

# IGPH

INDUSTRIAL  
GAS  
PROJECTS  
HOUSE



**KRYTEM** 

 **iGAS**  
TECHNOLOGY SOLUTIONS

 **m<sup>®</sup>tech**  
müller coax group

 **FOLO**

 **aeroflex**



# THE GROUP



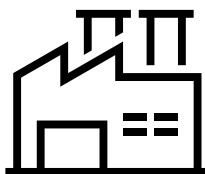
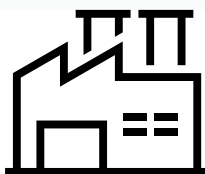
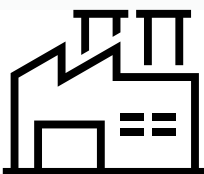
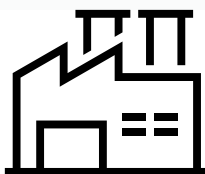
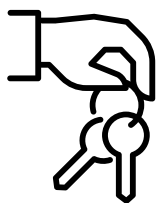
Project

Cryogenic

Filling modules & stations

Refrigerant

Hoses & Cylinder connectors



**IGPH** INDUSTRIAL GAS PROJECTS HOUSE

**We are world leaders in Gas Solutions,  
we engineer and deliver equipment &  
turnkey projects to the Industrial Gases  
sector, providing guaranteed, risk free  
solutions, maximising our customers  
return on investment.**



# Hydrogen Applications

## Filling and Decanting Solutions

- Automatic Trailer Filling and Decanting Panels (up to 600 bar, 1000 bar soon)
- Systems for Cylinders, Bundles, Genies, and Amplifiers (Automatic & Manual)

## Measurement and Control Systems

- Custody Transfer Metering Skids
- SCADA Systems

## Interface and Management Panels

- Driver Interface Panels
- RFID Driver & Trailer Management System
- Compressor Isolation Panels

## Safety and Analysis Systems

- Fire & Gas Detection Systems
- Analysis Systems



HYDROGEN TRAILER FILLING

600 bar



HYDROGEN TRAILER

# Decanting Systems



# Design and Engineering

## Core Design and Engineering Disciplines

- Process
- Mechanical
- Electrical
- Instrumentation

## Functional Safety Lifecycle Design (IEC61511)

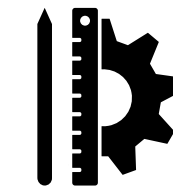
- HAZOP Studies
- Layer of Protection Analysis (LOPA)
- Safety Integrated Layer Protection (SIL)

## Safety Standards and Specifications

- Safety Requirements Specification (SRS)
- Compliance with International Standards (ATEX, IECEx)

## System Integration and Specification

- Hydrogen (H<sub>2</sub>) Source Integration
- Compressors
- Purifiers



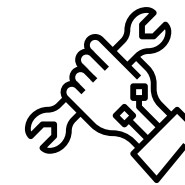
## Engineering

Process, Mechanical, Electrical and Control design and engineering



## Safety studies

IEC61511, HAZOP, SIL, LOPA



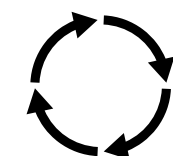
## Installation

Mechanical and Electrical



## Commissioning

(SAT)



## Assistance through

life service and support



## HYDROGEN CYLINDER & BUNDLE FILLING SOLUTIONS

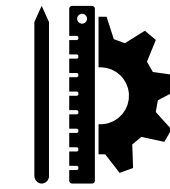
- iGAS have significant experience in the design, manufacture, installation and lifetime support of Hydrogen Cylinder & Bundle Filling Solutions.
- Our scope of supply depends on our clients' requirements and ranges from equipment / component supply, through to complete "Turnkey Solutions".





## HYDROGEN TRAILER FILLING SOLUTIONS

- iGAS have significant experience in the design, manufacture, installation and lifetime support of Hydrogen Trailer Filling Solutions.
- Our scope of supply depends on our clients' requirements and ranges from equipment / component supply, through to complete "Turnkey Solutions".



