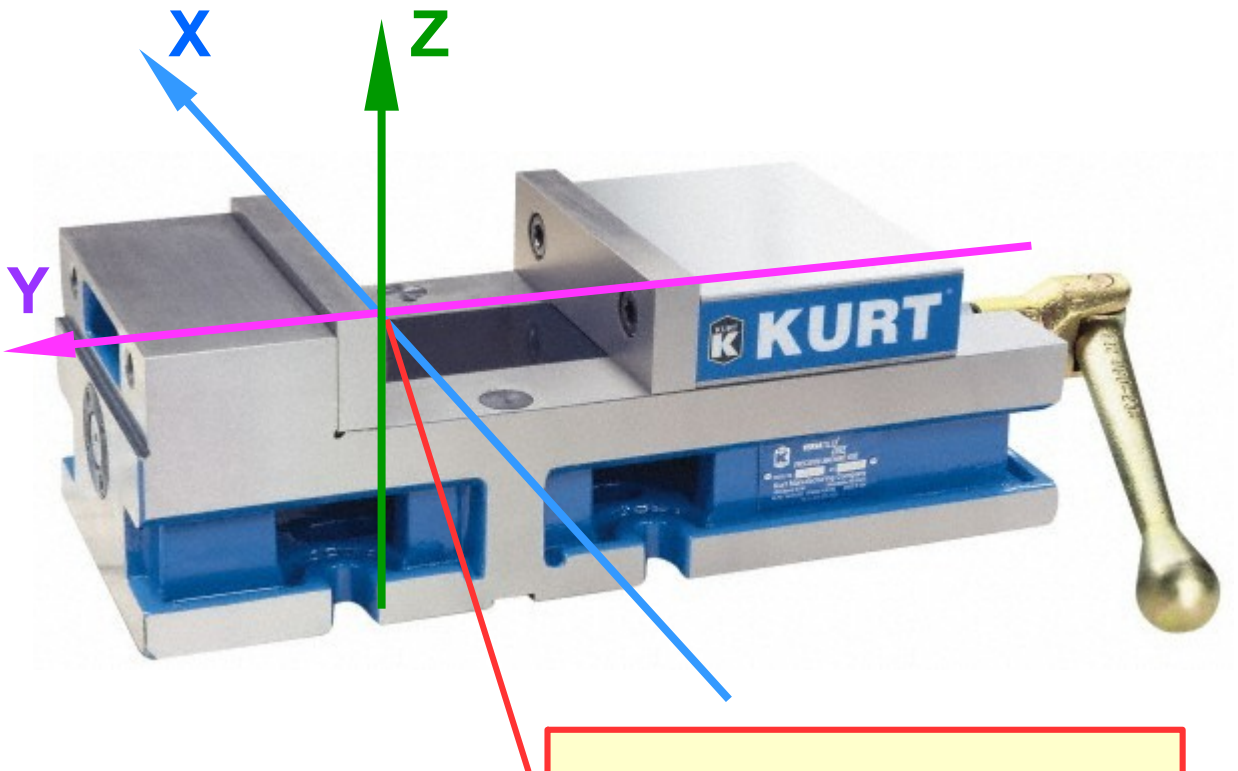
Lotta 101
2-1: Workpiece Holding

Basic Alternatives of Holding a Workpiece

- 1. Fixing into a machine vise
- 2. Fixing on the table using various standard or custom clamps
- 3. Fixing cylindrical workpieces against a V-block using special clamps
- 4. Fixing to the rotating chuck of a 4th axis (rod-like workpieces)

Workpiece Fixing to a Machine Vise

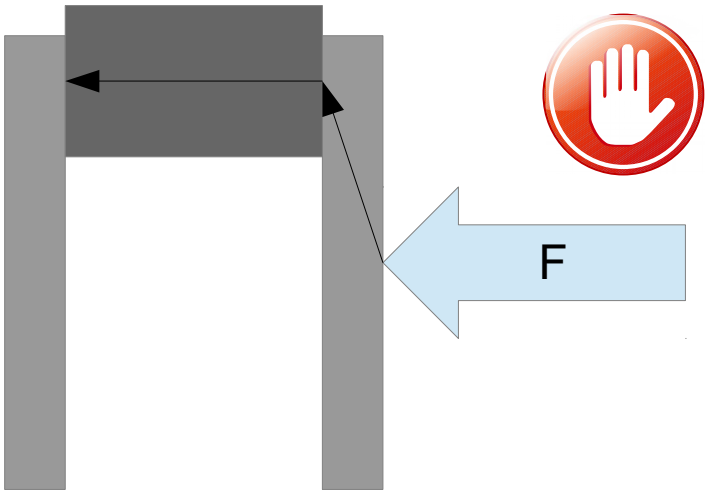
- The machine vise is bolted to the table precisely aligned with the table X and Y axes
- Typically, a corner of the fixed vise jaw is programmed into one of the Work Coordinates G54 - G59
- Several vises may be fixed to the tabe at the same time

