



# The HERRING GROUP, Inc.

## *Professional Support Services*

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### Lean Manufacturing & Lean Heat Treatment

by

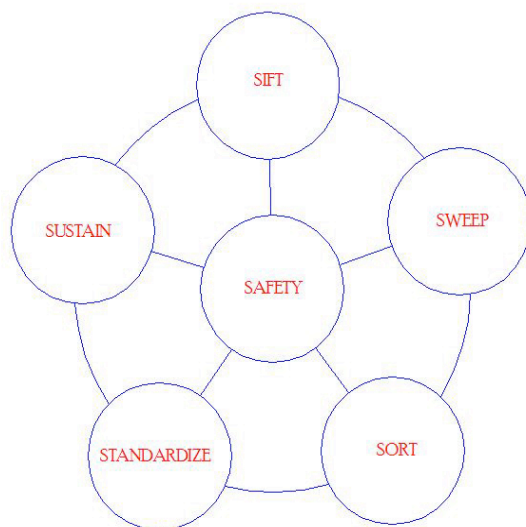
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“The Heat Treat Doctor”

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The last ten years has seen the long-standing practice by furnace manufacturers of supplying “stand-alone” pieces of equipment change to that of building of systems completely integrated into the manufacturing flow. Recognizing the reality of global competition there is new emphasis being placed on improving the overall efficiency of manufacturing by using lean manufacturing strategies (Fig. 1).

Figure 1  
Lean Manufacturing Strategy



The steps involved in a lean manufacturing strategy encompass an extended 5S strategy – to that of 5S+1. These steps are:

- **Sift** – decide which things you need to accomplish your work and remove from the workplace all items that are not needed for current production (or clerical) operations.
- **Sweep** – decide which things you do not need to do your job and remove them from your workplace.
- **Sort** – ensure that people can do other people’s work when they are not at their own workstation
- **Standardize** – create a standard for everything and try to use the same methodology and style throughout the manufacturing operation.
- **Sustain** – perform the 5S + 1 methodology on an on-going basis.



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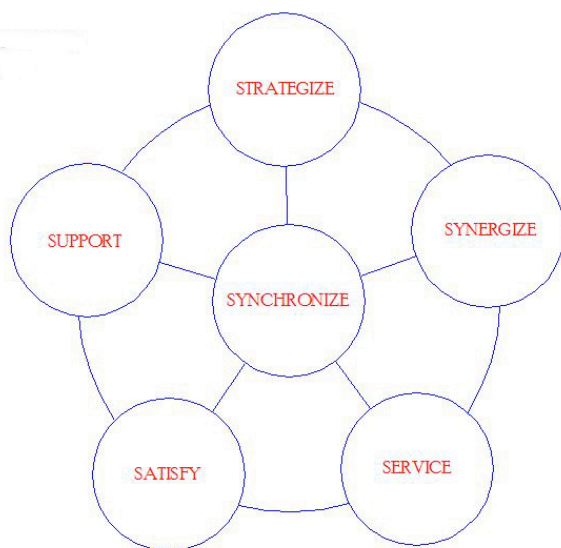
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and, in addition, guarantee

- **Safety** – in everything that’s done, safe practices and anticipation of controls to assure worker safety is mandatory.

Heat treating is a core competency and an integral part of the success of any manufacturing strategy, so equipment manufacturers must adapt their products to this “on demand” philosophy. The 5S + 1 strategy for lean heat treating (Fig. 2) involves:

Figure 2  
Lean Heat Treating Strategy



- **Strategize** – optimize part and workload configurations to minimize distortion, reduce or eliminate post heat treatment manufacturing steps and achieve the best possible quality;
- **Synergize** – organize and coordinate processes to reduce cycle times and increase throughput;
- **Service** –perform the necessary actions to assure uninterrupted operation and maintain production throughput;
- **Satisfy** – maintain absolute quality assurance
- **Support** – anticipate equipment and/or process problems to avoid unscheduled downtime;

and, in addition, be sure to be able to

- **Synchronize** – create a safe and mistake proof working environment both within the heat treatment operation and extending to the entire manufacturing operation.