

APPLICATION NOTE

Instantly measure temperature uniformity on hot stamped automotive parts with fixed thermal imaging

Introduction

Automakers, also referred to as OEMs, rely on suppliers of varying sizes to manufacture components that are later assembled into a final vehicle. When looking at a vehicle's structural components, hot stamping and press hardening are some of the most integral manufacturing processes. Pair that with strict industry requirements like the CQi-9 heat treat systems assessment and suddenly your team is faced with expensive, time-consuming testing procedures. However, fixed thermal imaging is a cost-effective way for you to ensure that your parts are delivered to OEMs while meeting stringent industry requirements.



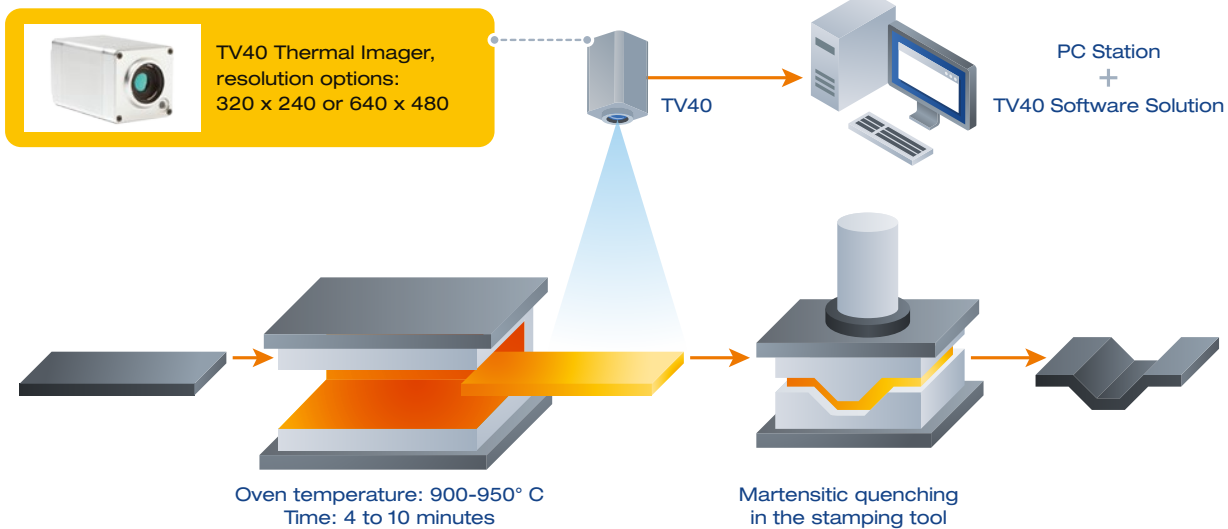
Ensure temperature uniformity

Hot stamping technology features the use of the metal thermoplastic forming principle, meaning it can do both the quenching and heat treatment of sheet metal at the time of forming.

CQi-9 dictates the minimum non-contact temperature monitoring requirements for the automotive industry, and while an infrared pyrometer may be able to meet your accuracy needs, it will only be at one point of your product. By combining heat treatment benefits with the precisely-controlled quench phase, your team would need to take a considerable number of temperature measurements to ensure high-strength steel components have the correct material properties to keep consumers safe on the road.

Monitor your product across the entire process

Fixed thermal imaging allows you to monitor product temperature across the entire product at any point in the process. During forming, for example, temperature distribution can have a serious impact on final product quality. Monitoring the product as it exits the furnace can offer insight into how the geometry or heating process may affect its form; meanwhile, monitoring product temperature after it is pressed can help ensure proper cooling and overall material quality.



Not only will you be going above and beyond in meeting regulatory requirements—although you should still implement spot sensors to be 100% certain—but you can confidently send final products to OEMs without incurring additional costs from exhaustive testing procedures.

The ThermoView solution

Mounting a ThermoView TV40 thermal imager (with 320x240 or 640x480 resolution) above the transport roller at the exit of the furnace is the quickest way to begin monitoring product quality. Our versatile ThermoView software enables you to quickly setup multiple Areas of Interest (AOIs), while the connection tool allows you to easily reference the temperature difference between each AOI. Additionally, intuitive alarms can be configured to alert your team when product temperatures are not uniform or when temperatures are beyond set parameters.

Conclusion

While crafting a vehicle’s structural components, ensuring temperature uniformity and meeting CQI-9 regulations is top of mind. The process can be timely and expensive, but it doesn’t have to be. Our ThermoView solution is a cost-effective method that allows your team to continuously monitor product temperatures, ensuring that metal parts in automotive applications have been hot stamped and heat treated correctly before they are sent further downstream.

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