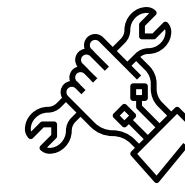
### Engineering

Process, Mechanical, Electrical and Control design and engineering



### Safety studies

IEC61511, HAZOP, SIL, LOPA



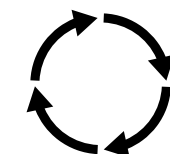
### Installation

Mechanical and Electrical



### Commissioning

(SAT)



### Assistance through

life service and support



**HYDROGEN CYLINDER / BUNDLE /  
PACK FILLING**

**600 bar**



- Pt 1.8.7.3 of ADR 2023 (supervision)
- Pt 1.8.7.4 of ADR 2023 (initial inspection)

This will be performed by a relevant body which can be either :

- A TPED-ADR notified/ inspection body (Xa), see Pt 6.2.3.6.1 of ADR 2023 or
- The in-house Inspection Service of the manufacturer (IS), see Pt 6.2.3.6.1 of ADR 2023

The manufacturer is allowed to affix the "TT" mark followed by the appropriate notified body identification number to the approved equipment under the conditions described in the chapter 3 of the TPED Directive (2010/35/EU).

## APPROVED VALVES FOR MOBILE SYSTEMS

The approval is valid until 07/08/2033

# TPED / ADR

Approval date: 05/09/2023

Name: Mr. B. J. J.

Position:

General Manager

Notified body identification number :

0013

Signature:

Notified body:

APRAGAZ VZW / ASBL

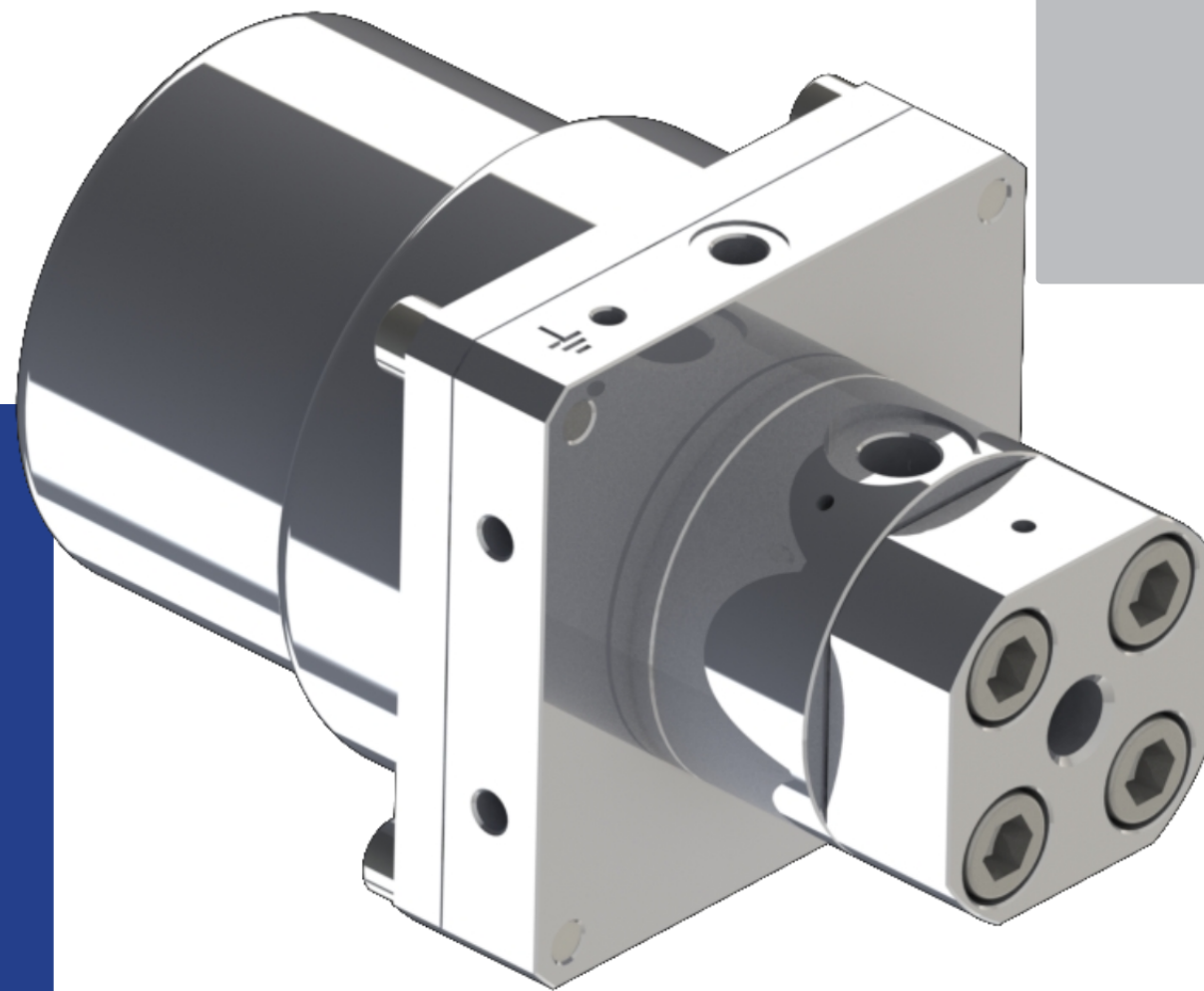
Notified body reference :

