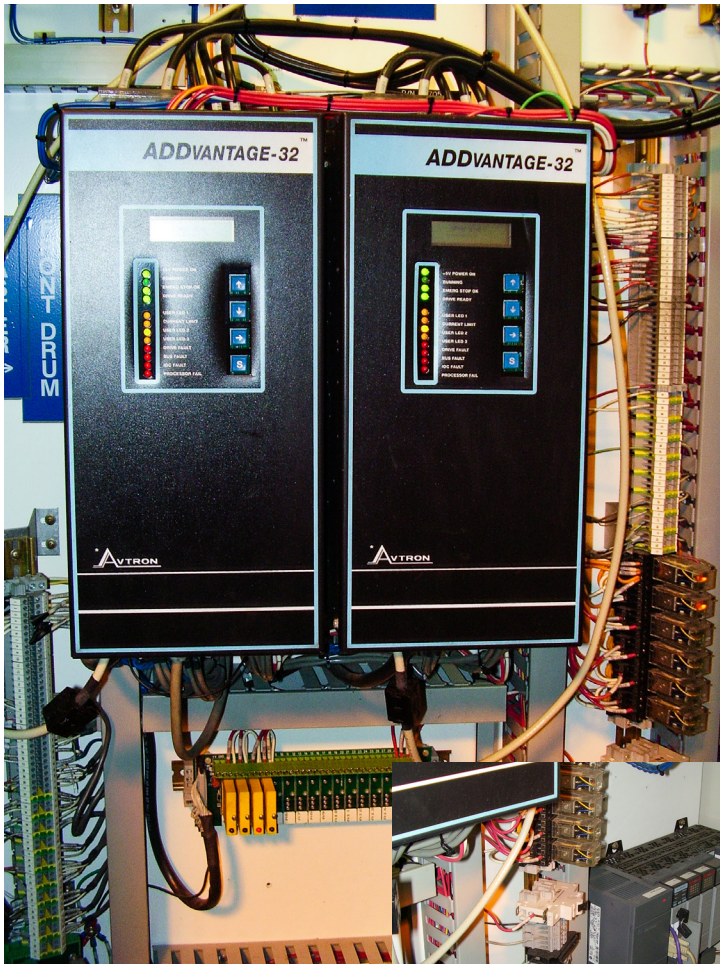


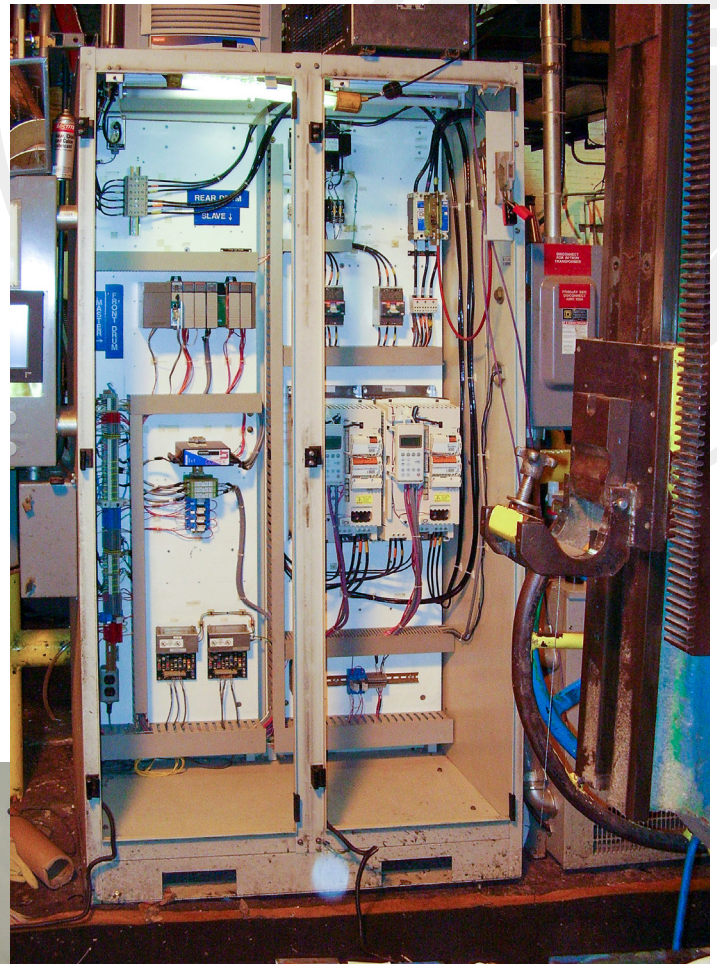
#BEFORE AND AFTER: PAPER MILLS SURFACE WINDER



Before

Original Design:

