ACCUBEAM
LASER ENGRAVING & CUTTING

Design Tips for Laser-Cut & Formed Parts

Small drawing choices that cut cost, shorten lead time, and make better parts.





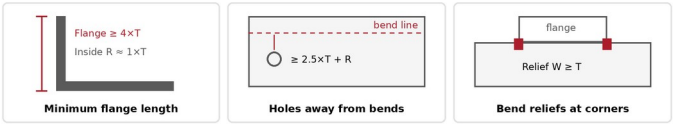
LASER CUTTING

- **Holes ≥ material thickness.** A diameter of at least 1×T cuts clean and round. Smaller is often possible, so ask before you design it in.
- **Leave enough web.** Keep material between features, and from features to the edge, at 1–1.5×T or more to prevent heat distortion and burn-through.
- **Dimension the finished part.** We compensate for kerf. Don't offset your geometry for the beam.
- **Tolerance where it matters.** ±.005" is typical on thin gauge. Tighter is quotable, but blanket tight title-block tolerances add inspection cost. A profile tolerance (ASME Y14.5) often states intent better than stacked ± dims.
- **Choose your edge.** Nitrogen-cut stainless and aluminum give a bright, oxide-free edge ready to weld or paint. Oxygen-cut carbon steel leaves light scale, so tell us if edges will be welded, painted, or plated.
- **Tabs leave witness marks.** Small parts are often held in the sheet with micro-joints. Flag cosmetic edges so we place them out of sight.

LASER MARKING

- **Specify content, size, and location:** text, serial/lot format, logo, or 2D Data Matrix, plus minimum character height.
- **Call out the standard.** MIL-STD-130 for defense IDs, UDI for medical devices, or your own spec.
- **Medical stainless?** Ask about annealing marks: a dark, smooth mark with no material removed that holds up to passivation and cleaning.
- **Mark after anodize** for crisp, high-contrast white marks on aluminum.
- **Mark and cut in one setup** when the part is laser cut. It saves handling and keeps the mark located to the profile.

PRESS BRAKE FORMING



- **Use one inside radius throughout.** R ≈ 1×T is a good default. Mixed radii mean tool changes and cost.
- **Mind the flange and hole rules above.** Short flanges won't sit on the die. Holes too close to a bend stretch into ovals.
- **Add reliefs** where a bend meets an edge or cutout, about one thickness wide and past the bend radius, to stop tearing.
- **Pick a formable alloy.** 5052-H32 bends well. 6061-T6 tends to crack at tight radii. Bend across the grain when possible.
- **Expect ±.010–.015" and ±1°** on formed features. Dimension from one datum and call out the few dims that are truly critical.

GRINDING & FINISHING

- **Precision surface grinding** for tight flatness, parallelism, thickness, and finish (Ra). Blanchard grinding removes stock fast on larger plates and blanks.
- **Call out flatness and finish only where needed.** A ground datum face plus as-cut elsewhere often costs far less than grinding everything.
- **Leave grind stock** on saw-cut or laser-cut blanks. We'll recommend the allowance for your material and size.
- **Thin parts can warp** when stress is released. Tell us the final flatness you need and we'll plan the sequence.

SEND THIS WITH YOUR RFQ

Files
STEP for 3D parts; DXF 1:1 for flats. Closed contours, no duplicate lines, units noted.

Drawing
PDF with revision, critical dims, tolerances, and finish callouts.

Material
Alloy, temper, and thickness, plus any finish: plating, anodize, paint, passivation.

Quality & Quantity
Lot size and annual usage. Certs, CoC, AS9102 FAI, or ITAR requirements.

Send us your drawing for a free design-for-manufacturing review.

We'll flag cost drivers before you release the print.

POINT OF CONTACT

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Rules of thumb for typical sheet and plate. Actual limits depend on material, thickness, and geometry. Contact us for your specific part.

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AS9100D CERTIFIED ISO 9001
ITAR Registered International Traffic in Arms Regulations
SBA