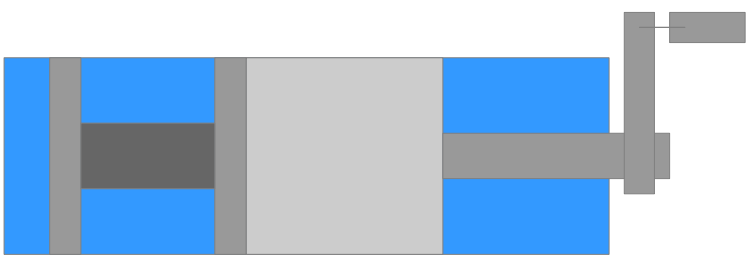


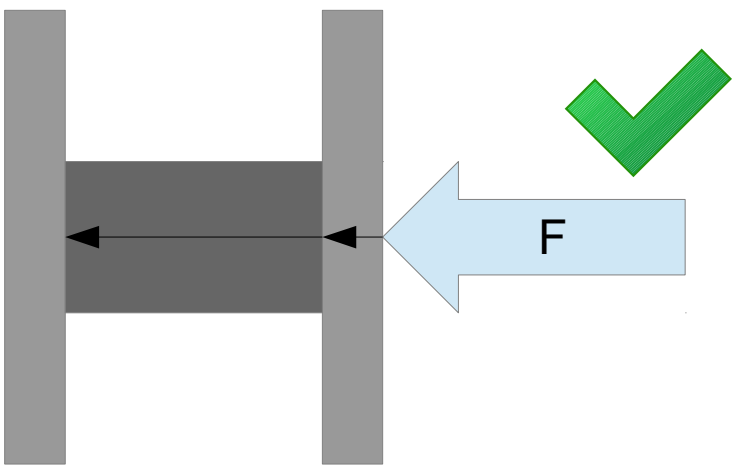
Coordinates of the vise jaw have been programmed into the work coordinates

How to Use a Machine Vise for Fixing a Workpiece

- Fix a narrow workpiece centered in the jaws – not on one side. Otherwise the jaws will bend and become loose
- If needed, place a support piece on the other side