18348P000

VALVES FOR HYDROGEN DISPENSERS

**1000 bar**





# MHY100

The valve NC (normally closed) or with positioner also as PR is a 2/2 way valve, which is pneumatically operated. By the use of pilot media, the valve opens against the spring load.



## Application

Shut off and control valve for use in hydrogen filling stations H35 (350 bar) & H70 (700 bar)



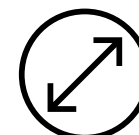
## Conformity

Tested according to ISO 19880-3, ATEX (in preparation)



## Pressure range

1000 bar



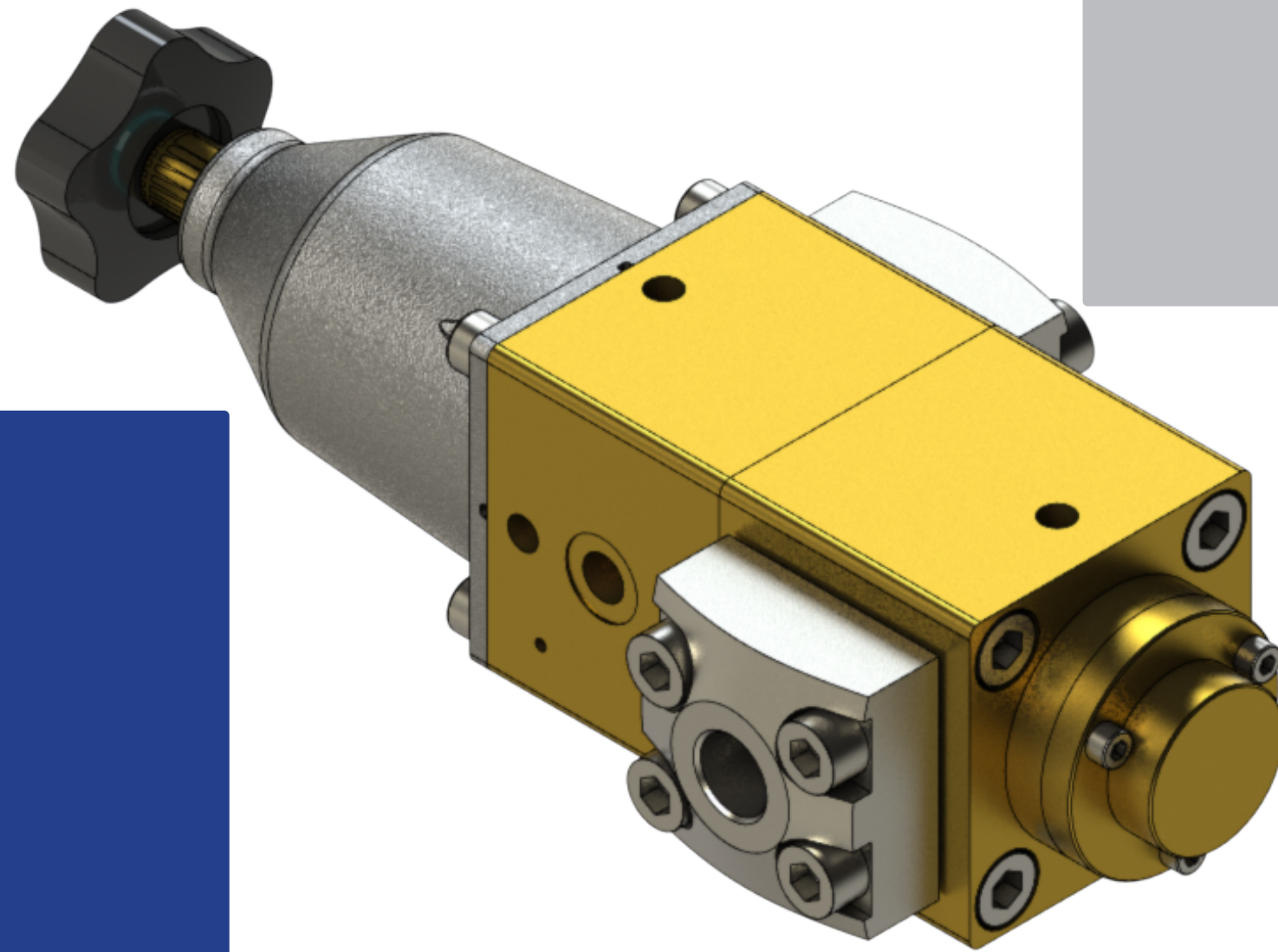
## Nominal diameter

DN 04



## Kv-value

0,5m<sup>3</sup>/h



# MPG 12 HD (H2)

The valve type MPG 12 HD is a pressure-balanced manually operated valve with 12 mm seat. By turning a rugged and ergonomic hand wheel the valve opens and closes manually. The redesigned bonnet in stainless steel increases the operational safety of this model. This version is designed to be used as shut off valve in mobile storage and transport systems.



## Application

Hydrogen / This valve is pressure-balanced and suitable for high- pressure service



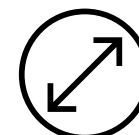
## Conformity

TPED / ADR, ATEX



## Pressure range

300 bar (Working pressure) 360 Bar (Test pressure)



