individuals can use the system as well as levels of access ensuring authorised access to different features.
Trailer on system data base	Ensures, only authorised and in test trailers are filled to the correct pressure / temperature profiles and ensures fill record accurancy.
Automatic leak check of trailer filling hose. Prior to fill	Ensures secure leak free connections.
Hose purge routine prior to fill	Prevents impurities being introduced to system.
IGAS design removes the operator from point of fill	By having a remote Driver Interface unit the driver is away from the hazard area during key operations.
Integrated hose park position with feedback	Hose position interlocked with valves so that operations cannot be activated if the hose is still parked.
Our system is designed for unmanned filling	Passive and active monitoring by the system during filling ensures automatic safe shutdown in the event of failures.
Monitoring of initial return trailer pressure.	Minimum positive pressure required for quality of gas as well as trailer manufacture recommendations, non compliant trailers require authorisation to fill.

Engineering
Process, Mechanical, Electrical and Control design and engineering

Safety studies
IEC61511, HAZOP, LOPA, SIL

Comissioning
FAT/SAT

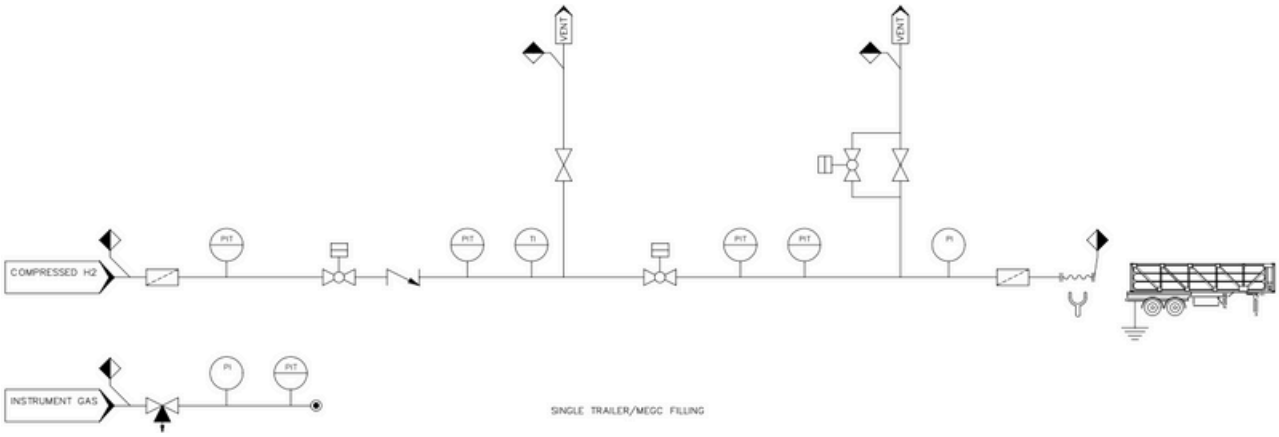


Assistance through
Asset life service, support and spares

Our Design considers all aspects of safety in operation and maintenance	
High Pressure	All pipework, components, and system assemblies are engineered for high-pressure hydrogen operation, including appropriate safety margins and controlled pressure management.
Different pressure trailers	Dedicated fill points and hoses are provided for different trailer pressures, with PSV overpressure protection and safety interlocks.
Flammable Gas	Welded pipework and approved mechanical connections minimise leak risk. In addition, the filling process includes automated integrity checks prior to pressurisation/filling.
Asphyxiant Gas	All vents are to a safe area and away from any points where it can accumulate, displace air and create an asphyxiation risk.
Explosive Atmosphere	Venting is routed to a designated safe area and limited to defined system volumes. Venting steps are monitored and time-controlled, with automatic shutdown and investigation triggers in case of abnormal behaviour.
Ignition source - electricity	All equipment is ATEX certified and inspected as part of the CE marking.
Ignition source - static	A dynamic earthing system is used to confirm correct earthing of the trailer (MEGC). The filling sequence is interlocked so filling can only proceed with confirmed earthing, and the system initiates a safe shutdown if earthing is lost.
Burst Hoses	If a hose failure is detected during filling, the system trips and moves valves to a safe state. High-pressure hoses include anti-whip protection. The process is arranged to keep personnel away from the hose during pressurisation.
Human Factors	• Authorised user access and operator/driver login control • Guided, sequenced operation to prevent incorrect or unsafe actions • Clear pressure visibility locally and via the driver interface • Automated filling concept supports unmanned operation and reduces exposure to hazardous areas
Maintenance	The module includes safe isolation arrangements to allow filling bays to be maintained independently. Inerting and purge capability is provided.
Gas confusion	The instrument air and purge nitrogen is seperated to ensure where air is used as a utility for instrument gas it will not be confused with the N2 into the system.
Loss of Utilities	The system is designed to ensure fail safe operation, valves will close (or open) to the safe position if instrument gas or power is lost.

