PRODUCT INFORMATION

MODULAR ENERGY SYSTEM

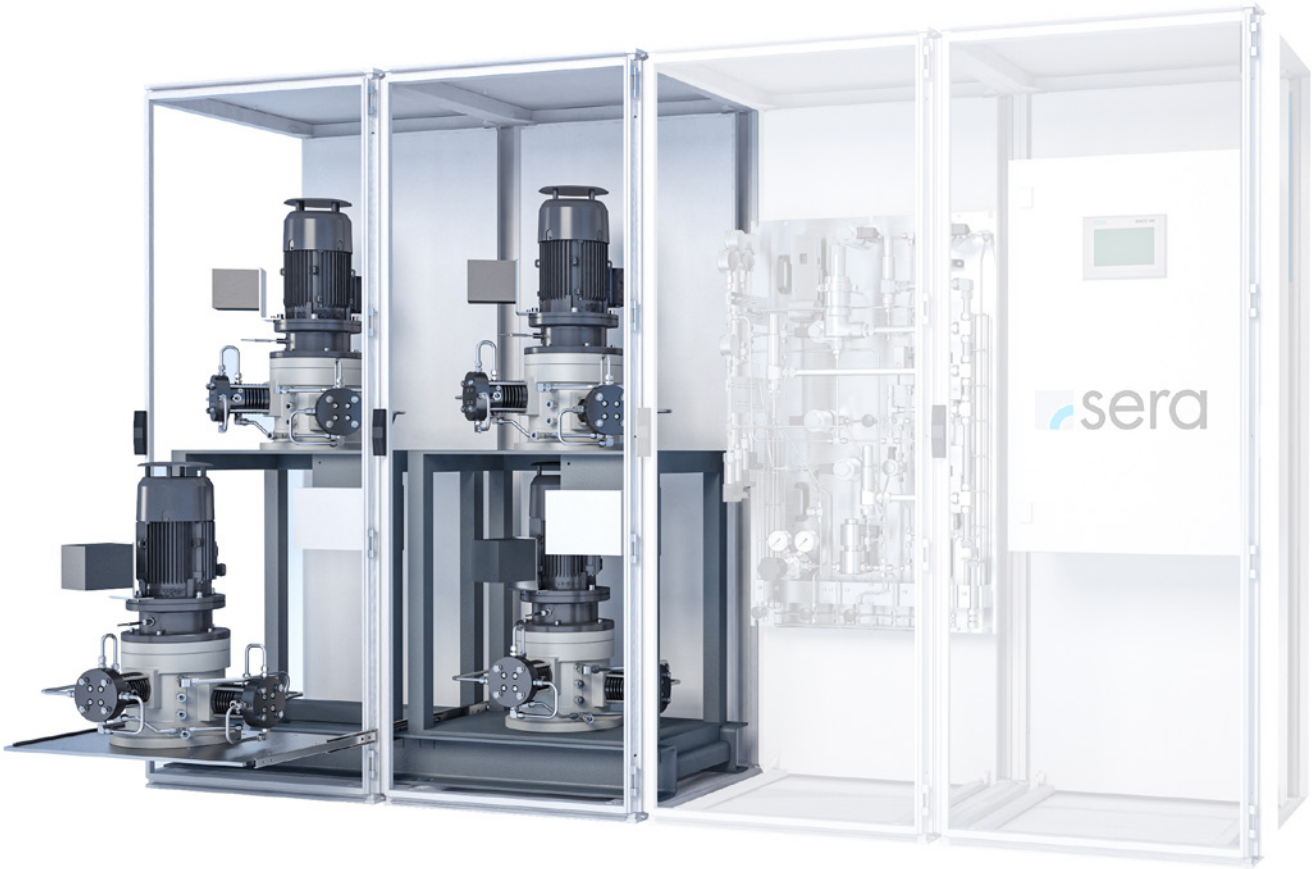
CLEAN - SAFE - RELIABLE

MODULAR ENERGY SYSTEM (MES)

The Modular Energy System are used, among other things, for district and industry power solutions. For self-sufficient supply tasks for heat or electricity, the **sera** Modular Energy System compresses hydrogen for long-term storage. The booster solution is designed for filling long-term energy storage systems or emergency power solutions. The sera solution enables the year-round, independent and emission-free operation of energy and heat supply systems.