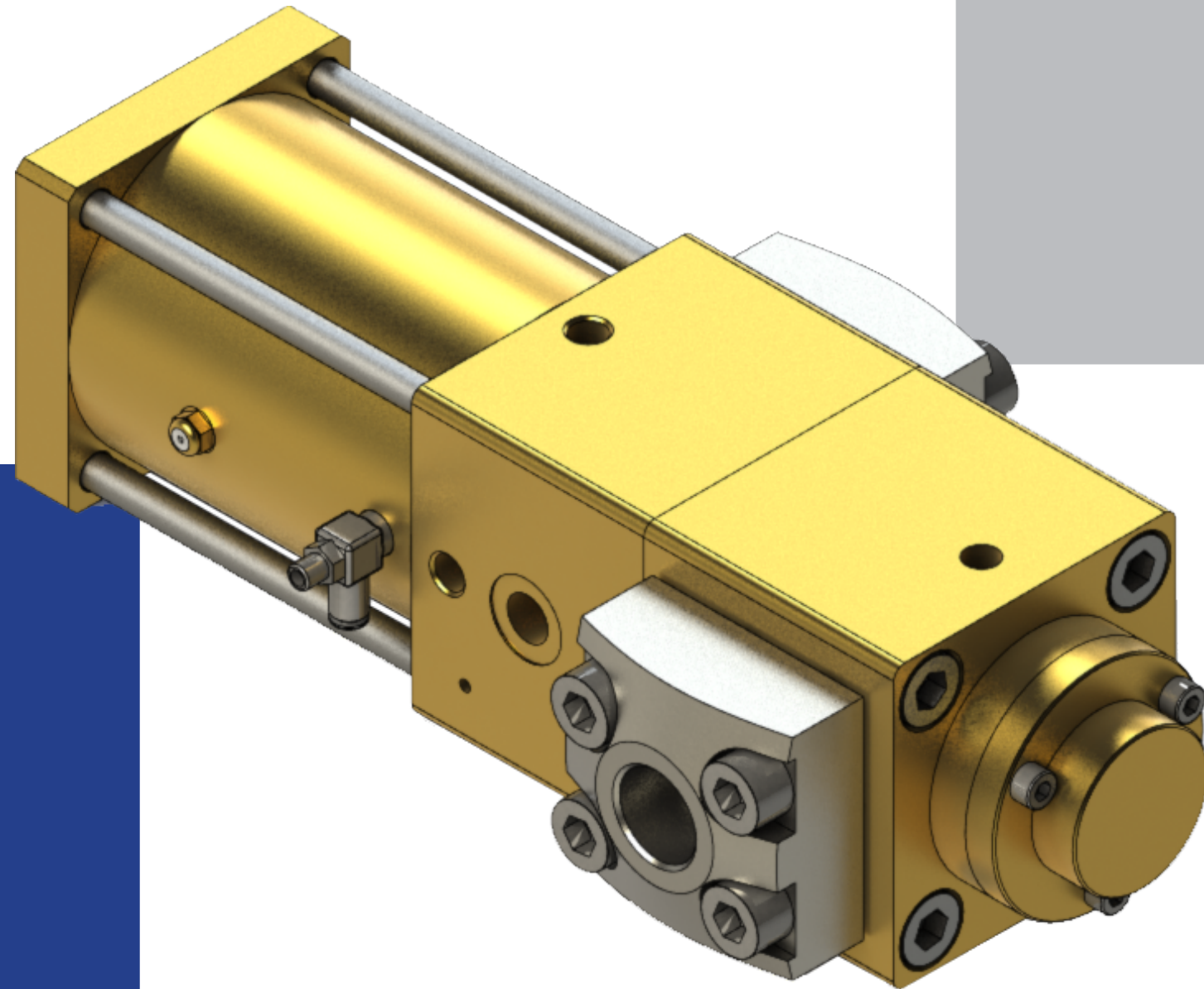
## Nominal diameter

DN 12



## Kv-value

5,0 m3/h 4,8 m3/h



# MPG 12 NC (H2)

The valve type MPG 12 NC (normally closed) is a 2/2 way valve, which is pneumatically operated. By the use of pilot media, the valve opens and closes against the spring load. This version is designed to be used as shut off valve in mobile storage and transport systems.



## Application

Hydrogen / This valve is pressure-balanced and suitable for high- pressure service



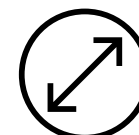
## Conformity

TPED / ADR, ATEX



## Pressure range

300 bar (Working pressure) 360 bar (Test pressure)



