

# Product lines

## ELWA P2H systems



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## Copyright notice

In addition to general information, this product overview also contains a lot of information on the unique selling points of our systems in the competitive environment. We are happy to make this information available to our customers and interested parties, but would like to point out that users may only use this information within the scope of their own company's projects. Disclosure to third parties is only permitted with our express written authorisation. Complete copies or the use of extracts from this document are not permitted.

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## Version

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## GENERAL

### FOREWORD

ELWA Power-To-Heat systems were developed to make a valuable contribution to decarbonisation as a highly efficient technology in the area of sector coupling. P2H systems can be perfectly combined with heat pumps, combined heat and power plants, battery systems and large thermal storage units. We will be happy to advise you on how the various technologies can be optimally combined.

Below we briefly present the current product lines. Please note that we can always develop customised projects that deviate from the standard. There is no such thing as impossible at ELWA!

### OPERATING CONDITIONS

We combine the switchgear with our heaters for liquids and gases to cover a wide range of temperature ranges and operating conditions. If your process involves higher temperature ranges, for example up to 800 °C for air heating, please contact us.

### OPERATING TEMPERATURES

Water / steam	220	°C
Thermal oil	300	°C
Air	800	°C

### OPERATING PRESSURE

We can supply systems up to 16 bar as standard, higher operating pressures are possible on request.

### EX AREA

We also supply heaters for liquid media in explosion-proof versions. However, the switchgear should always be positioned outside the hazardous area. As we generally switch higher power levels in the P2H area, power losses occur in the switchgear that cannot be sensibly dissipated thermally from enclosures for explosion-proof systems. The SLB and MLB series are therefore not suitable for this purpose.

### AGGRESSIVE MEDIA

The material of the pressure vessels and the heating elements can be selected to suit the medium

## ELWA P2H PRODUCT LINES

### P2H SLB ENZEL SYSTEMS (COMPLETE SYSTEMS)

ELWA P2H SLB systems are tested and ready for operation on delivery. The switchgear and heater are mounted on a common frame. The entire sensor/safety technology is already installed. The user only has to install the power cabling to the switchgear, the cables for communication with the customer's control technology and the pipework to/from the system. Commissioning is ideally completed within a few hours and is limited to coordinating communication with the customer's control technology, checking the installation and fine-tuning the control parameters.

#### PERFORMANCE VARIABLES (STANDARD)

P2H SLB	PERFORMANCE →	50	100	150	250	500	750	1000	1250	1500	
Operating voltage	400 VAC										
	690 VAC										
Switchgear	standard										
	type-tested										
Control system	Controller with touch display										
	Codesys PLC / touch display										

#### SLB OPTIONS



##### PERFORMANCE

The power steps in the table represent a sensible gradation. The systems can be adapted to lower outputs by changing the wiring diagram in the heater (reversible at any time).

##### NOMINAL SIZES

The nominal diameter and position of the connection pieces can be adapted to the hydraulic requirements of the connected system.

##### CONTROL SYSTEM

The control system used is optimised for the application. Siemens S7 control systems can also be configured as an option.

##### COMMUNICATION

ModBus TCP is available as standard. Profinet and other bus systems are possible directly or can be connected via gateways. Remote maintenance solutions are optionally available.

## P2H SLB-PM ENZEL SYSTEMS (COMPLETE SYSTEMS WITH PUMP / MIXER)

ELWA P2H SLB-PM systems are based on the SLB systems with the addition of a speed-controlled pump and mixer. These system types are also ready for operation on delivery and contain the entire sensor/safety technology. The PLC also controls the mixing valve and/or the pump speed to allow power regulation mode while still maintaining a constant output temperature. With these systems, the entire output range can be operated steplessly and a thermal storage tank for example, can be optimally loaded.

### PERFORMANCE VARIABLES (STANDARD)

P2H SLB-PM	PERFORMANCE →	50	100	150	250	500	750	1000	1250	1500	
Operating voltage	400 VAC										
	690 VAC										
Switchgear	standard										
	type-tested										
Control system	Controller with touch display										
	Codesys PLC / touch display										

### SLB-PM OPTIONS



#### PERFORMANCE

The power steps in the table represent a sensible gradation. The systems can be adapted to lower outputs by changing the wiring diagram in the heater (reversible at any time).

#### NOMINAL SIZES / PUMP CAPACITY

The nominal diameter and pump capacity can be adapted to the hydraulic requirements of the connected system.

#### CONTROL SYSTEM

The control system used is optimised for the application. Siemens S7 control systems can also be configured as an option.

#### COMMUNICATION

ModBus TCP is available as standard. Profinet and other bus systems are possible directly or can be connected via gateways. Remote maintenance solutions are optionally available.