Configuration 1

Mono Fill



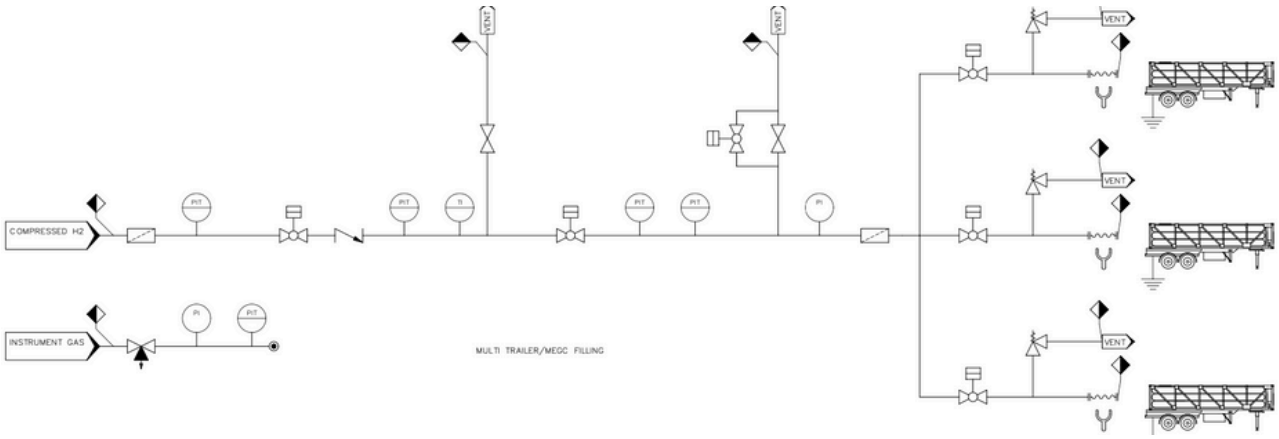
The Mono Fill configuration is a single-bay hydrogen trailer/MEGC filling solution designed for safe, repeatable operation with a high degree of automation. This configuration is particularly suitable for customers operating early-stage H_2 infrastructure projects that require a reliable, compliance-ready system with the ability to expand later.

Standard Features
• HMI Interface
• Driver on database
• Trailer on database
• Leak Check of hose
• Auto Filling
• Hose purge routine
• Minimum trailer return check
• Hose park position / interlock
• Takes operator away from point of fill
• Rupture protection

Each configuration can be customised with a wide range of options to meet your specific operational and system requirements. Our experts and engineers will be happy to work with you to find the most suitable solution for your application.

Configuration 2

Multi-Fill



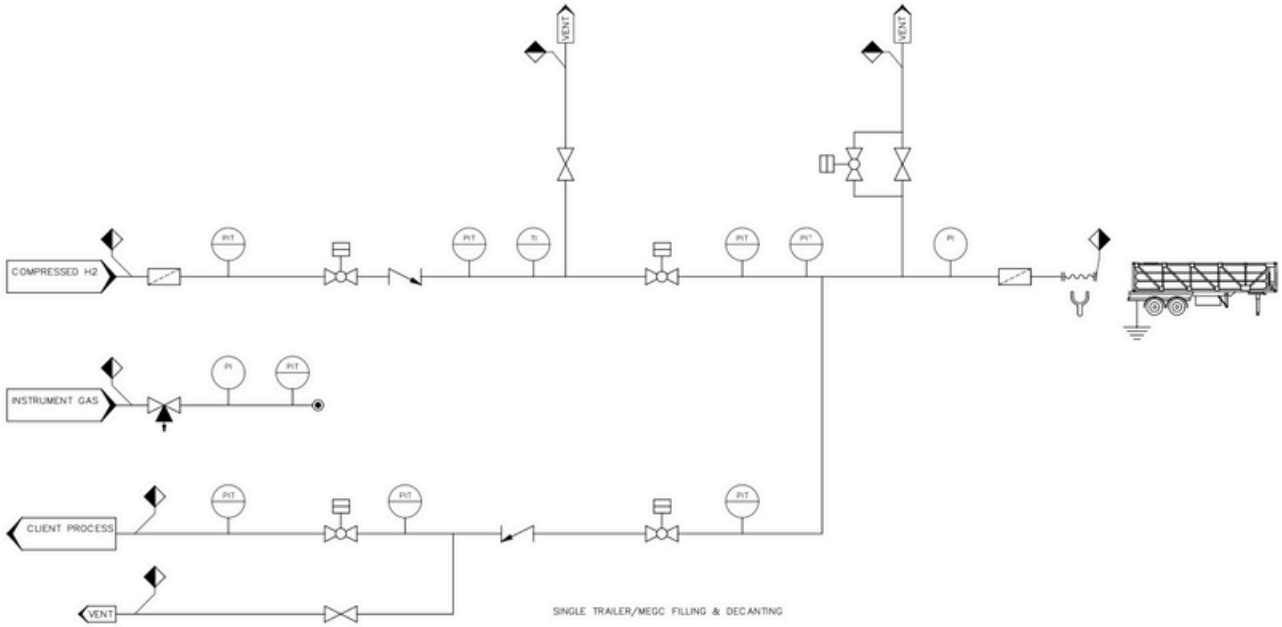
The Multi Fill configuration is a multi-bay hydrogen trailer/MEGC filling solution. Multiple trailers are connected to a common filling module and are then filled individually by controlled sequencing, supporting efficient bay utilisation while maintaining consistent safety and process control.

