

FTC/FRC Aluminum Extrusion Profiles

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Robotics & Mechatronics

FTC/FRC aluminium extrusion is T-slotted channel and tube used to build robot frames and mechanisms, with slide-in T-nuts for fast modular assembly. Extrusions from 1x1 channel to classic robotics tube let teams construct rigid, adjustable structures in minutes.

Key Features

- Channel and tube profiles 1x1, 1x2, 2x2
- Pre-drilled and tapped holes on FRC channel
- Slide-in T-nuts and bolts for fastening
- Aluminium 6061-T6 strength and weight
- Cut to length with saw or shear

Typical Uses in the Workshop

- Build drivetrains and game mechanisms
- Make modular frames that change between tasks
- Mount motors, wheels and sensors
- Create fixtures for practice and testing

Safe Operation

1. Measure and cut extrusion square
2. Deburr the cut ends
3. Slide T-nuts into the channels
4. Bolt components with the correct torque
5. Check the frame is square before tightening

SAFETY NOTES

- Deburr cut ends - they are sharp
- Wear eye protection when cutting, filing and deburring
- Use the right size drivers and wrenches
- Check fasteners are tight before moving
- Store extrusion racked safely

Maintenance & Consumables

- Keep T-nuts and bolts sorted by size
- Clean saw marks from channels
- Check the frame joints each session
- Store cut lengths upright and labelled
- Restock the common T-nut sizes

Specification & Buying Notes

Stock 1x2 and 2x2 channel plus 1x1 tube in the lengths teams use, with a box of assorted T-nuts and cap screws. Quality 6061 extrusion cuts clean; cheap alloy galling is a false economy.