



H₂

HYDROGEN GAS COMPRESSION

HIGH PRESSURE H₂ COMPRESSION TECHNOLOGY



**Complete and advanced containerized
H₂ compression solutions of up to 1,000 bar / 13,780 psi
for sustainable and decarbonized mobility & industry storage**

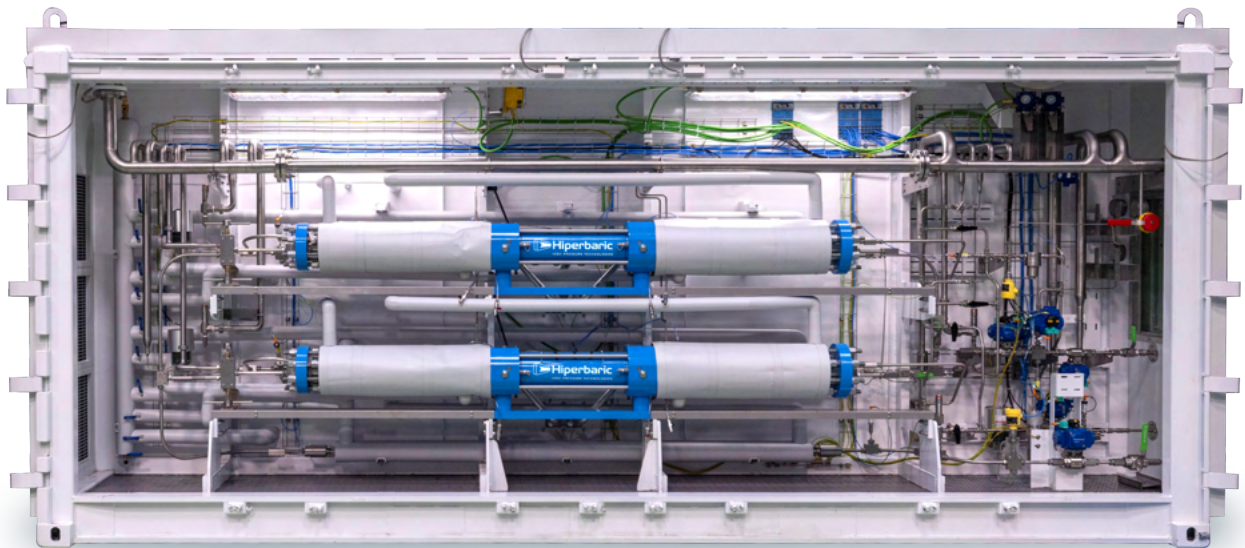
Hydrogen must be compressed to high pressures by using innovative technologies, to make its use extensible to different areas. **Hiperbaric**, global leader in high pressure technology, is focused on the development and manufacture of **hydrogen compressor units reaching pressures of up to 500 bar / 7,250 psi or 1,000 bar / 13,780 psi.**

Plug-&-Play Compressor Groups

Safe, Efficient and Reliable

Range of compressor groups adaptable to:

- Any level of production and demand
- Different suction and discharge pressures: from 15 bar / 217.5 psi to 500 bar / 7,250 psi or 950 bar / 13,780 psi



Hydrogen Compressor Group Main Components



Vent
Circuit



Hydraulic
System



Instrumentation
& Control Panel



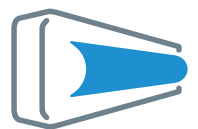
Pneumatic
Circuit



Refrigeration
System



Piston Compressor
Proprietary technology



Hiperbaric
Factory

Two-stage Piston Compressor



The most important component of this unit is the high pressure piston compressor
 It has different sections to carry out the compression

Number of stages	2 ^a
Stroke	Single
Turndown of the compressor	0 to 100% Flow Rate ^b
Outlet temperature	<40°C / <104°F
Footprint	One Plug-&-Play 20' Container ^c
Option	Configurable to include one or two piston compressor ^d

^a Except KD95 Model (one stage)

^c Includes cooling, control, safety and ventilation systems

^b Thanks to the hydraulic unit of the axial pump used

^d Which duplicates the flow rate

Advantages & Benefits



"Oil Free" concept guarantees a high purity of hydrogen



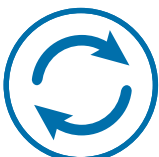
Greater efficiency in compression requiring less energy