## Nominal diameter

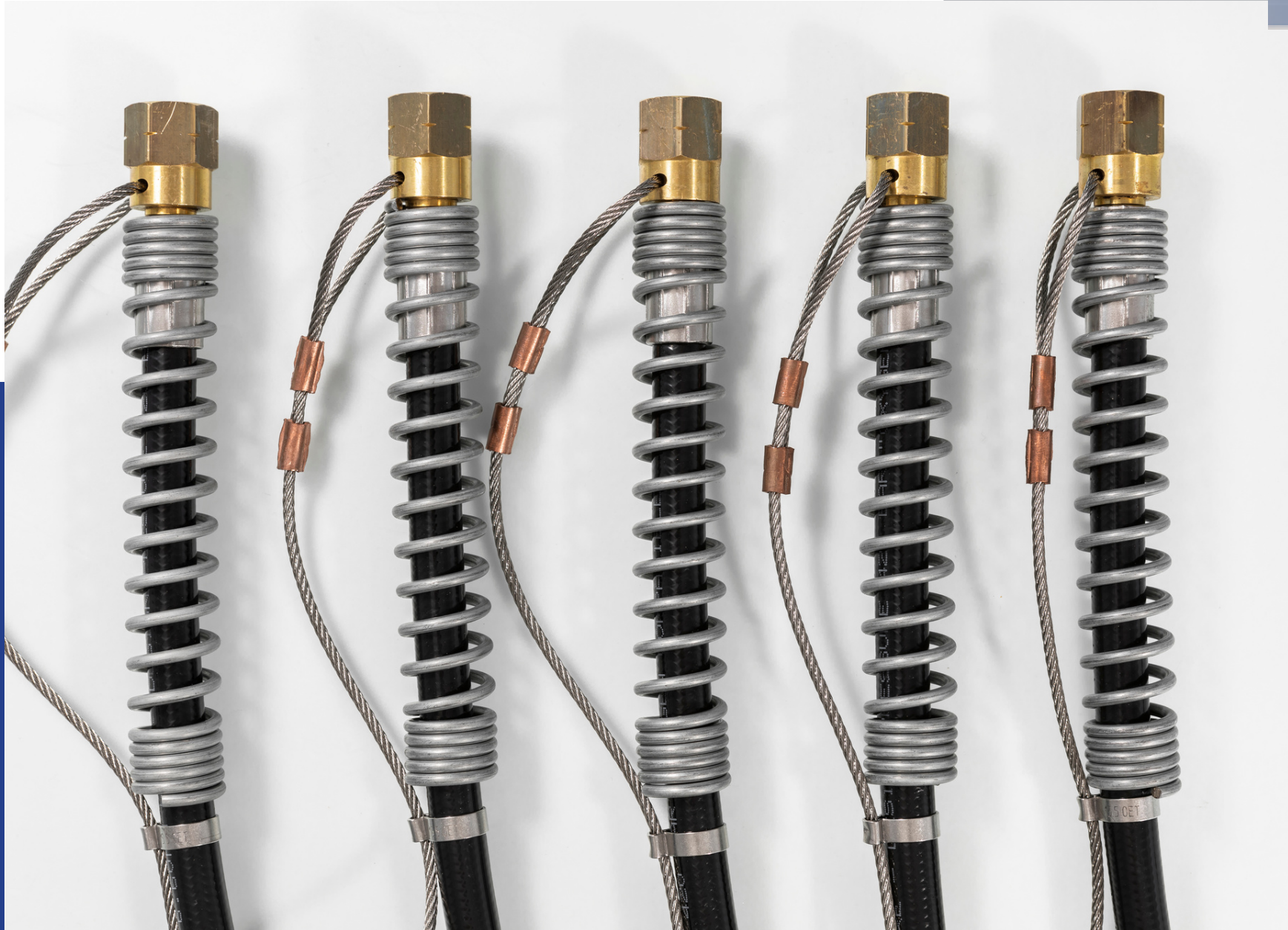
DN 12



## Kv-value

5,0 m<sup>3</sup>/h 4,8 m<sup>3</sup>/h





## HIGH PRESSURE POLYMERIC HOSE ASSEMBLY (EHA-6-1M-300B-1/4NPT(F)) & (EHA-6-1M-450B-1/4NPT(F))

- 6.35mm Polymeric bore hose. Double braided ST/ST 316 & Kevlar reinforcement.
- Fitted with bend limiters
- Cleaned to Industrial gas standard (H2)

### End Fittings/Connections

1/4" NPT Fixed Female- Brass  
1/4" NPT Fixed Female- Brass (available in ST/ST)

### Conformity

ISO 14113, ISO 1402, ISO 1746, ISO 4080, ISO 7751,  
ISO 6803

### Pressure range

Maximum Test Pressure: 330/495 Bar (Pneumatic), 450/675 Bar (Hydraulic)  
Working Pressure: 300/450 Bar  
Minimum Burst Pressure: 1200/1800 Bar

### °C Hose Temperature Design

Maximum Temperature + 80°C  
Minimum Temperature - 20°C

### Available length

1000mm, 2000mm, 3000mm



## End Fittings/Connections

1/4" NPT Fixed Female- ST/ST

## Conformity

ISO 10380

## Pressure range

Maximum Test Pressure: 330/462 Bar (Pneumatic), 450/1680 Bar (Hydraulic)

