

## Advantages of the Honing Process

### How can Sunnen Portable Honing Tools be of benefit to your operations?

Portable honing tools offer great flexibility because they allow you to hone bores in parts that are too big or awkward to bring to a machine tool, **yet hold tolerances of 0.0005" (0.013mm) or better.**

### What bore sizes can Sunnen Portables Hones handle?

Bores from **0.185" (4.7mm) to 60.0" (1524mm)** in any material can be honed with Sunnen portable hones.

### What kinds of jobs can you hone?

See the attached article, Sunnen Portable Hones, for the types of jobs that are regularly honed with Sunnen portables.

### What is the honing process?

Honing is a unique abrasive machining process which **removes material** and **improves bore geometry** and **surface finish**. The **rigid tool** design corrects most common bore errors.

Other processes such as grinding or boring use high pressure single point contact when cutting which is abusive to the material being machined and may fracture the crystals of metal to a depth of .002".

Honing on the other hand is quite gentle to the material being worked.

Honing is characterized by large areas of abrasive contact; low cutting pressure; relatively low surface speed, a floating tool, and automatic centering of tool by expansion inside the bore.

### What does honing offer that other processes cannot?

Honing **exclusively** offers:-

- **Low cost simple fixturing** - honing does not have to clamp the bore precisely in position; it has only to absorb honing torque and thrust.
- **Accuracy in thin walled parts** - thin walled parts are less likely to have distortion due to the lower pressures used in honing and resultant lower fixturing pressures.
- **Accuracy in long bores** - accuracy produced by honing is independent of the length of the bore; long and short bores can be honed with equal accuracy.
- **Honing maintains the original bore centreline** - the honing tool locates from the original premachined centreline – the centreline will not change.
- **Bores are corrected with least possible amount of material removal** - Other bore finishing methods require additional stock removal to compensate for the bore axis not being chucked exactly on the spindle axis.

Honing **also** offers:-

- Material removal in **all materials** regardless of hardness.
- Any degree of **surface finish** in a part.
- High **stock removal** rates ( up to 12 times faster than internal grinding)

### **How can honing do all this when other methods cannot?**

Other methods must support a cutting tool from outside the bore. The longer the bore in relation to its diameter, the more difficult it is to provide enough support for the tool to cut accurately. In contrast, the honing tool supports itself in the bore and is independent of the machine ways and bearings.

A Sunnen Portable Hones Catalogue is attached covering the size range from 32mm to 533mm.

For information on honing tools down to 4.7mm and up to 1524mm contact our technical services team in Brisbane.

If you have any questions or would like more information on a specific honing application please email [sales@watsontooling.com.au](mailto:sales@watsontooling.com.au)

Watson Specialised Tooling has been the Australian distributor for Sunnen for over 30 years and has vast experience in all aspects of honing technology.