Efficient cooling thanks to piston compressor innovative design



Noise level: < 75 dB (at one meter distance)

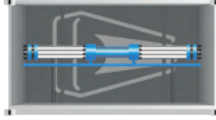


Advanced **reciprocating piston** technology

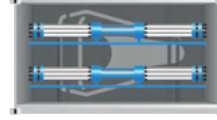


Safe and reliable solution thanks to the venting system

Technical specifications of Hiperbaric Hydrogen Compressor Groups



One compressor



Two compressors

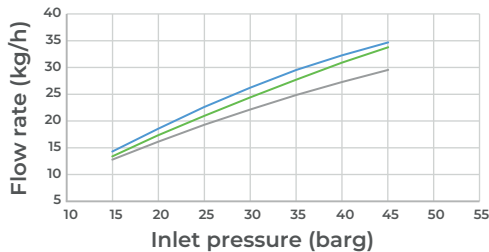
Hiperbaric KS50 - Outlet max pressure 500 barg

Model	Inlet pressure Range (barg)	Hydrogen flow (kg / h)	Hydrogen flow (kg / day)	Energy consumption (kWh / kg of H ₂)	Total installed power (up to...kW)
KS50 *	15-45 / 14-45	21 / 42	504 / 1008	1.3 / 1.4	75 / 120
KS50 Pro *		28 / 56	672 / 1344	1.3 / 1.4	115 / 190
KS50 Sup **	20-300 / 20-300	120 / 240	2880 / 5760	<1 / <1	115 / 190

Without cooling

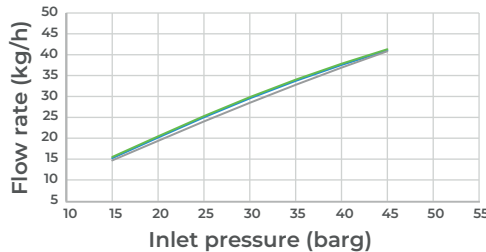
Hiperbaric KS50

Outlet pressure: — 200 — 350 — 500



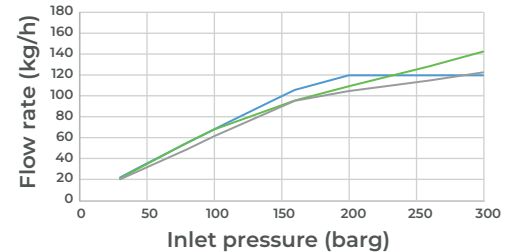
Hiperbaric KS50 Pro

Outlet pressure: — 200 — 350 — 500



Hiperbaric KS50 Sup

Outlet pressure: — 200 — 350 — 500



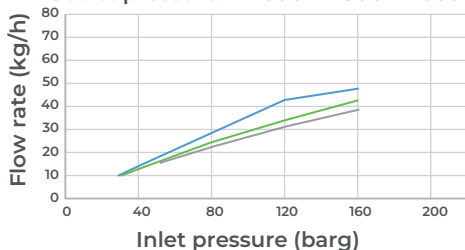
Hiperbaric KS95 - Outlet max pressure 950 barg

Model	Inlet pressure Range (barg)	Hydrogen flow (kg / h)	Hydrogen flow (kg / day)	Energy consumption (kWh / kg of H ₂)	Total installed power (up to...kW)
KS95 ***	30-200 / 20-200	15 / 30	360 / 720	4.6 / 4.6	85 / 130
KD95 **	200-500 / 200-500	40 / 80	960 / 1920	1.6 / 1.4	85 / 130
KS50 Pro + KS95 *	15-45	28	672	4	150