Standard Features
• HMI Interface
• Driver on database
• Trailer on database
• Leak Check of hose
• Auto Filling
• Hose purge routine
• Minimum trailer return check
• Hose park position / interlock
• Takes operator away from point of fill
• Rupture protection

Each configuration can be customised with a wide range of options to meet your specific operational and system requirements. Our experts and engineers will be happy to work with you to find the most suitable solution for your application.

Configuration 3

Fill-Decant



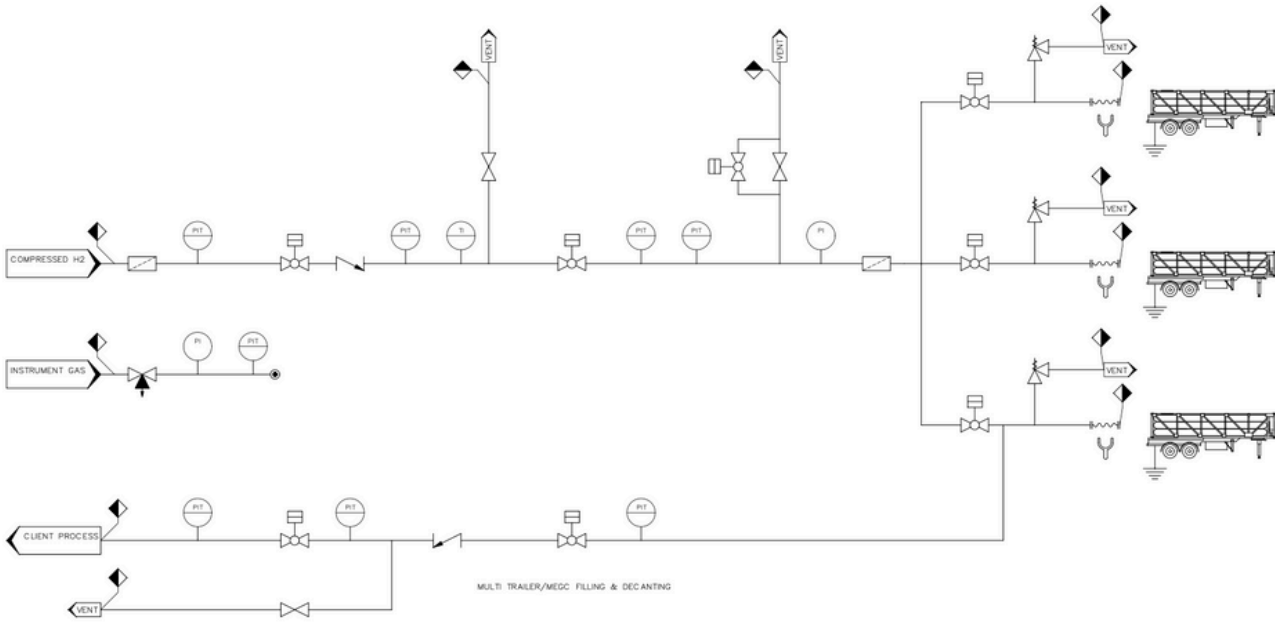
The Fill & Decant configuration combines automated trailer/MEGC filling with an integrated decant capability, enabling the system to handle both filling and controlled transfer/emptying of the trailer/MEGC depending on site requirements.

Standard Features
• HMI Interface
• Driver on database
• Trailer on database
• Leak Check of hose
• Auto Filling
• Hose purge routine
• Minimum trailer return check
• Hose park position / interlock
• Takes operator away from point of fill
• Rupture protection

Each configuration can be customised with a wide range of options to meet your specific operational and system requirements. Our experts and engineers will be happy to work with you to find the most suitable solution for your application.

Configuration 4

Multi-Fill-Decant



The Multi Fill & Decant configuration is a solution for sites that require both automated filling and integrated decant capability across multiple trailer/MEGC connections. Several trailers can be connected to a common module and are then processed individually through controlled sequencing.