- Obsolete Vintage Avtron AC Variable Frequency Drives (VFDs)
- Specialized surface winder firmware
- Limited plant knowledge on the design
- AB SLC504 PLC over Profibus (odd)
- OEM would not share information as they were competing with an upgrade package two-times the cost of B&D's design.



After

New Design:

- ABB ACS800 VFDs
- Standard firmware with lead-follower
- Direct torque control (DTC)
- Copies of the software and programming code
- Customer training
- Local service and support
- Improved performance
- On-time and under-budget

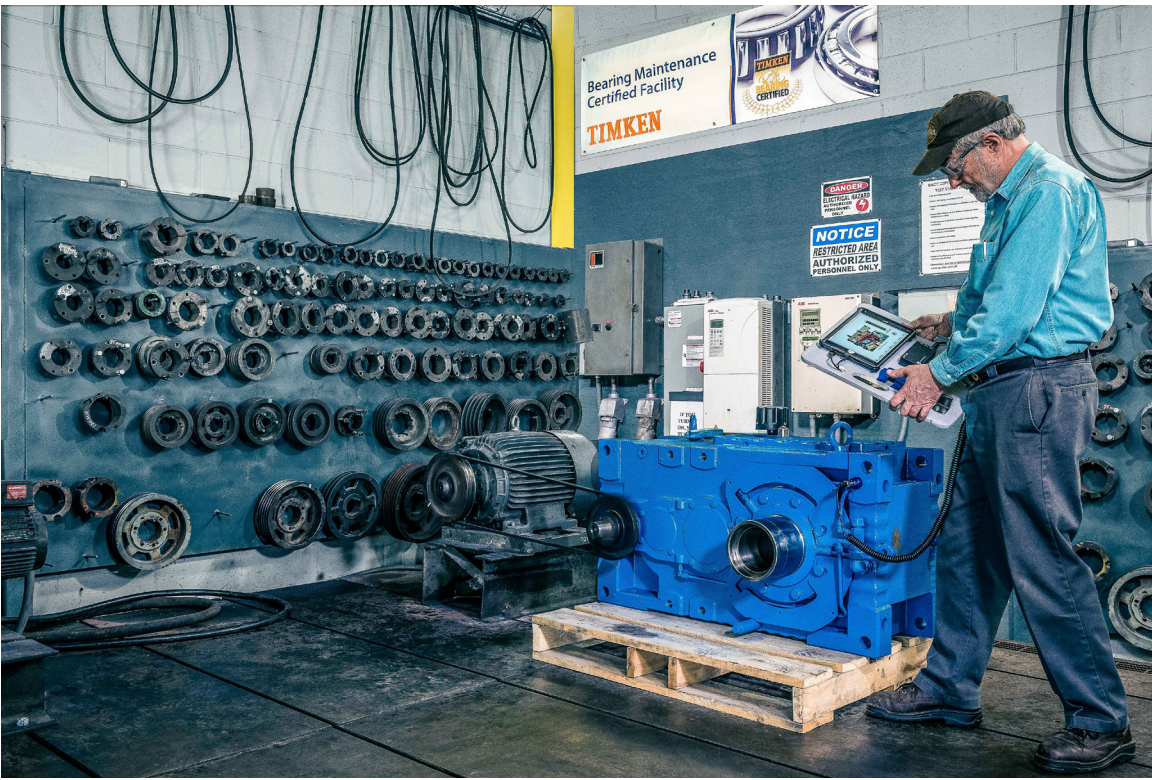


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