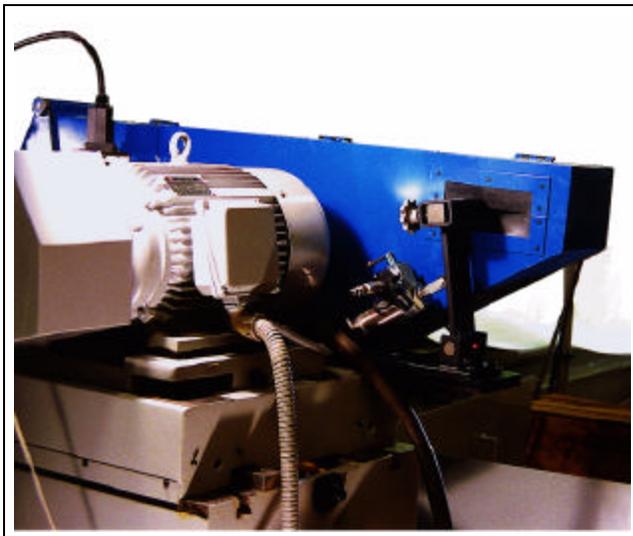


Job Shop Finds Better Roll Grinding

If you do a lot of cylindrical grinding and are wondering whether to switch from hardwheels to belt grinding, take a look at the experience of grinding shop and make up your own mind.

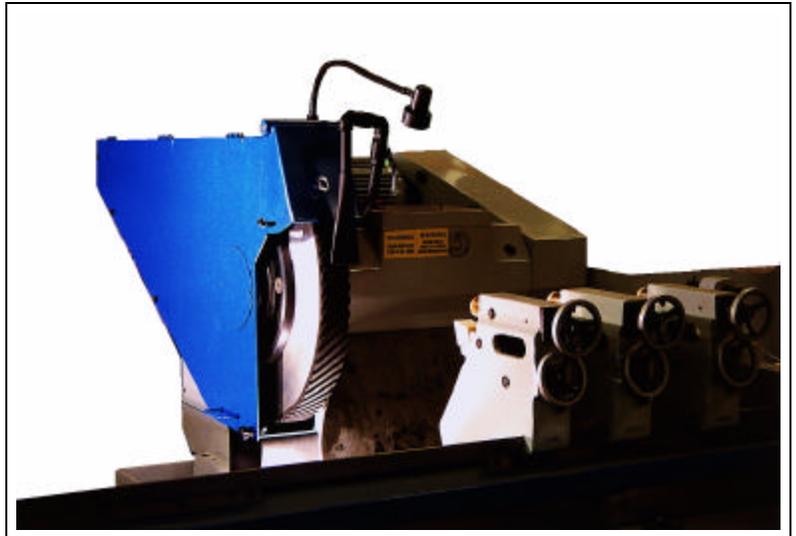
At Mirror Polishing and Plating Co. (Waterbury, CT), new Chinese made grinding machines supplied by Ecotech Machinery inc. (Lilburn, GA) are being used 20 hours daily, five days a week, as the company grinds, polishes, and plates industrial mill rolls including challenging thin-wall rolls for the paper and film converting market. The 40-employee shop just started up one more cylindrical grinder, has another on order, and plans to buy two more machines over the short term.

"All the new machines have belt grinding attachments," says Rich DuPont, MP&P's vice president and general manager. "Compared with traditional hardwheels, belt grinding is more forgiving and cost effective. With it, more of our people, of varying skill levels, can productively turn out quality work. With such flexibility, we balance the workload better and improve deliveries."



The shop's last two belthead machines have been Ecotech model H-147s; the machine on order is the same machine, but with a new brand name Ecotech H-147/4000. MP&P plans to buy two additional Ecotech grinders as well.

Belt grinding on the Ecotech machines has cut MP&P's overall grinding costs about 20%. It also



opened up an emerging roll market, simplified operations, reduced risk, and enhanced scheduling flexibility.

In principle, belt grinding is much like belt sanding but a lot more accurate and sophisticated. An abrasive belt running on very precise rubber drums replaces the traditional hardwheel and wheelhead. Moreover, the rubber contact drum cushions the operation, making the process more reliable and forgiving, and there are fewer things to go wrong. If something does go amiss because of a renegade grit or operator error, the damage is reportedly less serious and easier to fix.

A typical MP&P job is refurbishment of a 1' diameter by 5' long (0.3 x 1.5 m) chromium-plated steel pressure roll for a film laminator, with a goal of restoring accuracy and mirror finish to the worn rolls. Hardness is Rc64. The process involves stripping off

the chromium coating (pregrinding), replating and finish grinding (postgrinding), with specifications of +/- 0.0002" (0.005 mm) on diameter and roundness.



Pregrinding and postgrinding remove a total of 0.020" (0.51 mm) on diameter in a series of 0.0002" passes, all done with synthetic coolant. Pregrinding takes about six hours and finish grinding slightly longer. Both involve one belt change, from rough to finish.

Turn around time for the job, including plating, is 10 days or less.

Other jobs may involve plain steel or ceramic coated rolls ranging up to 25" diameter by 160" long (0.6 x 4.1 m) active lengths. MP&P is moving toward belt grinding for all their work.

"The more forgiving action of belt grinding is especially important on thin wall rolls," DuPont adds. "When the workpiece wall is only 1/2" (12.7 mm) thick and easily deformable under overload, there's simply less room for error.

With hardwheel practice, DuPont had to reserve thin-wall jobs for the two or three most experienced operators. If someone was out sick or on another shift, the job would have to wait. With belt grinding on the Ecotech grinders, the company can turn that type of job over to any of its operators on any shift with complete confidence.

Belt changes also go 40 minutes faster than hardwheel changes. That difference alone saves about two hours per job. At 8-10 changes per day shop-wide, MP&P saves 4-5 hours a day in machine downtime and labor compared to hardwheel grinding. That frees enough time to start another job each day and complete an extra three jobs per week.

DuPont orders all Ecotech grinders equipped with beltheads and all optional equipment. The basic model H-147 cylindrical grinding machine features a 25 x 160" work envelope, six-speed pulley workhead, hydrodynamic spindle, and

digital readouts. An automatic pickfeed reverses the feed at the end of each pass. Behind-the-wheel dressing, wheel balancing, and manual swing down part gauging are built in. Hydrocyclonic coolant filtration prevents swarf reflux and extends coolant life 16:1. Hydrostatic lubrication of table and wheelhead ways provide smooth, precise, nonstick operation.



Ecotech Machinery, Inc. is part of SMTW, one of the largest manufacturers of grinders in the world. We have over 650 installations in the USA and over 60,000 installations worldwide. All of our machines use oversize heavy cast iron construction because we know how important rigidity is to grinding. We use the precision hand scraped ways that you expect on a quality machine tool. The grinder comes equipped with an electrical control package using US made Allen Bradley components and GE/Fanuc for CNC controlled machines. All of our grinders also come with a full year's warranty on all parts and service.