



MODULAR JIG SYSTEM

Large Kit (10 Jig Assemblies) — User Manual (Rev A.1)



APEX DESIGN — Professional Fabrication Tools

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1. Introduction

The Apex Design Modular Jig System is a professional-grade fixturing platform designed to position and support workpieces on welding tables during fabrication, alignment, and tack welding operations. The system is intended for experienced fabricators and assumes familiarity with welding table fixturing, external clamps, and standard shop practices.

2. Safety

Follow standard fabrication and welding safety practices at all times. Verify that all adjustable interfaces are fully locked before applying load or performing welding operations.

3. Kit Contents

- 10 identical jig assemblies
- Telescoping tube sets: 2 in and 4 in (interchangeable)
- Magnetic bases (one per jig assembly)
- Installed hardware
- External welding table clamps not included

4. System Architecture

The Modular Jig System consists of a base, telescoping tube assembly, end junction, and arm. Adjustment functions are separated to minimize compound setup error and improve repeatability.

5. Assembly Reference

Assembly proceeds from the base upward. Refer to the assembly schematic for component identification and interface relationships.

6. Adjustment & Kinematics

The system provides three degrees of freedom: linear and rotational adjustment via the telescoping tube assembly, and independent rotational adjustment at the arm-to-end junction. Lock telescoping adjustments before arm clocking.

7. Thread & Interface Reference

Base: (4x) M8 x 1.25 circumferential, (1x) M8 x 1.25 bottom, 16 mm boss. End Junction: (4x) M8 x 1.25 circumferential, (1x) M8 x 1.25 top. Arm: 1/2-13 lower circumference, M10 x 1.5 upper circumference, (2x) M8 x 1.25 sides, (1x) M8 x 1.25 bottom.

8. Quick Start

- Mount base
- Install telescoping tubes
- Set height and rotation
- Lock telescoping clamp
- Clock arm and lock jam nuts
- Install external clamps
- Verify rigidity

9. Application Examples

Using multiple jig assemblies improves stability and repeatability when supporting complex or asymmetric workpieces.

10. Materials & Manufacturing

Base, end junction, and arm components are DMLS-printed aluminum alloy. Telescoping clamp is ABS plastic.

11. Maintenance

Clean after welding and inspect threads regularly.

12. Troubleshooting

Loss of rigidity typically indicates an unlocked interface.

13. Specifications

Refer to the Thread & Interface Reference for specifications.

14. Warranty & Support

Covered by a limited warranty. Contact Apex Design for support.

Appendix A — Quick Reference

Telescoping clamp locks linear and rotational adjustment. Jam nuts lock arm rotation.