

USER REPORT



HIGHLY DYNAMIC TEMPERATURE CONTROL OF INNOVATIVE THERMAL CHAMBERS

For many years, Sonplas has been implementing customer-specific test benches with integrated thermal chamber for testing and developing new products under extreme temperature conditions. Continuously increasing demands in this area led Sonplas to substantially further develop the thermal chambers. The company relies on high-performance temperature control technology from JULABO for efficient temperature control in the new products.

REQUIREMENTS FOR TEMPERATURE CONTROL TECHNOLOGY

In the new generation of Sonplas thermal chambers, the complete temperature control and safety technology is integrated into the roof of the thermal chamber. Access doors or application-specific feedthroughs are therefore possible on all four sides, which offers the greatest possible flexibility regarding placement of the chamber. The chamber floor or the area below the chamber is also kept completely free for application-specific installations.

Cooling and heating is provided by an external temperature control instrument located a few meters away. Heat is transferred via a space-saving and compact heat exchanger on the roof of the thermal chamber. This means that the thermal chamber offers maximum space for customer-specific applications. Another advantage of this concept is that indirect heating means there are no electrical heating elements inside the thermal chamber that could be a potential source of ignition for an explosive atmosphere.



This concept, combined with further measures regarding explosion protection, predestines the Sonplas thermal chambers for testing of products where a release of explosive substances can be expected. This may be the case when using conventional, biological or synthetic fuels as well as hydrogen, methane or other explosive gases and mixtures, for example from batteries.

The working range of the thermal chamber is usually between -40 °C and $+150\text{ °C}$. Rapid temperature fluctuations must also be simulated depending on the requirements of the experiment or the test specimens. The temperature control technology used must therefore cover a wide temperature range and also enable the required temperature changes in the shortest possible time.

THE JULABO SOLUTION APPROACH

Sonplas relies on temperature control instruments from the JULABO PRESTO W91 series for temperature control of the thermal chambers. These offer outstanding performance, especially at very low temperatures. The required temperature ranges of -40 °C to $+150\text{ °C}$ can be regulated very dynamically with high temperature change rates.



In addition, the units in the PRESTO W91 series offer sufficient power reserve to be able to operate, in special cases, in a temperature range of down to -91 °C minimum temperature and up to $+250\text{ °C}$ maximum temperature.

Using serial interfaces, the PRESTO W91 is integrated into the overall system of the thermal chamber test bench alongside other components and can be remote controlled.

CONCLUSION

Sonplas has already purchased several PRESTO W91 units from JULABO for the new thermal chambers and successfully integrated them into its overall system. Alexander Groß, Mechanical Design Team Leader, is impressed by the machines: „First and foremost, the high performance of the units in the low temperature range of -40 °C was essential for us. The PRESTO W91 still offer a reliable 11 kW cooling capacity there, which means that the thermal chamber can be used quickly and efficiently.“

This allows Sonplas to offer its customers highly flexible, high-performance thermal chambers for a wide range of application scenarios. Cooperation in the project was also excellent. „JULABO always responded very quickly to all questions relating to advice or technical design and was always open for specific special solutions. As a result, we now have a great new product in our portfolio for our customers,“ Groß continues.



SHORT INFO ABOUT SONPLAS

Founded in 1993, Sonplas is a medium-sized mechanical engineering company based in Straubing, lower Bavaria that employs more than 330 highly motivated employees. In line with the slogan "With our innovations into your future," Sonplas develops flexible and scalable special machines for machining, assembly and testing, which it supplements with external technologies depending on customer needs. The special machine manufacturer offers solutions for the areas of electromobility, battery cell production, hydrogen, hydro-erosive grinding, fuel injection, electronics, mechatronics and hydraulics for well-known customers from the automotive, automotive supply, commercial vehicle and aviation technology industries, among others.

www.sonplas.de

SHORT INFO ABOUT JULABO

JULABO GmbH, founded in 1967 in Germany, develops sophisticated temperature control technology and stands for innovation and competence in this area. Our units equipped with state-of-the-art control technology are used, when highest temperature accuracy or fastest response to temperature changes are important. More than 600,000 JULABO units installed worldwide demonstrate the high acceptance among users in research and industry. With proven quality "Made in Germany" and fast and competent service by local contact partners, JULABO has developed to a leading premium brand for temperature control solutions.