APPLICATION

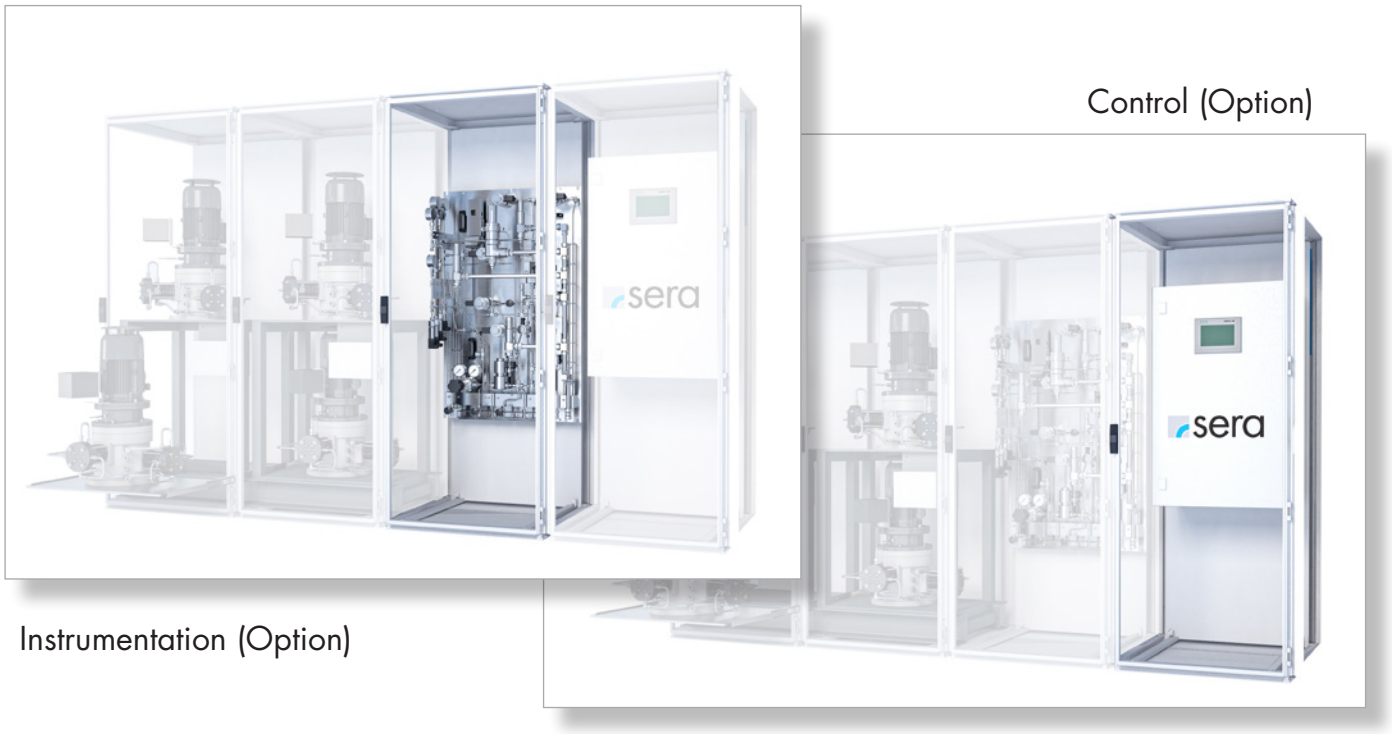
In its function, the Modular Energy System increases the pressure of the hydrogen. The system limits are thus the supply line or the gas outlet. In the Modular Energy System, the hydrogen is highly compressed as required in order to increase the energy density of the medium. An electrolysis system or other hydrogen sources can be located upstream. Downstream are storage tanks and consumers.



