

# WIRE WRAPPING MACHINE

## PROJECT DESCRIPTION



A CLIENT HAD AN OLD WIRE WRAPPING MACHINE THAT WAS USED IN PRODUCTION OF INSULATED PIPING FOR AN ERM LEAK DETECTION SYSTEM. A NEW PROCESS FOR APPLYING THE INSULATION WAS BEING INSTALLED IN THE PLANT AND THE OLD MACHINE WAS INCOMPATIBLE WITH THE NEW SYSTEM. I WAS ASKED TO DESIGN A NEW WIRE WRAPPING MACHINE, USING AS MANY OF THE EXISTING COMPONENTS AS POSSIBLE, THAT WAS CAPABLE OF RUNNING ALL SIZES OF PIPE, TOOK UP LESS FLOOR SPACE, AND WAS EASY TO SETUP AND RUN.

## DESIGN NOTES

- TO REDUCE THE FOOTPRINT OF THE WIRE WRAPPING MACHINE, I DESIGNED A SUPPORT STRUCTURE THAT ALLOWED THE SHUTTLE TO BE LIFTED ABOVE THE PRODUCTION LINE WHEN NOT IN USE.
- A NUMBER OF PARTS FROM THE EXISTING MACHINE WERE RE-USED TO HELP REDUCE COST OF THE NEW MACHINE.
- THE STRUCTURE WAS TIED INTO THE NEW INSULATION BOOTHS TO PROVIDE A STABLE STRUCTURE.
- LIMIT SWITCHES WERE INCORPORATED INTO THE MACHINE TO PROVIDE POSITIONAL FEEDBACK TO THE CONTROLS.
- A MANUAL LOCKING MECHANISM WAS DESIGNED TO PROVIDE A SAFETY BACK-UP TO THE BALL SCREW.

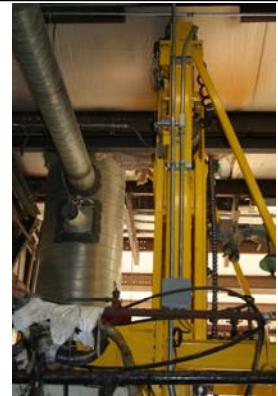


## PROJECT SUMMARY



THE PROJECT DESIGN WAS COMPLETED IN APRIL OF 2008 AND INSTALLED IN JULY. SOME OF THE PROJECT HIGHLIGHTS INCLUDE:

- ECCENTRIC GUIDE ROLLERS WERE INSTALLED TO GUIDE THE ASSEMBLY DURING RAISING AND LOWERING.
- A 1-1/2 HP SCREW JACK WAS SELECTED TO RAISE THE SHUTTLE 79 INCHES IN APPROXIMATELY 25 SECONDS.
- THE WIRE WRAPPER CAN NOW CONTINUOUSLY WRAP UP TO 20 INCH DIAMETER PIPE.



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