Working Pressure: 300/420 Bar

Minimum Burst Pressure: 1200/1680 Bar

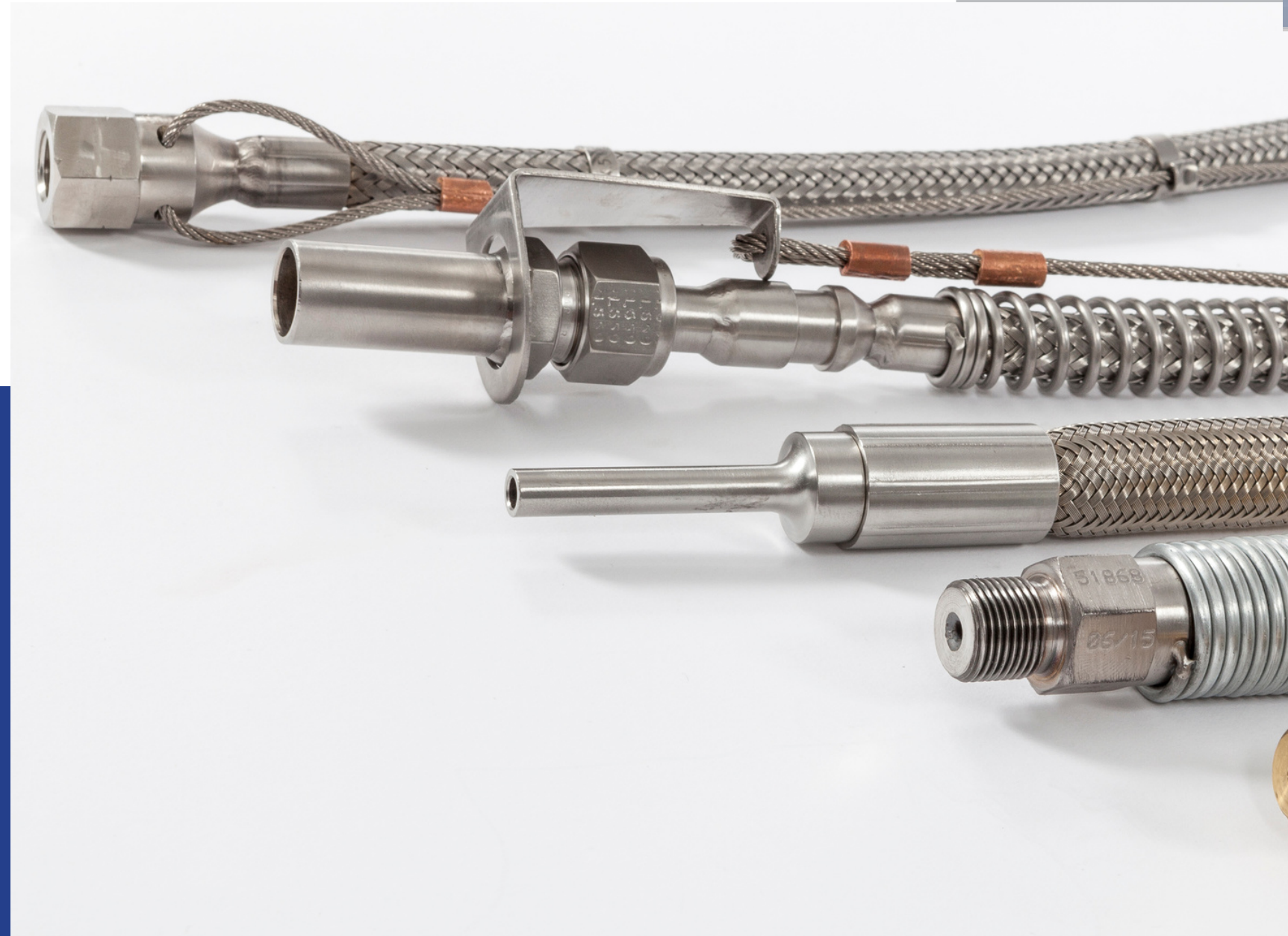
## °C Hose Temperature Design

Maximum Temperature + 200°C

Minimum Temperature - 200°C

## Available length

1000mm, 2000mm, 3000mm



