

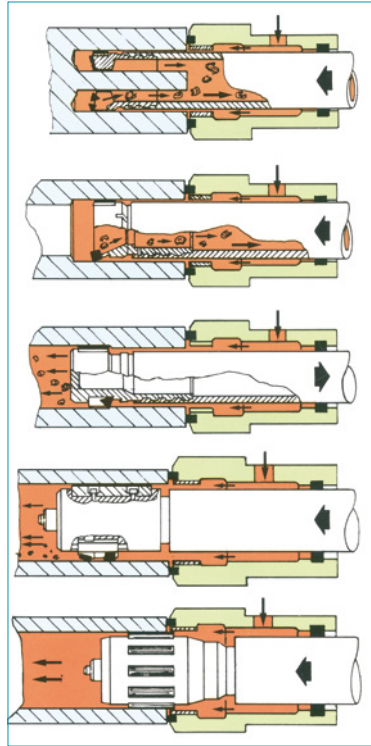
## HOW BORING MACHINES WORK

**B**oring machines are machine tools designed to make holes and machine internal works such as cylindrical cavities and holes in castings and dies.

A boring machine generally consists of a bed made of cast iron; a boring saddle with variable feeds driven by a brushless servomotor; a headstock with variable speeds; and an oil pressure head support, equipped with a hydraulic device which keeps a constant pressure against the workpiece.

Boring machines may have various configurations. The following are the most common:

- **rotating workpiece + stationary tool** → this type is suitable especially for standard boring operations of short parts;
- **stationary workpiece + rotating tool** → this configuration is used especially for unbalanced or asymmetrical parts;
- **rotating workpiece + counter-rotating tool** → this configuration guarantees a high accuracy in terms of straightness.



*Boring machines are designed to make holes and machine internal works.*

particularly for large workpieces. It may be horizontal or vertical. Boring machines are designed to perform a wide range of operations such as:

- **trepanning** → holes are produced in a single operation. Not all the material removed is transformed into chips. The central core is untouched;
- **counterboring** → this operation is performed to increase the diameter of a hole. Solid drilling or trepanning heads are employed;
- **pull boring** → this operation is carried out to increase the diameter of existing holes and to finish them off;
- **skiving** → a machining operation in which the cut is made with a form tool with its face at an angle allowing the cutting edge to progress from one end of the work to the other;
- **roller burnishing** → this operation is carried out to complete the machining of the hole and obtain finished surfaces without any roughness.

The boring mill is a boring machine tool used par-

(Adapted from *Torni Tacchi*)

### READING COMPREHENSION

● Answer the following questions.

- 1 What is the main task of a boring machine?
- 2 What are the main components of a boring machine?
- 3 What is a boring mill?

### VOCABULARY

● Now match the following Italian terms with the main operations of boring machines described above.

- 1 Calibratura .....
- 2 Carotatura .....
- 3 Alesatura .....
- 4 Rullatura .....
- 5 Alesatura in trazione .....

### ACTIVITIES



### SPEAKING

- Describe the most common configurations of boring machines.