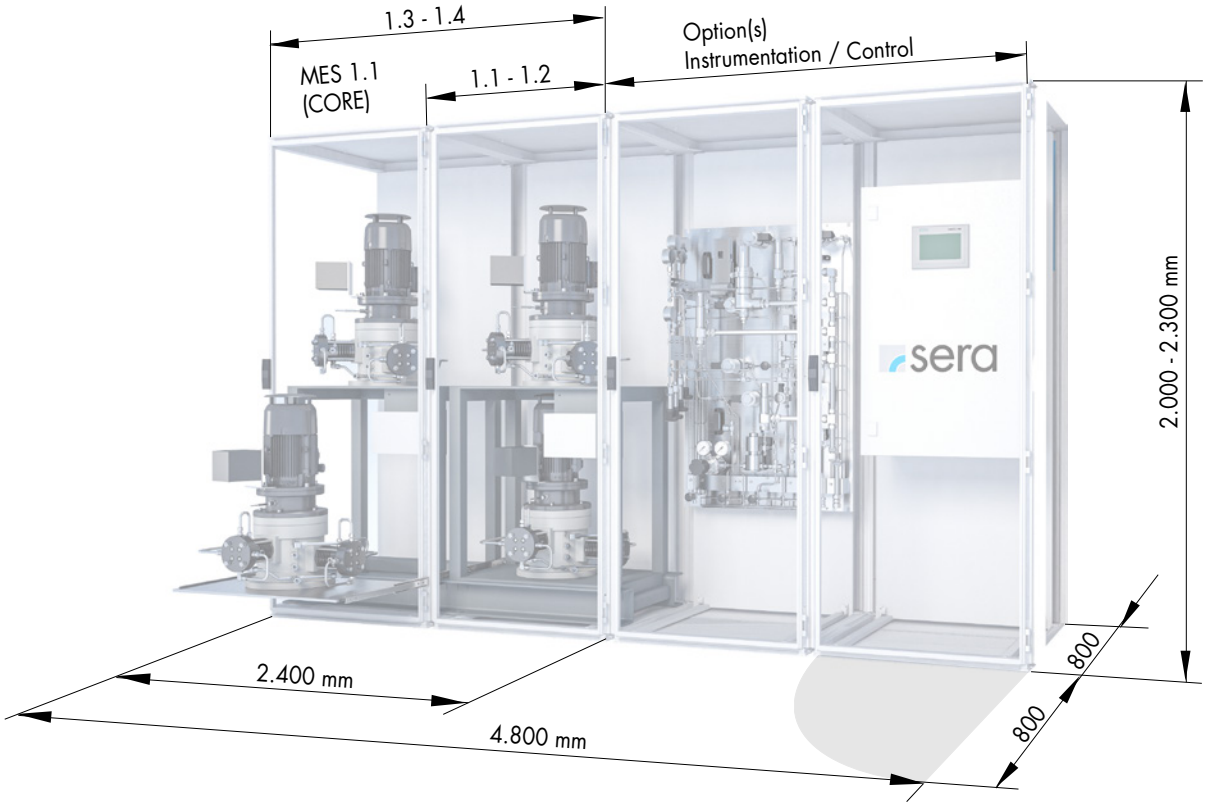
The core of the Modular Energy System consists of one to four Piston Compressor (IN series) connected in parallel.
Instrumentation and a corresponding control system are optional.
Note: if the instrumentation option is selected, a control system is mandatory!

MODULAR ENERGY SYSTEM (MES)

The modular design of the Piston Compressor (IN series) makes the compressor system flexibly expandable. By adding up to four Piston Compressors, systems with larger delivery volumes can be designed.



DIMENSIONS



MODULAR ENERGY SYSTEM
SYSTEM- AND COMPRESSOR DATA

SYSTEM DATA	
Inlet pressure	25-30 bar(g)
Outlet pressure	300 bar(g)

Delivery rate with test gas helium at 30 bar(g) inlet pressure	
MES 1.1	≥ 2,0 Nm3/h at 300 bar(g) final pressure ≥ 3,0 Nm3/h at 150 bar(g) final pressure
MES 1.2	≥ 4,0 Nm3/h at 300 bar(g) final pressure ≥ 6,0 Nm3/h at 150 bar(g) final pressure
MES 1.3	≥ 6,0 Nm3/h at 300 bar(g) final pressure ≥ 9,0 Nm3/h at 150 bar(g) final pressure
MES 1.4	≥ 8,0 Nm3/h at 300 bar(g) final pressure ≥ 12,0 Nm3/h at 150 bar(g) final pressure

COMPRESSOR DATA	
Inlet pressure (PS)	Short-term min.10 bar(g) Operation 25 - 30 bar(g) Housing pressure max. 40 bar(g)
Outlet pressure	max. 300 bar(g)
Delivery rate per Piston Compressor with test gas helium at 30 bar(g) inlet pressure	≥ 2,0 Nm^3/h at 300 bar(g) final pressure ≥ 3,0 Nm^3/h at 150 bar(g) final pressure
Protection class	IP 55
Noise emission	< 60 dB(A)
Corrosion protection	Painting C2 according to DIN EN ISO 12944-2