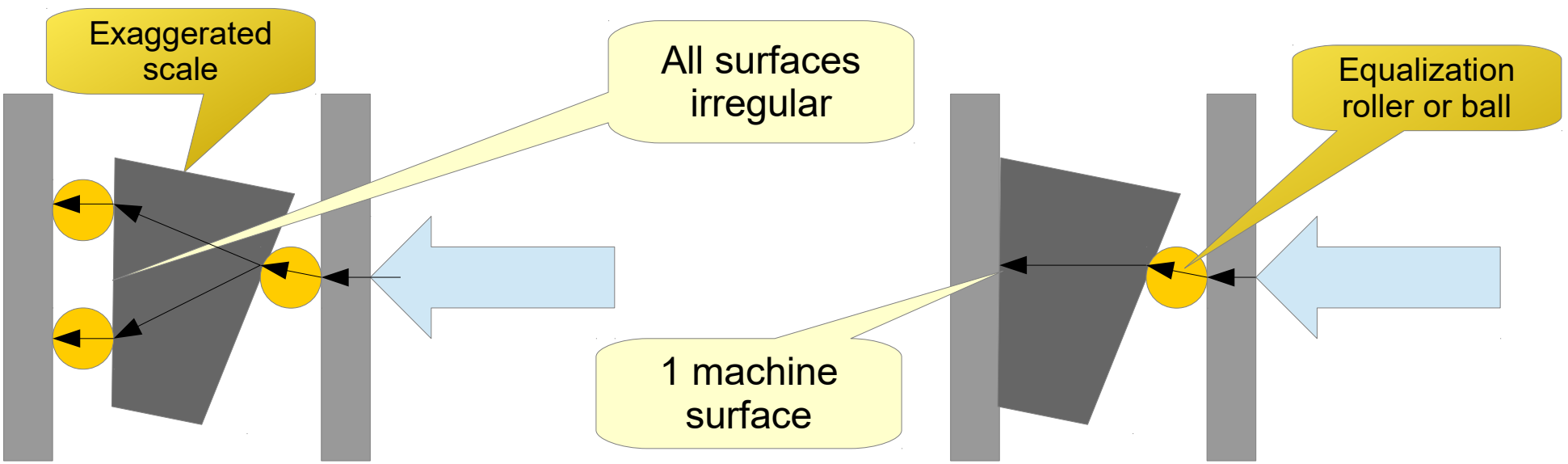






How to Use a Machine Vise for Fixing a Workpiece

- Only accurately machines surfaces may be clamped directly between the vise jaws, not an irregular hand sawn, cast, flame cut etc. surface!
- If the surfaces are irregular or not ACCURATELY parallel, use bedding pieces between the vise and workpiece

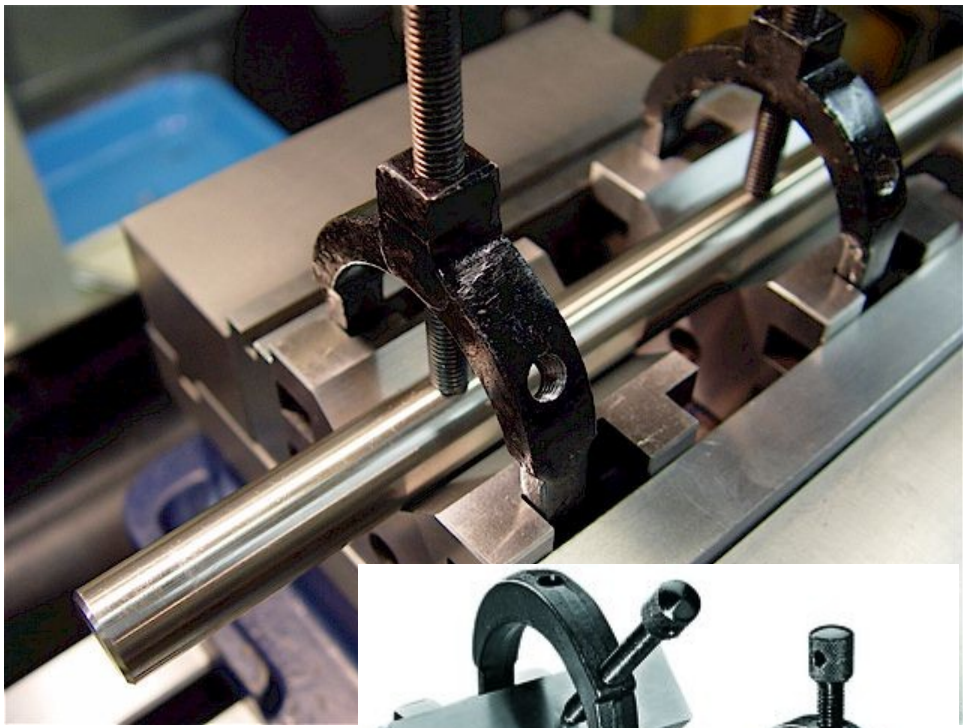


How to Use Clamps, Fixtures and Bolts for Fixing a Workpiece

- The workpiece is locked against the table using clamping bars. Clamp bolts tighten the bars by grabbing the table using a T nut in the table groove.
- The clamp bars are supported in horizontal position by serrated pedestal pieces

How to Use V Blocks for Fixing a Workpiece

- The groove in a V block aligns a bar precisely, keeping it immobile
- A V block can be either fixed to a machine vise or clamped on the table
- Also suitable for fixing prismatic bars as long as the V block and bar angles match



How to Use the 4th Axis for Fixing a Workpiece

- Enables milling the workpiece from different angles around the X (or Y) axis.
  ”Mill turning”
- Length of workpiece is strictly limited unless a tailstock is used. A long workpiece cannot accommodate large cutting forces without slipping
- Do not attempt to mill a piece that is longer than ~3x its diameter

Esityksen tuotti

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