

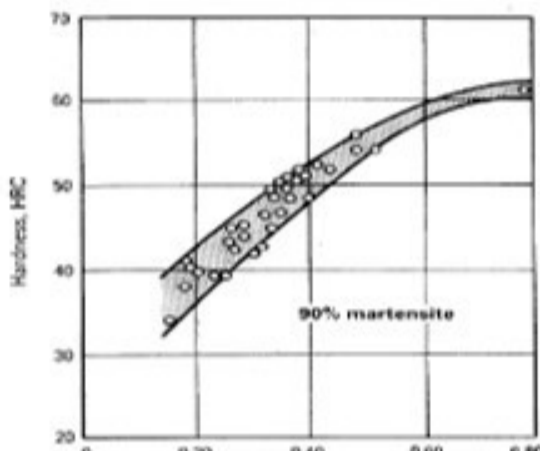
# Heat Treating

Learn how our Material Support & Solutions team solved this customer material issue.



## THE PROBLEM

A customer came to Worthington because they were not consistently meeting hardness requirements after heat treating. The grade of steel used in this process was a special alloy that was expensive and difficult to source. With the cost of rejected parts being so high, this problem was critical to solve quickly.



## THE ANALYSIS

A micro-structural analysis was performed to assess the depth of hardness of the steel post hardening. If the hardness was below expectations for the alloy, the heat treating process was flawed. If the hardness was meeting expectations for that alloy, they were using the wrong alloy for their hardness requirements.

Cold Roll 8620, .168" x 4.100"						
Calculated Jominy End-Quench Hardenability						
Jominy Distance	1	2	3	4	5	6
8620H Hardness Criteria (Rc)	41-48	37-47	32-44	27-41	23-37	21-34
Heat 566256	44	42	38	30	24	21
Heat 566257	44	42	37	28	23	20
Heat 567309	44	42	38	30	24	21
Heat 449735	43	40	35	26	22	19
Heat 564774	45	44	40	31	26	23
Heat 564209	44	43	39	31	25	22
Heat 567053	44	42	38	30	24	21

## THE SOLUTION

It was determined that they were using the wrong alloy for their needs. By reviewing the customer's requirements for their final product, the Worthington metallurgists were able to advise them on alternate grades that would achieve the post-heat treatments requirements consistently.

## — THE ACTION

If your material isn't meeting required hardness levels or you notice part warping/heat treatment issues, contact the Material Support & Solutions team at Worthington.