



CASE STUDY

TALENS - Thermal management of both control cabinet and processes in the same laser hardening machinery.

The Pfannenberg solutions have been chosen twice

Quote:

„Often the thermal management of electrical cabinets and that of process fluids are followed by different designers. It may happen that companies are not aware of the chance to address a single reliable supplier providing solutions rather than just products, and thus fully satisfy both their needs.“

Xavier Pedescoll
Sales Area Manager
Pfannenberg Iberia

The application

Laser technology can be applied to harden or soften several components in a broad range of industries.

TALENS XR660 is a machine that can be configured to process different sizes and types of parts for the automotive industry: gears, crankshafts, transmission components, camshafts... Engine components can be laser heat treated locally, defining the specific areas to be affected and avoiding thermal deformations. All integrated in a turnkey solution that gives you the maximum flexibility for a wide range of parts in one machine.

TALENS XR660 needs a cooling unit for its control cabinet and two chillers for the laser source and optics.

The customer

TALENS Systems - member of the ETXE TAR group, world leader in flexible crankshaft manufacturing - is a Spanish enterprise committed to development and commercialization of turnkey solutions for laser applications.

Talens first success case was to develop the laser hardening application of bands for the crankshaft.

With this knowledge and the machine engineering support from ETXE TAR, its staff is opening new frontiers, not only expanding the applications possibilities of laser surface heat treatment, but also introducing new processes based on the laser technology.

The requirements

Ensure laser operational reliability and prevent temperature fluctuations and damages, by cooling laser source and optics with chillers. If the heat they generate is not discharged, it can diminish the accuracy of the laser beam and even deform parts of the laser. UL approval is also a requirement.

Protect control cabinet's electronic components from heat failures or malfunctions and keep machinery running efficiently. Cooling units must adapt to different destination countries for both power supply and certifications.

DTS 3241



DTS 6401



EB 44 WT



EB 250 WT



The solution

TALENS' choice for cooling units has been rather simple: their end customer is FORD and has already made this choice, selecting Pfannenber as the official supplier of cooling units for electrical cabinets.

So TALENS have applied either **DTS 6401** (2.000 W) or **DTS 3241** (1.900 W, UL Listed) according to the needs of the country where the destination FORD plant was located.

They weren't yet aware they could reach the same reliability for chillers as well, turning once again to Pfannenber.

And that's exactly what they did after meeting our Iberian Sales Manager, abandoning the competition product previously purchased.

Following our advice, the choice fell on the **EB 44 WT UL-CUS** (4,4 kW) and **EB 250 WT UL-CUS** (25 kW) chillers.

The first unit providing a 4,4 kW capacity is equipped with a non ferrous hydraulic circuit, designed for laser applications; it works with deionized water having a temperature of 27-33°C at a 20 l/min flow rate.

The second unit offers a capacity of 25 kW and works with tap water 20-22°C while ambient temperature is 25°C. Guaranteed flow rate is 130 l/min.

Both the units' design uses advanced components with the dual objective of ensuring maximum performance and optimum energy efficiency. Moreover they both carry an UL approval, provided on request.



TALENS XR660 machinery is equipped with 2 Pfannenber chillers and 1 Pfannenber cooling unit.

Facts at a glance

Task	Thermal management of both control cabinet and processes.
Application	Laser hardening of bands for the crankshaft.
Solution	DTS 6401 (DTS 3241 in UK and US) + EB 250 WT UL-CUS + EB 44 WT UL-CUS
Success factors	<ul style="list-style-type: none"> • worldwide service and support • wide cooling units portfolio • flexibility of customized chillers solutions.

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