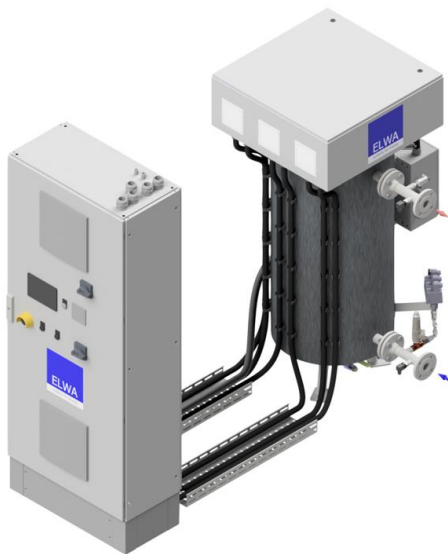
## P2H CLB ENZEL SYSTEMS / DECENTRALISED DESIGN

ELWA P2H CLB systems consist of switchgear and heaters as individual components. The systems are mainly used when it is not possible to install complete systems on site. The switchgear and heater are then customised. The components can also be installed at locations further away from each other. Our customers receive a cable pull list for their project for the cabling to be installed on site between the heater and switchgear.

### PERFORMANCE VARIABLES (STANDARD)

P2H CLB	PERFORMANCE →	50	100	150	250	500	750	1000	1250	1500
Operating voltage	400 VAC									
	690 VAC									
Switchgear	standard									
	type-tested									
Control system	Controller with touch display									
	Codesys PLC / touch display									

### CLB OPTIONS



#### PERFORMANCE

The power steps in the table represent a sensible gradation. The systems can be adapted to lower outputs by changing the wiring diagram in the heater (reversible at any time).

#### NOMINAL SIZES

The nominal diameter and position of the connection pieces can be adapted to the hydraulic requirements of the connected system.

#### CONTROL SYSTEM

The control system used is optimised for the application. Siemens S7 control systems can also be configured as an option.

#### COMMUNICATION

ModBus TCP is available as standard. Profinet and other bus systems are possible directly or can be connected via gateways. Remote maintenance solutions are optionally available.



## P2H MLB MODULAR SYSTEM

The ELWA P2H MLB system was developed to flexibly cover even large capacities. The systems can be expanded at any time and are also suitable for high-availability systems thanks to their distributed control systems and individually operable components. As with the SLB systems, we supply ready-to-use units that can be set up on site with the prefabricated pipework within a few hours. A 5 MW system is normally fully assembled within a morning. The pipework cross-sections are selected so that systems up to 10 MW can be assembled directly. Parallel systems can then be used for higher outputs. A central control cabinet is available for communication with the customer's control level, which records and processes the system statuses of all subsystems.

### PERFORMANCE VARIABLES (STANDARD)

P2H MLB	PERFORMANCE →	50	100	150	250	500	750	1000	1250	1500
Operating voltage	400 VAC									
	690 VAC									
Control system	Codesys PLC / touch display									

### MLB OPTIONS

#### CONSTRUCTION

The system can be set up inline, back-to-back, distributed or L-shaped, for example

#### PIPELINES

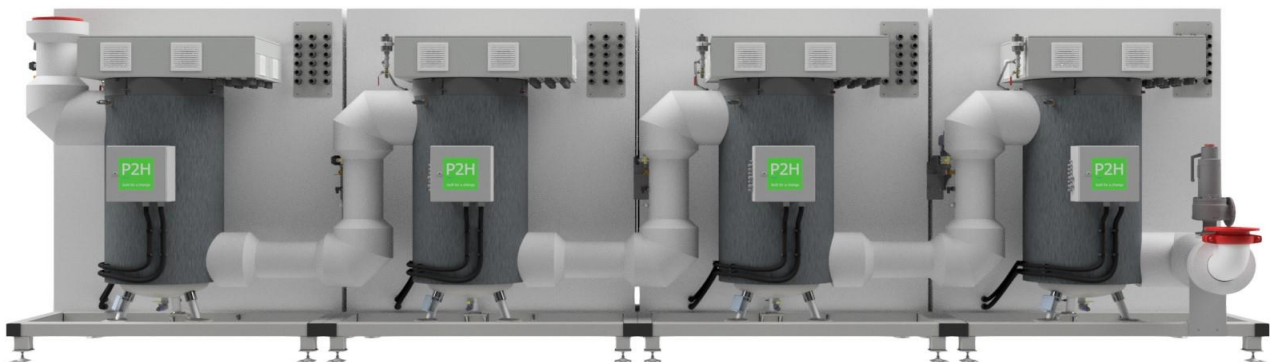
Victaulic systems are used up to 110°C; welded/flanged pipes are used for higher temperatures

#### CONTROL SYSTEM

The control system used is optimised for the application. Siemens S7 control systems can also be configured as an option.

#### COMMUNICATION

ModBus TCP is available as standard. Profinet and other bus systems are possible directly or can be connected via gateways. Remote maintenance solutions are optionally available





## P2H MOD CUSTOMISED PLANT ENGINEERING

Under ELWA P2H MOD, we summarise all projects in which we can apply our decades of experience in the development of complex systems in shipbuilding, power plant construction and industry. For our customers, we manufacture systems for the reliable supply of thermal processes with water or thermal oil as the heat transfer medium. We design decentralised or centralised switchgear and work together with proven manufacturers of pumps and heat exchangers to create individual systems that take into account both the local conditions and the requirements of the process. Thanks to effective project management and a high degree of flexibility, we also support our customers with conversions during operation. There are virtually no limits to individualisation here. The more complex the task, the better!

