

SETPOINT MANAGEMENT TOOL FOR REHEAT FURNACE CONTROL - HEATXPRT

OBJECTIVE

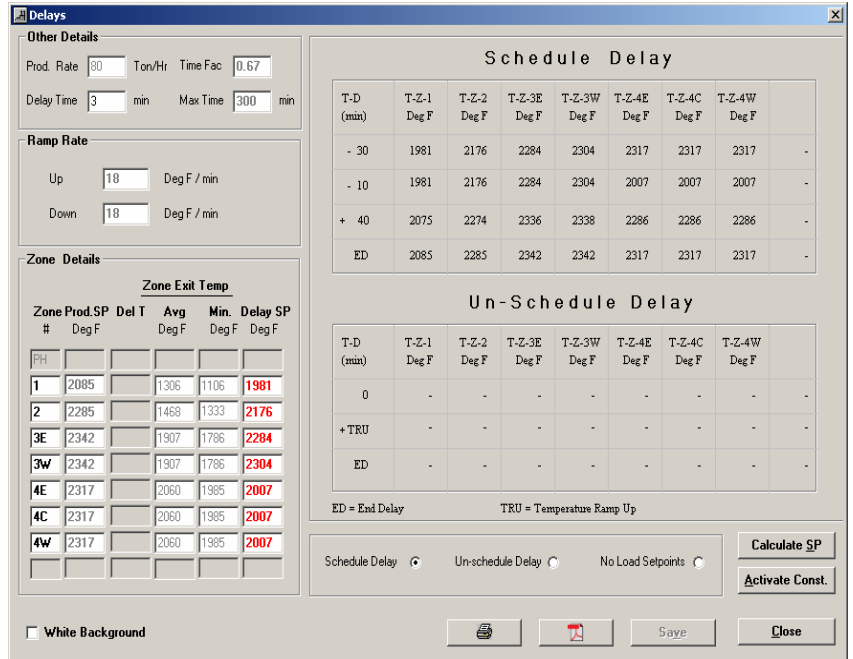
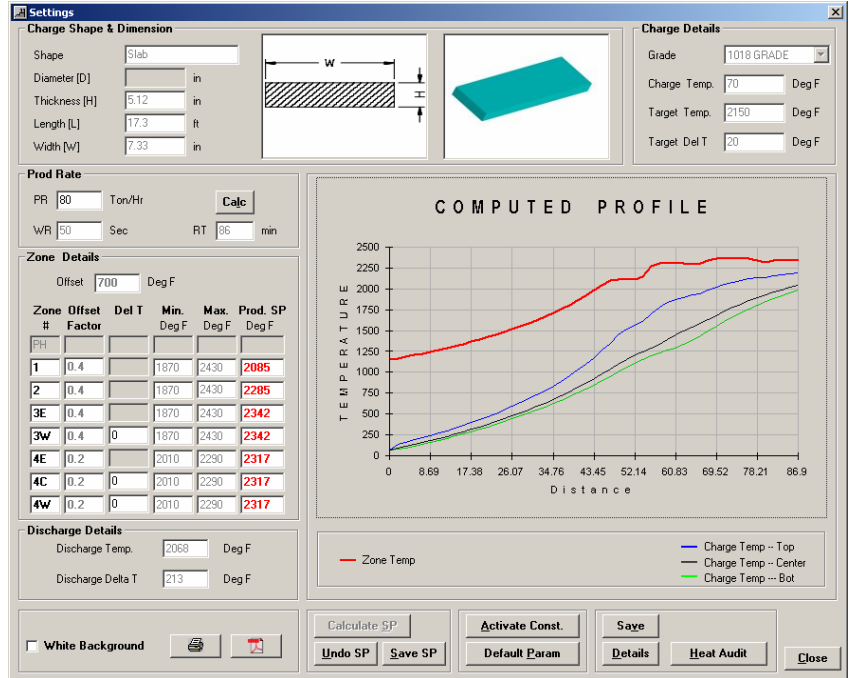
A bar mill in Canada wanted to reduce fuel consumption and improve the quality of the heat treated steel bars in their reheat furnace. Instead of going for an expensive Level II Supervisory control system they opted for a low cost solution.

METHODOLOGY

Off-Line HeatXpert software was customized for their four zone Walking Hearth furnace. The software determined steady state production and delay setpoints. The furnace operator then manually entered the setpoints in his furnace controllers.

CONCLUSION

HeatXpert works as an experienced operator using both experience and mathematical equations to determine the furnace settings. The software was configured with the actual furnace design parameters. For each set of parts and production rate software predicts what should be the optimum setpoints for heating the products. HeatXpert has very short payback period. With just 1% fuel saving it has a payback period of 40 days and with 10% savings it's only 4 days. There are additional savings with lesser scale and decarburization.



The software could be run offline on a PC for different product dimensions, product pacing and delay times. For example, if the operator wants to know the setpoints for 150 mm thick 1020 steel running at 20 MT per hour, all he has to do is select 150 mm thick 1020 steel, 20 MT/hour production rate and hit enter. Like wise, if he wants to know the zone setpoints at 20 mins of delay time, all he has to do is select 20 min delay time and hit enter. The software calculates optimum setpoints temperatures for all the zones. Once calculated the operator enters the setpoints manually to the controllers or, in the online version the setpoints can be automatically downloaded to the Single Loop Controllers or Programmable Logic Controllers.