

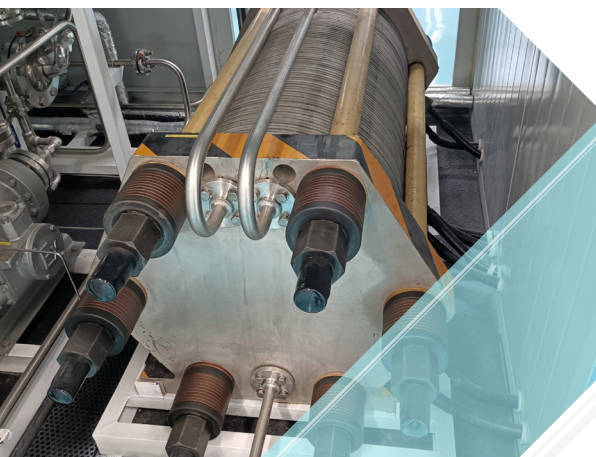
DATASHEET

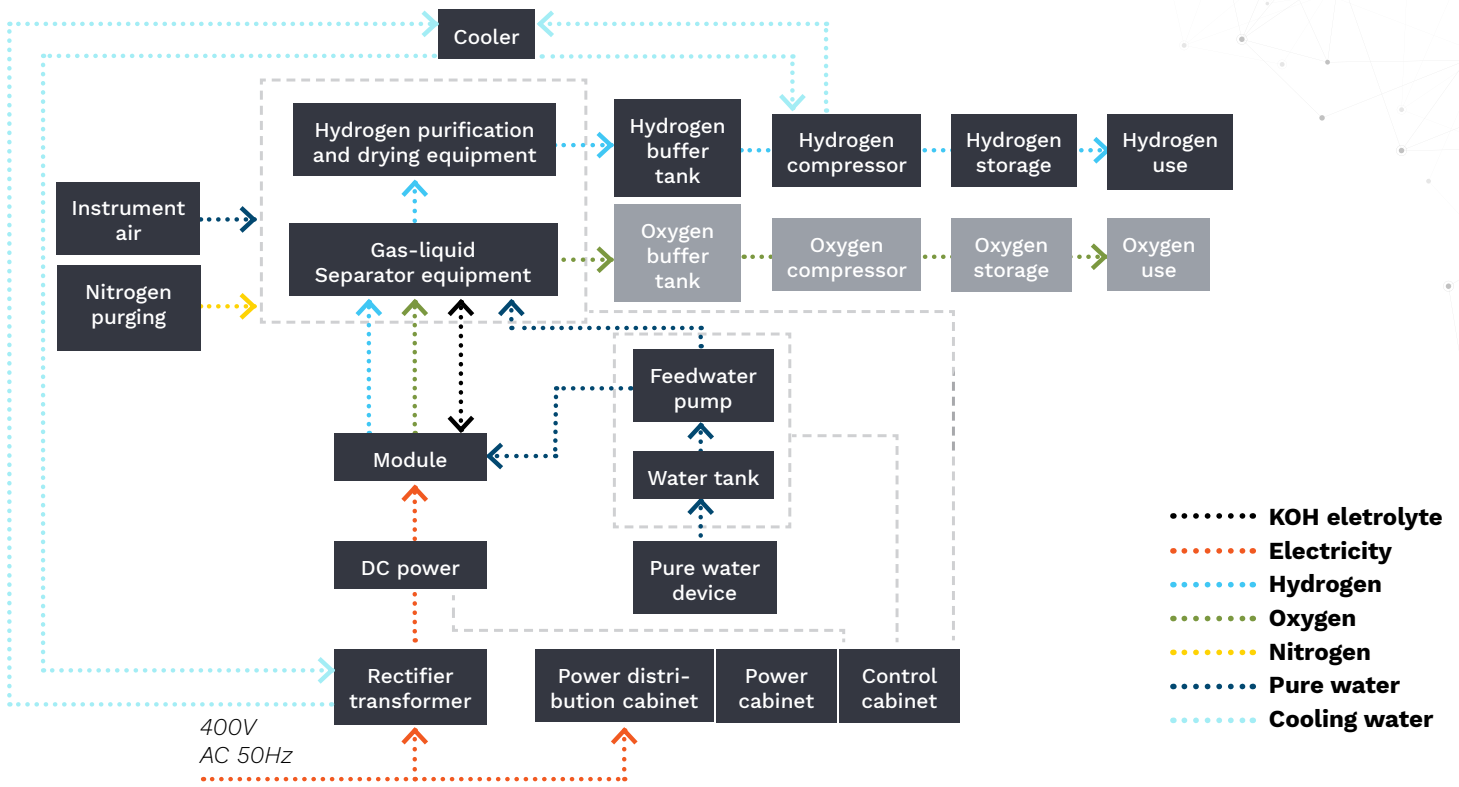
H₂ PRODUCTION PLANT

Alkaline electrolysis method

- ▶ **Standardized size range**
- ▶ **Electrolysis temperature range** 80 – 90 °C
- ▶ **Regulation range** 30 – 100 %
- ▶ **Water content in H₂** << 4 g/m³
- ▶ **Alkalic content in H₂** << 1 mg/m³
- ▶ **DC Power consumption** 4.8 kW/ 1 Nm³
- ▶ **Containerized solution up to** 100 Nm³/h
- ▶ **Plant solution unlimited**
- ▶ **Stack overhaul period more than 10 years**

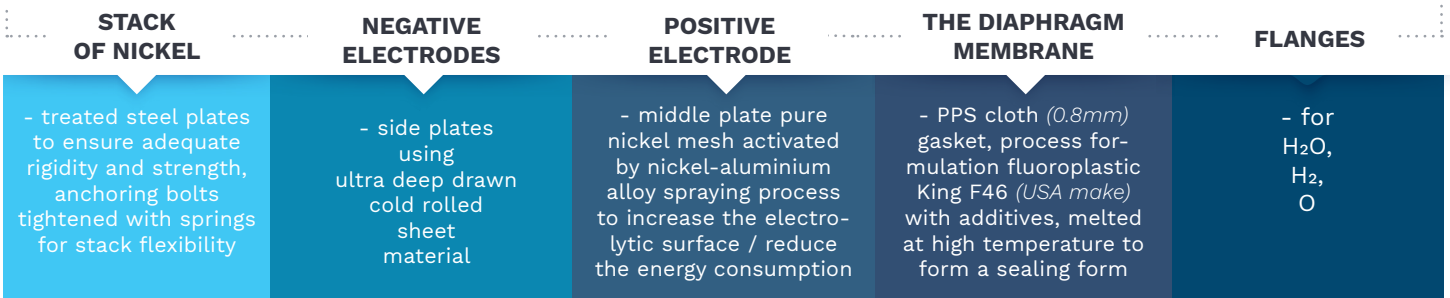
Model	Hydrogen generation (Nm ³ /h)	Oxygen generation (Nm ³ /h)	Hydrogen purity (%)	Electrolyser Work Pressure (MPa)	Cooling Water consumption (m ³ /h)	Rated voltage (V)	Rated Current (A)
HG5	5	2.5	99.99	3.2	1	34	740
HG10	10	5	99.99	3.2	2	66	740
HG20	20	10	99.99	3.2	3	62	1600
HG60	60	30	99.99	1.6	9	104	2800
HG100	100	50	99.99	1.6	15	106	4600
HG200	200	100	99.99	1.6	28	210	4600
HG250	250	125	99.99	1.6	38	168	7200
HG300	300	150	99.99	1.6	48	202	7200
HG500	500	250	99.99	1.6	75	180	13400
HG800	800	400	99.99	1.6	120	288	13400
HG1000	1000	500	99.99	1.6	150	280	17200
HG1200	1200	600	99.99	1.6	240	336	17200