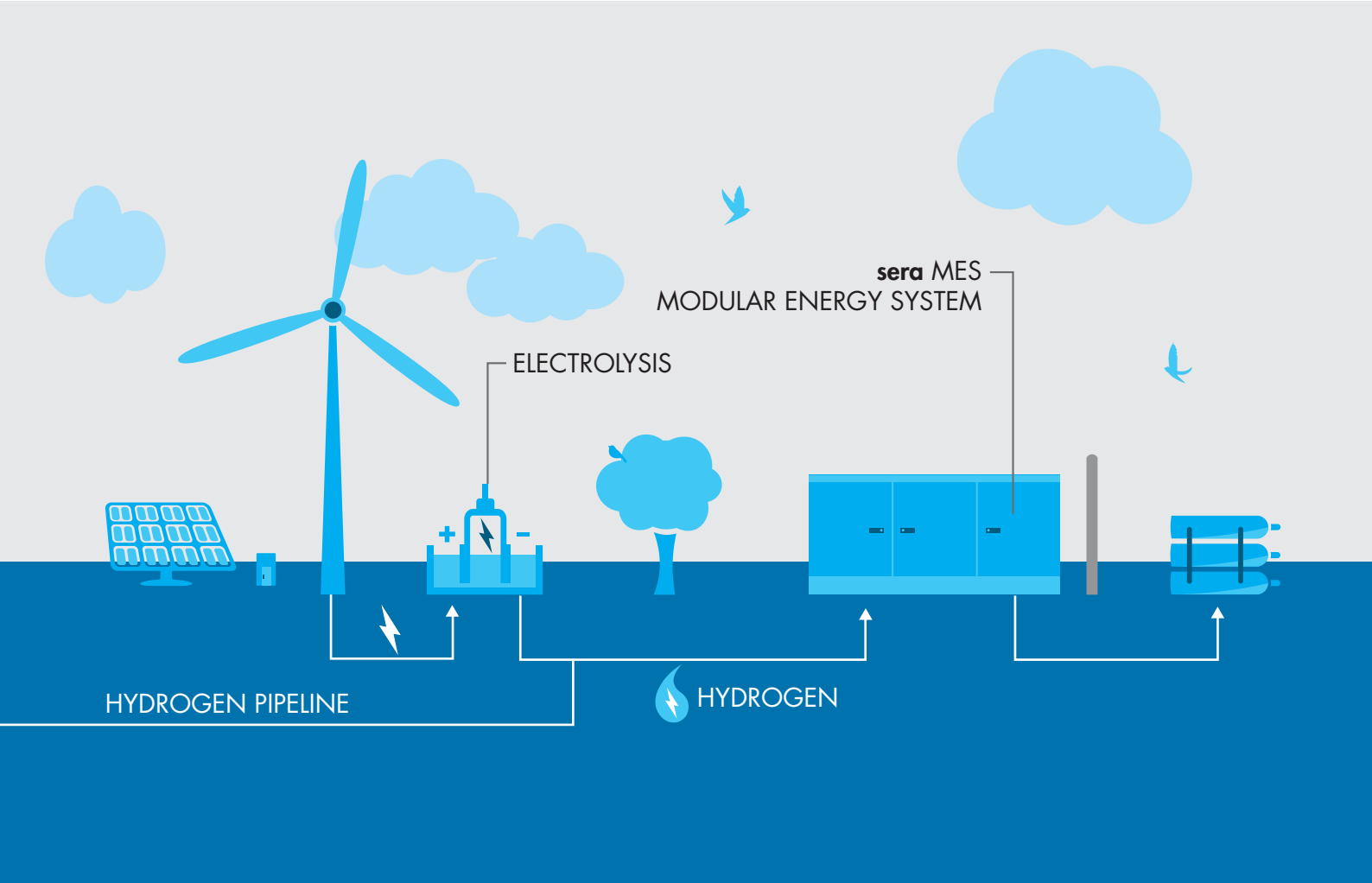
ENVIRONMENTAL CONDITIONS	
Max. Installation height	1,000 m above sea level, higher placement with de-rating
Ambient temperature	-15 °C - +40 °C

CONVEYING MEDIUM	
Gas type	Hydrogen 5.0, dry, solids-free (if lower qualities are used, but at least 3.5, this may result in altered sealing behaviour)
Inlet temperature	Max. 30°C
Dew point hydrogen	-50°C at 1 bar
Compressor contamination	Abrasion due to seals, initial lubricant

MODULAR ENERGY SYSTEM
SYSTEM- AND COMPRESSOR DATA

DRIVE/MOTOR	
Motor type of the individual compressors	Asynchronous motor, 4-pole
Speed	approx. 540 rpm (18Hz) and 750 rpm (25Hz)
Electrical voltage	220 VAC (Y)
Drive power per compressor	2.200 W; 750 W (at 16Hz)
Continuous power consumption per compressor	approx. 650 W

INTERFACES	
Electrical	potential-free contacts
Communication	PROFINET
Gas inlet	½"
Gas outlet	½"
Purge connection	½"
Blow-off line	½"



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