Precision Service
Machine Tool Rebuilders, Inc.

Hand Scraping & Alignment

Hand scraping is a process that uses hand tools known as flat scrapers to scrape metal from a machine tool surface to refine its accuracy, flatness, and appearance. Removing thin metal layers from these surfaces eliminates the high points created by machining and provides enough flatness to allow its surfaces to glide smoothly.

In a technologically advanced and automated world, the labor and time involved in hand scraping machine tools have made it a bit of a lost art. However, Precision Service Machine Tool Rebuilders understands the value and importance of maintaining machine accuracy and geometry. With over 250 total years of scraping experience, our skilled technicians provide expert hand scraping and alignment services for your machine tools. Read on to discover the benefits and case studies associated with these services.

Essential Machine Tool Maintenance Checks

Hand scraping is a process that uses hand tools known as flat scrapers to scrape metal from a machine tool surface to refine its accuracy, flatness, and appearance. Removing thin metal layers from these surfaces eliminates the high points created by machining and provides enough flatness to allow its surfaces to glide smoothly.

In a technologically advanced and automated world, the labor and time involved in hand scraping machine tools have made it a bit of a lost art. However, Precision Service Machine Tool Rebuilders understands the value and importance of maintaining machine accuracy and geometry. With over 250 total years of scraping experience, our skilled technicians provide expert hand scraping and alignment services for your machine tools. Read on to discover the benefits and case studies associated with these services.

The Advantages of Hand Scraping

01 Flatness

It maintains a machine tooling's flatness to prevent rocking and chattering, improve balance, and create true flatness in machined components.

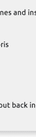
02 Accuracy

It maintains a machine's accuracy by aligning its components within millionths of an inch, so the parts produced adhere to the tightest tolerances.

03 Aesthetics

Hand scraping improves the aesthetics of the machine, giving it an attractive texture.

04 Oil Pockets



Hand scraping also creates oil pockets that hold oil on mated surfaces and allow smooth gliding motion between them. If a machine doesn't have these pockets, mating surfaces will stick together.

05 Longevity

Hand scraping and alignment maintain the consistency, accuracy, and longevity of the machine.

Essential Machine Tool Maintenance Checks

At Precision Service Machine Tool Rebuilders, we've handled many rebuild projects over the years. Here are the processes we followed for three such projects.

Doosan Lathe

- Removed X and Z-axis slides
- Cleaned and inspected all parts for wear and damage
- Ground X-axis ways
- X-axis cross slide was precision aligned to X-axis ways
- Ground and refitted binders
- Refitted all gibs to ensure maximum adjustment
- Surveyed X-axis ballscrew to determine if ballscrew needed to be rebuilt before reinstalling
- Installed new thrust bearings
- Cleaned and flushed lubrication system. Replaced all damaged lines and installed new meters for proper lubrication to the entire machine.
- Installed new wipers so ways remain clean and free of major debris
- Polished Z-axis bed ways to best condition
- Scraped and aligned saddle to bed ways
- Customer reassembled machine and powered it up, ready to be put back into production

Mazak Integrex 50YB

- Supplied heavy-duty gantry for removal of X, Y, and Z slides from machine. Z-axis ballscrew was removed and prepped for shipment to be rebuilt.
- Picked up cross slide and saddle from customer
- Way ground Y-axis slide to spec
- Way ground X-axis ways to spec
- Precision aligned X-axis slide to saddle
- Scraped X-axis slide to top of Y-axis to ensure a tight precision stack
- Scraped Z-axis slide, ensuring everything is square and parallel
- Ground and refitted binders after machine was scraped, ensuring a tight, like new fit
- Refitted all gibs with Turcite, giving them max adjustment and the longest possible lifespan
- Surveyed all ballscrews. They are rebuilt upon customer request before reassembling.
- Replaced all thrust bearings and seals, ensuring smooth, accurate movements
- Cleaned and flushed entire lubrication system. New lines and meters were installed to assure proper lubrication to all required areas.
- Cleaned and polished bed ways
- Scraped and aligned Y slide to bed
- Reassembled machine, tested all machine functions, ready for customer to demo and run test cuts before putting machine back into full production

OKK VM7-3

- All units cleaned and inspected for damage and wear
- Way ground saddle ways
- Removed old Turcite from bottom of table
- Supplied and installed new Turcite to bottom of table
- Resurfaced top of table
- Scraped and flaked the table to top of saddle ways, keeping four corners "0" and key slot parallel to saddle master way on table
- Scraped and flaked gibs and binders on table, ensuring maximum adjustment
- Removed old Turcite from bottom of saddle. Prepped and installed new Turcite.
- Leveled machine and surveyed bed ways
- Scraped and flaked master saddle to bed ways for flat and parallel fit
- Sent X and Y ballscrews out for refurbishment
- Scraped and flaked gibs and binders, giving maximum adjustment to gibs
- Precision aligned and installed all ballscrews using new thrust bearings and seals
- Installed new way wipers
- Inspected and repaired lubrication system, assuring proper oil flow to all required areas. Installed new lines and flow meters as required.
- Set roller switches, proximity switches, home position, backlash, and tool changer to manufacturer's specifications
- Tested all machine functions before sending machine back into full production

Why Choose Precision Service Machine Tool Rebuilders For Your Hand Scraping and Alignment Needs

There are many reasons why Precision Service Machine Tool Rebuilders should be your top choice when it comes to hand scraping tools. Our highly-trained, experienced staff delivers high-quality craftsmanship at cost-effective rates, allowing you to limit machine downtime and maximize productivity. Our technicians are trained in Phenolic, ZX-100, Rulon, Moglice and Turcite, so they have the knowledge to determine which material is best suited for your machine.

Contact Precision Service Machine Tool Rebuilders Today

Hand scraping remains a popular tool maintenance service across many industries. It helps keep machines operating at optimal efficiency and accuracy for as long as possible.

Precision Service
Machine Tool Rebuilders, Inc.

For more information visit our website or call us today at 1-800-4-REBUILD

www.precisionservicemtr.com