Without cooling

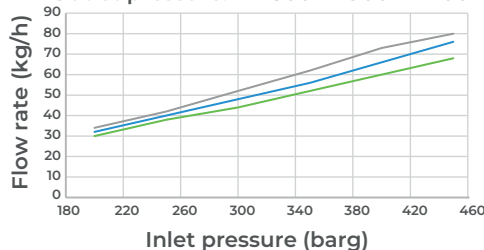
Hiperbaric KS95

Outlet pressure: — 500 — 800 — 950



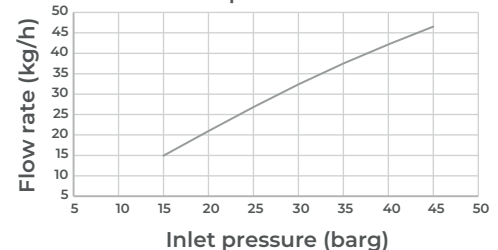
Hiperbaric KD95

Outlet pressure: — 800 — 900 — 700



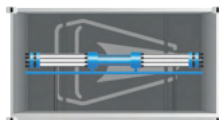
Hiperbaric KS50 Pro + KS95

Outlet pressure: — 950

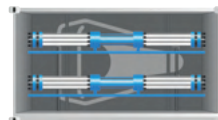


* Data for inlet pressure: 30 barg - ** Data for inlet pressure: 300 barg - *** Data for inlet pressure: 50 barg

Technical specifications (US units) of Hiperbaric Hydrogen Compressor Groups



One compressor



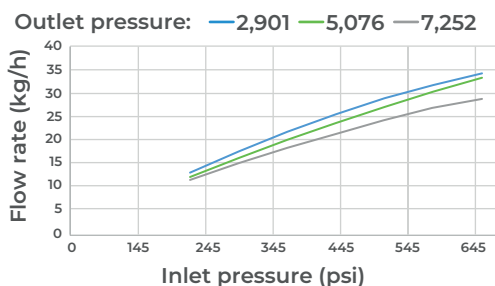
Two compressors

Hiperbaric KS50 - Outlet max pressure 7,250 psi

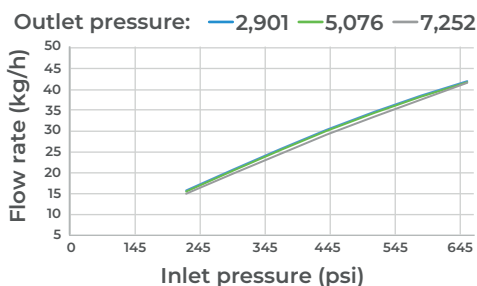
Model	Inlet pressure Range (psi)	Hydrogen flow (kg / h)	Hydrogen flow (kg / day)	Energy consumption (kWh / kg of H ₂)	Total installed power (up to...HP)
KS50 *	218-653 / 218-653	21 / 42	504 / 1008	1.3 / 1.4	100 / 160
KS50 Pro *		28 / 56	672 / 1344	1.3 / 1.4	155 / 255
KS50 Sup **	290-4,351 / 290-4,351	120 / 240	2880 / 5760	<1 / <1	155 / 255

