

# HYDROGEN SYSTEMS

NOW WE MAKE THE FUTURE

COMMON PARTNERSHIP  
FOR FUTURE.

**HUTNÍ  
PROJEKT**  
FRÝDEK - MÍSTEK

## HYDROGEN SYSTEMS

is a private Czech company founded by TENSIO TECHNOLOGY s.r.o., parent company in 2021. After more than 10 years of experience with high pressure systems for the compression, distribution, filling and recovery of gases (air, O<sub>2</sub>, He, N<sub>2</sub> and many others) we realized that we needed to enter the field of new technologies in a more fundamental way so HYDROGEN SYSTEMS s.r.o. was founded. And gas - hydrogen - was the obvious choice for us.

We are looking for real and sustainable solutions, not just marketing with an „exhaust“ elsewhere on the planet. And our goal is no small one, to push hydrogen technologies that make sense without subsidies. We are convinced that “clean” hydrogen technologies are part and parcel of solutions for sustainable energy industry, heavy-duty vehicles and for other applications in industry.

### MAIN POINTS OF OUR OFFER:

- Turnkey installation of equipment
- Preparation of selected design documentation parts including making 3D models
- Technical supervision
- Commissioning, operator training
- Inspection of gas and pressure equipment subject to Czech Government Regulation No. 192/2022 Coll
- Service and maintenance of installed equipment

## HUTNÍ PROJEKT

is a private engineering-supply company with a strong design background. Founded in the 1950s, it ranks among the leading Czech engineering-supply organizations today.

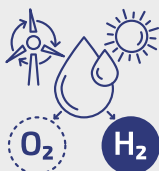
HUTNÍ PROJEKT Frýdek Místek a.s. is an influence on the level of Czech and world coking industry and heavy metallurgical chemistry, and now also hydrogen technologies. It is recognized in international markets as a major exporter of complete plants and equipment. It extends its activities also to related fields such as mechanical engineering, power engineering, gas, water and hot water distribution lines, waste water treatment plants and civic facilities.

Our array of top professionals provides comprehensive construction design, engineering, and contracting activities. With comprehensive professional skills and long experience we offer the following range of services:

- Turnkey contracts (EPC)
- Preparation of complex design documentation (BI, BE, DE, SD) including making 3D models and BIM
- Analyses and studies (of environmental effects of buildings, studies of pollution dispersion in environment, noise studies, building energy performance certificates, etc.)
- Construction management, technical and construction supervision
- Commissioning, operator training
- Special activities for heating and optimization of operation of coke oven batteries and industrial furnaces



## ELECTROLYZERS FOR "GREEN" HYDROGEN GENERATION



Generation of „green“ hydrogen = green hydrogen is produced using energy from renewable energy sources. The terms pink hydrogen (source: nuclear energy), blue hydrogen (source: natural gas), etc. can also be encountered.

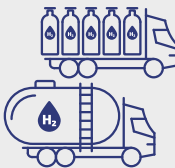
Electric power and water are supplied to these systems and water electrolysis is used to produce clean hydrogen and oxygen.

## STATIONARY STORAGES OF HYDROGEN, NATURAL GAS, BIOGAS AND OTHER GASES



Stationary pressure vessels used mostly for energy (hydrogen) storage. These may have the form of steel or composite pressure vessels or cascade systems which may be located on surface or underground.

## TRANSPORT MODULES OF HYDROGEN, NATURAL GAS, BIOGAS AND OTHER GASES



Transportable vessels / pressure cylinders to be moved to filling point. Typically bundles of or individual composite or steel pressure cylinders which are approved for transport in accordance with applicable standards.

## UP TO 1000 BAR HYDROGEN COMPRESSORS AND FILLING STATIONS



Hydrogen filling stations for

- buses, trucks, vans / passenger cars, trains, ships,
- building machines, handling equipment and pressure cylinders.

More exactly said hydrogen pumping stations are mentioned here. They have the form of a classical pumping station generally known to be used for petrol, diesel, LPG and CNG which is used for hydrogen filling. For buses and big trucks systems with 350 bar pressure and for passenger cars systems with 700 bar pressure are applied.

## USE OF HYDROGEN FOR ACCUMULATION OF EXCESS ENERGY FROM RENEWABLE ENERGY SOURCES



Storage of excess energy from PVE so that it can be used if needed. It can be applied from output in the order of kW so that the system autonomy is maximized. Simply said, when sun shines or wind blows the energy from PVE mostly cannot be used by us and when at home in the evening, the energy is already unavailable. Hydrogen is then used as an energy carrier like accumulators and provides energy when needed. The main advantage is that it is allowed to empty the hydrogen tank or keep it full or partially filled to be used in winter season when it will be needed most. Hydrogen in it will would for you.



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