## HIGH PRESSURE METALLIC HOSE ASSEMBLY MHA-6-1M-300B-1/4NPT(F) & MHA-6-1M-420B-1/4NPT(F)

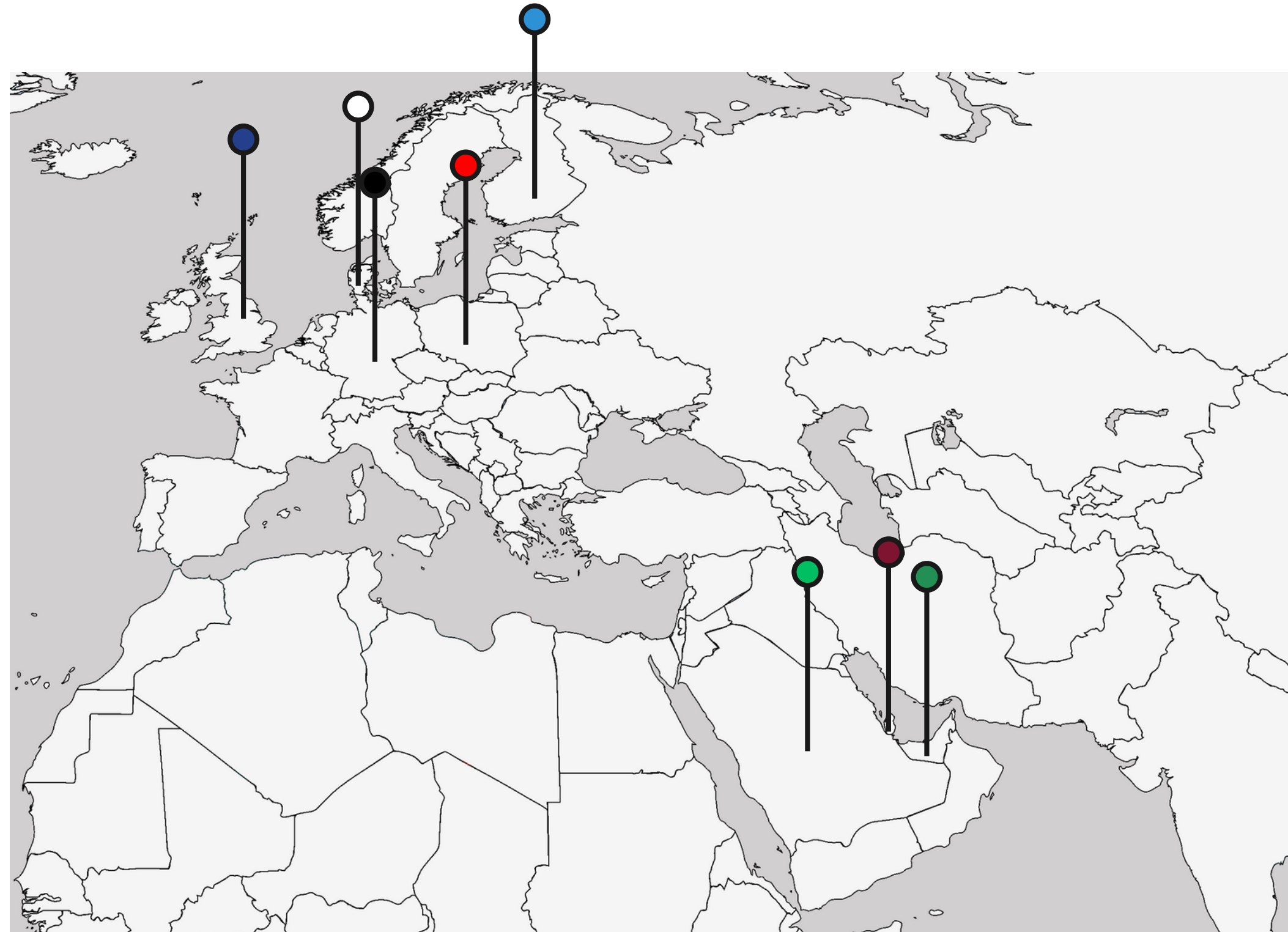
- 6.35mm ST/ST bore convoluted hose. Double braided ST/ST 316 reinforcement.
- Fitted with bend limiters
- Cleaned to oxygen standard  
(Medical O2 & ultra-high purity cleaning available)