Without cooling

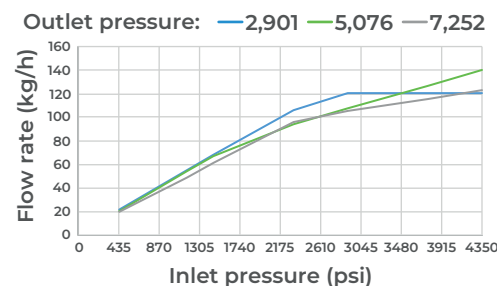
Hiperbaric KS50



Hiperbaric KS50 Pro



Hiperbaric KS50 Sup

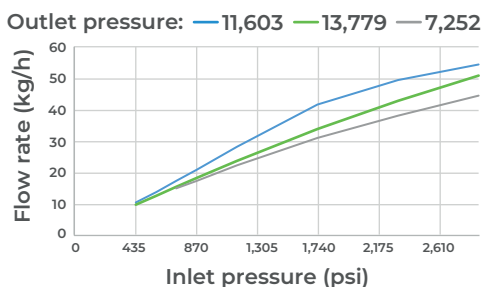


Hiperbaric KS95 - Outlet max pressure 13,780 psi

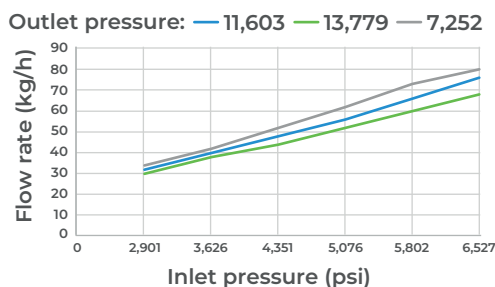
Model	Inlet pressure Range (psi)	Hydrogen flow (kg / h)	Hydrogen flow (kg / day)	Energy consumption (kWh / kg of H ₂)	Total installed power (up to...HP)
KS95 *	435-2,901 / 290-2,901	15 / 30	360 / 720	4.6 / 4.6	114 / 175
KD95 **	2,901-7,252 / 2,901-7,252	40 / 80	960 / 1920	1.6 / 1.4	114 / 175
KS50 Pro + KS95 *	218-653	28	672	4	200

Without cooling

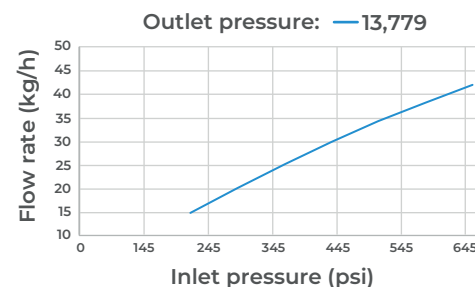
Hiperbaric KS95



Hiperbaric KD95



Hiperbaric KS50 Pro + KS95



* Data for inlet pressure: 435 psi - ** Data for inlet pressure: 4,351 psi - *** Data for inlet pressure: 725 psi

Hydrogen Compression Applications

Hydrogen Refuelling Stations (HRS)

To increase the density of H_2 , the most efficient and economic method is compression. **Hydrogen can be compressed on Hydrogen Refuelling Stations or can be transported to there already compressed.** Compressed Hydrogen is supplied to a vehicle from 300 bar / 5,075 psi to 700 bar / 10,150 psi.



High-Pressure Storage

H_2 is accumulated in high-pressure storage systems and tanks with typical pressures ranging from 200 bar / 2,900 psi to 900 bar / 13,780 psi, depending on the end use of the hydrogen. It can be stored in gaseous form in different types of tanks: **mobile or stationary surface tanks and subway caverns.**



Filling of Tube Trailers

Depending on each project, it is necessary to transport the compressed H_2 to the place where it will finally be used. **It is stored and transported in cylinders grouped in cages or racks that are placed on a tube trailer** made up of mobile tanks. The pressure in these equipments can be up to 500 bar / 7,250 psi.



Hydrogen Compression Test Center

A unique validation center at Hiperbaric's facilities that ensures the operational excellence of compressors

Hiperbaric has developed a dedicated Test Center to **validate its hydrogen compressor units under real operating conditions.**

The Test Center compresses H_2 up to **950 bar**, enabling **full-range performance assessment**. Key parameters like pressure, temperature, flow rate, & power consumption are continuously monitored to **ensure reliability, efficiency, & safety.**

The **advanced infrastructure** of the Test Center reflects **Hiperbaric's commitment** to delivering **high-performance H_2 compression solutions** for industrial use.





HPP



High Pressure Food Processing
Water pressure up to 6,000 bar / 87,000 psi

25
Years
of Innovation

H₂

HIP



Metal & Ceramic processing
up to 2,000°bar / 29,000 psi and
2,000°C / 3,630°F with argon gas

Since 1999, Hiperbaric is the global leader in the development of high pressure technologies for different sectors: **High Pressure Processing (HPP)**, **Hot Isostatic Pressing (HIP)** and **Hydrogen Compression (H₂)** with industrial equipment installed in more than 50 countries.



ISO 9001



ISO 14001



ISO 45001

The Integrated Management System for **design & production of High Pressure equipment of Hiperbaric** is certified by **AENOR** in accordance with requirements **ISO 9001, 14001 and 45001**.



Hiperbaric Aftersales Service

- **Complete service:** installation, start-up and maintenance
- **Highly qualified field technicians** available for on-site support
- **Guaranteed life-time** technical, highly specialized support.



Hiperbaric Uptime System

- **Digital portal** for Hiperbaric customers to manage their units
- **Online spare parts orders** in real-time
- **Download technical information**, videos, and operation & maintenance manuals



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