ELECTROLYSER

H₂/O PRODUCTION BY DECOMPOSING OF H₂O WITHIN ELECTROLYTIC CELLS BY DC POWER



KOH FILTER/COOLER FOR RECYCLING SYSTEM

FILTERING OF IMPURITIES IN H₂, COOLING SYSTEM

- Carbon steel plated nickel alloy, external mirror polishing, basket filter structure, easy to take apart and wash
- The cooler made of stainless steel, built in a hydrogen-oxygen synthesis tower, medium cooling water

H₂/O SEPARATOR

SEPARATION OF HYDROGEN AND OXYGEN

- Separation / washing of H₂/O circulating liquid until gas to be fully separated
- Vertical stainless-steel separator, using integrated tower form
- Lower part gas-liquid separation, the upper part gas washing / cooling part

GAS / LIQUID SEPARATOR

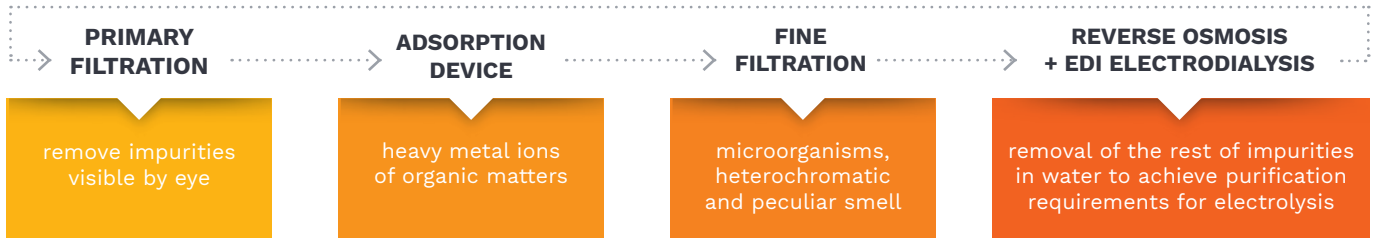
SEPARATION OF GAS / LIQUID

- Gas, liquid separation, to further enhance of the hydrogen (oxygen) gas purity
- Gas and water separation by gravity, made of stainless steel
- Deaerator - Stainless steel, built-in palladium catalyst

WATER TREATMENT

MODIFICATION OF INPUT TECHNOLOGICAL WATER FOR PROCESS OF H₂ ELECTROLYSIS BASED ON DEMINERALIZED WATER FREE OF MINERAL SALTS, MAINLY STRONG ELECTROLYTES DISSOLVED IN WATER

- Water treatment equipment for removing or reducing of minerals in water
 - Reverse Osmosis *RO membrane technology, ensuring the required quality of the technological water
- Impurities removed by RO - large particle suspension, free chlorine, hardness, organic matters
- Filtration Process of raw water in steps as follows



COOLING WATER SYSTEM

COOLING OF PROCESS OF ELECTROLYSIS H₂ AND COOLING OF PRESSURIZED GAS

- Close circuit of water, designed to operate at 50°C of ambient temperature while maintaining design of hydrogen capacity and efficiency
- includes process heat exchanger (*H₂O liquid / cooling water*), cooling water circulating pump, air heat exchange radiator (*cooling water / air*), circulation balance pool and connection piping
- filling by technological water

CONTROL SYSTEM

CONTROL AND MONITORING OF PRODUCTION PROCESS

- based on industrial PLC (*Siemens S-1500*), CPU, I/O card, relays, measurement, sensors, protection system
- pressure regulating loop – control of H₂ and O production (*differential balancing of pressure ration between H₂ and O*)
- temperature regulating loop – control of temperature of process (*operation at stable and safe conditions, prevent overheating of electrolyser*)
- process instrumentation and control loops

RECTIFIER BRIDGE AND TRANSFORMER

TRANSFORMATION AND RECTIFICATION OF MAINS AC VOLTAGE TO DC

- Parameters of input voltage and current based on grid and electrolyser parameters
- Control and protection system with the following feature - Overcurrent, Overvoltage, Phase lost, Fuse, Malfunction/ Failure detection, Water splash protection, Emergency stop

