

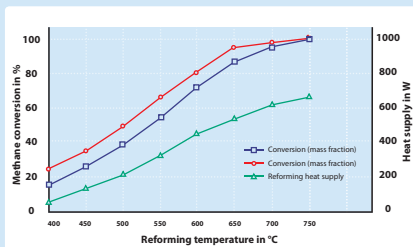
Reforming Unit



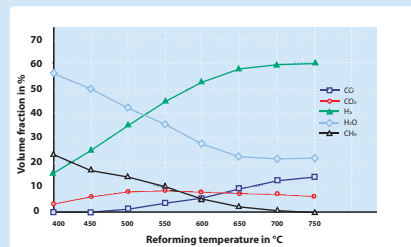
EBZ-SR-300 Steam Reforming Unit for 300 W_{LHV} methane / natural gas

EBZ REFORMING UNIT

The Steam Reforming Unit is available in three standard sizes 300 W, 1000 W and 5000 W referred to heating value of natural gas input. Other customised solutions are possible. The reforming unit consists of an electrical evaporator, a heated mixing zone and the heated catalyst bed. The unit can be used either as pre-reformer or for hydrogen rich gas production, controlled by its temperature. The Reforming Unit is designed in particular for the gas processing in solid oxide fuel cell (SOFC) systems. Here, the operation of a stack with partly internal reforming can be investigated systematically.



methane conversion and heat demand of reforming (S/C=2.5, 2 kW_{LHV} natural gas)



reformate composition in dependence on equilibrium temperature (S/C=2.5)

KEY FEATURES

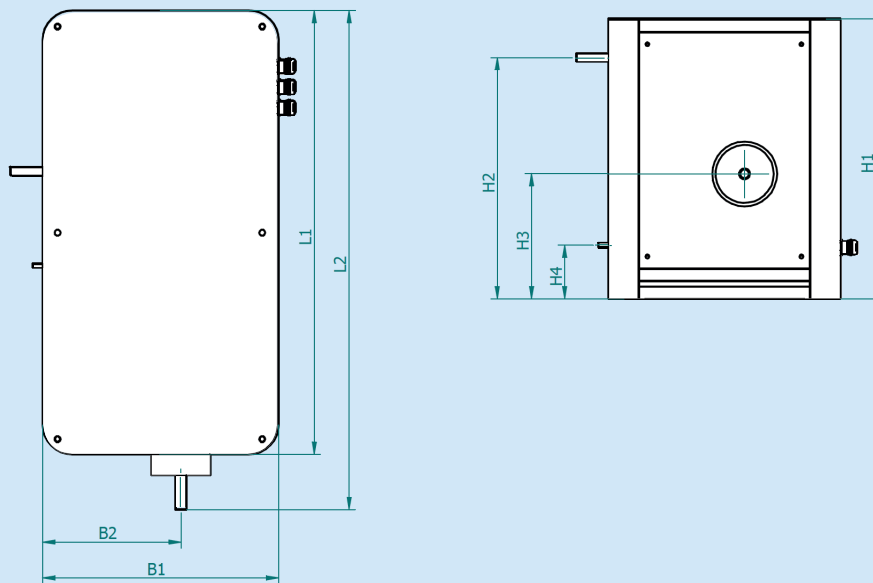
- electrical heated reactor
- precious metal catalysts
- compact design
- high-temperature resistant materials up to 900 °C
- low heat and pressure loss design
- integrated electrical evaporator for homogenous steam supply
- integrated, trace heated gas mixing chamber for optimal operation

FUELS

- natural gas / methane
- biogas
- ethanol / methanol on request
- LPG (propane / butane) on request

OPTIONAL

- **EBZ Heater Control and Safety Unit**
- alternative reformer sizes on request
- geometry adjustments on customer demand
- integration with other EBZ modules
- autothermal reforming (ATR) or catalytic partial oxidation (CPOx)
- design as heat exchanger functionality
- flow control incl. water dosing
- desulphurization unit
- water deionisation



TECHNICAL DATA

	EBZ-SR-300	EBZ-SR-1000	EBZ-SR-5000
scale (based on LHV natural gas)	300 W	1000 W	5000 W
steam-to-carbon-ratio / catalyst	2 ... 3 / precious metal		
max. outlet temperature / pressure loss	max. 750 °C; < 100 mbar		
max. heating power			
reformer	500 W	1000 W	3000 W
evaporator	250 W	500 W	2500 W
dimensions / alternative dimensions on request (in mm)	L1: 440 / L2: 495 B1: 360 / B2: 180 H1: 300 / H2: 205 H3: 125 / H4: 185	L1: 640 / L2: 720 B1: 340 / B2: 200 H1: 410 / H2: 355 H3: 185 / H4: 80	L1: 680 / L2: 760 B1: 430 / B2: 255 H1: 435 / H2: 370 H3: 210 / H4: 110
instrumentation	5 thermocouples (type K or N) (reform. heater safety temperature, reactor inlet temperature, reactor outlet temperature, evapor. heater temperature, steam temperature)		6 thermocouples (type K or N) (additional: evapor. heater safety temperature)
fuel supply (NG)	0.05 ... 0.5 I _{N,STP} /min	0.17 ... 1.7 I _{N,STP} /min	0.85 ... 8.5 I _{N,STP} /min
water supply	5 ... 100 g/h	15 ... 300 g/h	75 ... 1500 g/h
evaporator	integrated		external
design pressure	1 bar (g)		
design temperature	900 °C		