Standard Features
• HMI Interface
• Driver on database
• Trailer on database
• Leak Check of hose
• Auto Filling
• Hose purge routine
• Minimum trailer return check
• Hose park position / interlock
• Takes operator away from point of fill
• Rupture protection

Each configuration can be customised with a wide range of options to meet your specific operational and system requirements. Our experts and engineers will be happy to work with you to find the most suitable solution for your application.

H2 Standards

Our designs comply with

Standard	Decription
BCGA CP4	Gas supply and distribution systems.
BCGA CP41	The design, construction, maintenance and operation of filling stations dispensing gaseous fuels.
BCGA CP33	Gas supply and distribution systems. Compressed flammable gases.
BCGA CP29	Battery-vehicles and multiple-element gas containers. Design and operation.
EIGA Doc 15	Gaseous Hydrogen Installations
EIGA Doc 63	Prevention of Tow-away incidents
EIGA Doc 11	Hydrogen Vent systems for customer applications
EIGA Doc 215	Plant Gas Leak Detection and response practices
EIGA Doc 238	Prevention of plant Instrument and utility gas system cross contamination
EIGA Doc 247	H2 Overview - Distribution storage applications
EIGA Doc 250	Standard Procedures for H2 supply systems
EIGA TB 051	H2 Interface for trailer to refuelling stations

Safety and compliance are fundamental to every IGPH hydrogen solution. Our systems are engineered in line with applicable international standards and recognised industry guidance. IGPH is an active member of the BCGA and MEGA, and we work in accordance with relevant EIGA standards, reflecting established best practice for industrial gas and hydrogen applications.

Service and maintenance activities

- Technical assistance
- Expert engineering support
- Support Contracts
- Spare parts service
- Project spares supplied at delivery
- Comprehensive Resources
- Robust designs & equipment

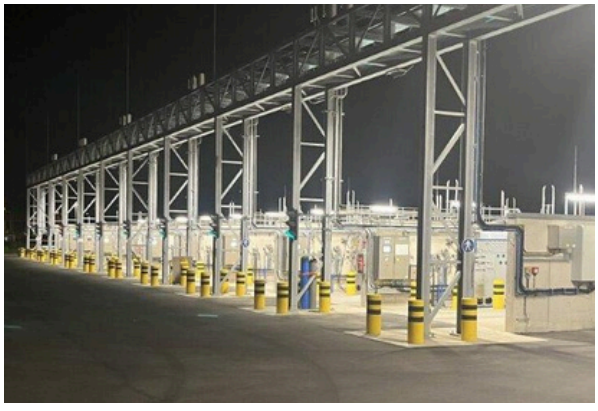
Key references

Tier 2 Gas Company

• **KSA**
• O2, H2 cylinder, bundle and trailer filling and refrigerant blending plant
• In operation since 2023

Tier 1 Gas Company

• ***GERMANY***
• 10 bay H2 trailer filling plant
• 200 & 300 bar
• EPC
• In operation since 2023



Hydrogen Gas Company

• ***FINLAND***
• 9 bay H2 MEGC filling plant
• 350 bar
• In operation since 2025

OEM

- ***UK***
- H2 Bouser filling
- 635 bar
- In operation since 2025

Gas Supplier

- ***UK***
- 2 x Projects
- H2 trailer decant systems
- 350 to 6 bar
- 150 to 1075 Nm3/hr
- In operation since 2024

Tier 1 Gas Company

- ***SWEDEN***
- H2 Bundle filling plant
- 300 bar
- In operation since 2023

OEM

- ***GERMANY***
- 1 Bay H2 Trailer Filling with decanting included
- 380 bar
- Comissioned in 2026

Proud to be Supporting

THE LINDE GROUP

NEUMAN & ESSER

BOC

Air Liquide

RYZE HYDROGEN

P2X solutions

AHG
شركة عبدالله هاشم للمعدات والغازات الصناعية المحدودة
Abdullah Hashim Industrial Gases & Equipment Co.Ltd.

RAWABI
روابي المتكاملة للغاز
RAWABI INTEGRATED GAS

Contact us

Industrial Gas Projects House Ltd.
Unit 1c Douglas Drive, Catteshall Lane, Godalming, Surrey GU7 1JX
Phone: +44(0)7340 980615
Email: enquiries@igph.net

IGPH INDUSTRIAL GAS PROJECTS HOUSE

aeroflex
www.aeroflex.co.uk

iGAS TECHNOLOGY SOLUTIONS
www.igas-ts.com

KRYTEM
www.krytem.com

m tech müller coax group
www.m-tech-gmbh.com

POLO
www.poloitalia.com

SCAN ME