

Ratchets and Sockets

Ratchets and sockets are common hand tools in FRC used for quickly tightening or loosening nuts and bolt heads. They are especially useful in tight spaces where a wrench cannot fully rotate.

Ratchet

A ratchet is a handle tool that allows continuous tightening or loosening without removing the tool from the fastener.

Advantages:

- Fast operation
 - Works well in confined spaces
 - Direction can be switched easily (tighten/loosen)
 - Reduces time during assembly and repairs
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Sockets

Sockets attach to the ratchet and fit over the fastener.

Types used in FRC:

- Standard sockets (for nuts and bolt heads)
- Deep sockets (for longer bolts or protruding threads)

Key rule:

- Always match socket size exactly to the fastener to avoid rounding
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Proper Use

- Fully seat the socket on the nut or bolt head
- Keep the ratchet aligned straight with the fastener
- Apply steady force instead of jerking motions
- Switch direction carefully to avoid over-tightening

Common Mistakes

- Using the wrong socket size
- Not fully seating the socket before turning
- Using excessive force at an angle (causes rounding)
- Forgetting to switch ratchet direction

Key Idea

Ratchets and sockets make fastener work faster and more efficient, but only when the correct size is used and the tool is properly aligned with the hardware.

Revision #1

Created 25 June 2026 18:51:01 by eharis

Updated 25 June 2026 19:07:37 by eharis