



Technical Specification Requirements

1) Drawing packages

- a) Mechanical drawing packages that you receive from Genesis for fabrication or machining will be accompanied by or associated with a purchase order. The purchase order would include details of the project along with Design and Supply Chain contact information should there be questions.
- b) Electronic drawing files will be provided upon request for details that require a specific profile (i.e. flame cut, plasma cut, laser cut or water jet) or for machining purposes.

2) Fabrication/Welding

- a) When welding fabricated bases, platforms, components or frames, use the supplied drawings for weld bead size, length and location. If there is no call out on the drawing, weld an appropriate size bead for the materials being joined (per AWS standards). Contact Genesis Mechanical Design or Tooling Design if clarification is required.
- b) Acceptable welding processes include GMAW (Gas Metal Arc Welding), GTAW (Gas Tungsten Arc Welding), and SAW (Submerged Arc Welding).
- c) Tooling weldments shall be welded 100% unless otherwise specified on drawings.
- d) Weld beads shall be uniform in size and of consistent good quality. There shall be no porosity or undercut in weld beads. Weld spatter shall be removed from weldments prior to shipping or painting.
- e) Sheet metal shall be welded on the inside of structures, so the weld bead is not visible, unless shown otherwise on the drawing.
- f) All welds must meet AWS D1.1/D1.1M, AWS D1.2/D1.2M, AWS D1.3/D1.3M or AWS D1.6/ D1.6M standards unless otherwise specified on drawings. If there are questions, contact Genesis Mechanical Design, Tooling Design or Supply Chain representative before proceeding.

2.5) Critical Weld Requirements/Non-Destructive Testing (when identified on drawings)

- a) Critical welds shall be welded by a certified welding technician. In critical weld applications, required would be a weld qualification coupon with accompanying validation report by a certified third party (CWI or testing laboratory). The coupon material shall be the same as required on the drawing(s) with the same joint configuration that would be welded for the critical welds. All root welds with aluminum material shall be welded using the GTAW (Gas Tungsten Arc Welding) process.
- b) Non-Destructive Testing is required for critical welds identified on drawings. Following are the prescribed methods for Steel and Aluminum materials.

Steel

Preferred Inspection methods – Fillet Weld

1. Visual inspection of root pass weld
2. Visual inspection of finished weld (if multiple pass)
3. Magnetic particle testing of finished weld

Preferred Inspection methods – Non-Fillet w/full penetration

1. Visual inspection of root pass weld
2. Visual inspection of finished weld (if multiple pass)
3. Magnetic particle inspection of finished weld
4. Ultrasonic Inspection (if not feasible to use magnetic particle inspection)
5. X-Ray (if not feasible to use Ultrasonic Inspection)

Aluminum

Preferred Inspection methods – Fillet Weld

1. Visual inspection of root pass weld
2. Dye penetrant testing of root pass weld
3. Visual inspection of finished weld (if multiple pass)

Preferred Inspection methods – Non-Fillet Weld w/full penetration

1. Visual inspection of root pass weld
2. Dye penetrant testing of root pass weld
3. Visual inspection of finished weld (if multiple pass)
4. Dye penetrant testing of finished weld
5. Ultrasonic Inspection (if not feasible to use dye penetrant testing)
6. X-Ray (if not feasible to use Ultrasonic Inspection)

3) Machining

- a) Machined components shall be deburred (no sharp edges allowed).
- b) Drilled or tapped holes are to be chamfered for proper lead in for dowel pins or fasteners. When drilling and reaming for dowel holes, reference the machinist handbook for proper slip fit or press fit dimensions.
- c) Tooling components must be stamped with the corresponding drawing number on a non-critical surface. If the stamping of some details is not possible due to size or hardness, hand engraving will be accepted. Any deviation from this practice must be approved in writing by Genesis Supply Chain representative.

4) Paint

- a) Machine bases and platforms typically will have the non-machined component surfaces primed and painted unless otherwise noted on PO. Some machined plates and components may require paint or other coatings as noted on the PO. Threaded holes and dowel holes shall not have paint in them.
- b) Paint color should be noted on the purchase order. If no paint color is specified, contact the Genesis Supply Chain Representative that placed the order with your company for clarification.
- c) Paint finish shall be of consistent quality. No runs, light areas, scratches or scuffs are acceptable.