# Major Hydrogen Projects

## LOCATION

- Germany
- Poland
- Denmark
- Finland
- UK
- Qatar
- Saudi Arabia
- UAE



# OUR GOALS

## INNOVATION LEADERSHIP



Establishing ourselves as a **leaders** in **innovative solutions** for hydrogen technology, particularly in areas of **safety**, **efficiency**, and environmental **sustainability**.

## CUSTOMER-CENTRIC SOLUTIONS

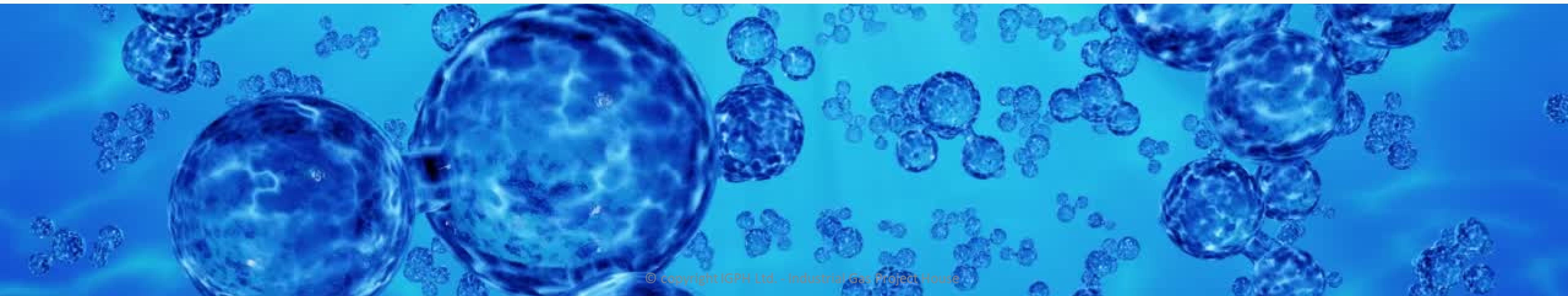


Developing more **customized** and **user-friendly** solutions for diverse clients, ensuring that their **specific needs** are met with **precision** and **efficiency**.

## DIVERSIFICATION OF PRODUCT LINE



**Expanding** the product line to include a **wider range** of applications, catering to **different segments** of the **hydrogen market**.






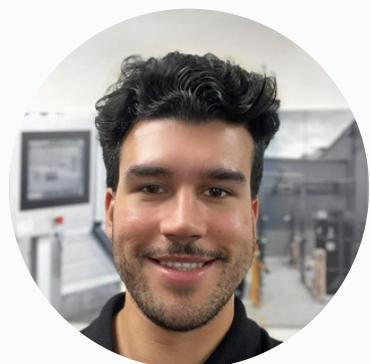
# We appreciate your attention.


## Connect with us.



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