



TOOLING DESIGN & CONSTRUCTION STANDARDS

TOOL DESIGN

- Supplier is responsible for cost of design and construction of tool/die to the data provided.
- Design shall be done on CAD. The final CAD design shall be provided upon completion.
- All details that affect part quality must be fully detailed or replacements supplied at a competitive price when needed.
- Ridgeview design approval is required before beginning construction.
- Die to be designed and constructed to produce parts within 60% of print tolerance on critical dimensions given by our customer and/or Ridgeview.
- Tooling must include a means to imprinting customer part number when required. Forbes holder with tapered inserts standard.
- All die sections and components to be asymmetrical (non-reversible).
- We encourage no pitch notches and the minimizing of stock width.
- No air blast for part and slug removal.
- Windows required in strippers for ball lock punches.
- Adjustable inserted front stock guide. Rear guide is to be fixed.
- Jack screw holes required for removal of doweled sections when die is in press. Use oversize taps for jack screw holes.
- Pierced holes to be .002" under high limit.
- Use standard fully-charged gas springs or they must be plumbed with a manifold.
- M2 heavy-duty ball lock punches with shedder pins are required.
- FORWARD or STANDFAST (or approved) nitrogen springs required. Stud mounted units are not permitted. When gas springs are connected in a series with a manifold, the pressure of said manifold shall be stamped into die shoe adjacent to the pressure gage.
- Upper pilots are required.
- Die set to be heeled when forming side thrust anticipated.
- No more than 25% material thinning allowed.
- Forming stations to be designed with both punch and die sections inserted for adjustability (flanging and restrike).
- All form and blank steels must be under 50 lbs.
- Multiple out dies must have a means of assuring part segregation.
- No VLIERS are allowed.
- Use a radial undercut in the areas where trim cuts overlap.
- Provide adequate guarding around air cylinders, valves, hoses, exposed springs and lower pads where pinch points exist.
- All steels that rub must be made of different materials.
- Stripper pads need to be a minimum of 1 ¼" thick.

DIE STEELS/PUNCH STEELS

- Preferred cutting steels are A-2 (min) for low carbon steel under .125", D-2 (min) for high strength material and any thickness over .125.
- Each detail must be legibly marked for type of material and detail number.
- Wiping and drawing steels must be D-2 (min).
- Coating is the responsibility of the supplier. The specific steels to be coated and the type of coating selected are to be such so that the part can be produced successfully and/or for the durability of the tool. This will be determined during the design review meeting. In general, all severe wiping and drawing steels to be coated.
- All land on all pilots must be ½ metal thickness below stripper.
- Any angular surface must have the angle noted adjacent to insert or stamped into section (sine).
- Any punch, pilot or insert retainers that are not purchased shall be hardened.
- All trim punches are to have shear on them and pierce and trim punch heights must be staggered where the die design permits.



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DIE SET, PARALLELS & STOP BLOCKS

- Punch holder and die shoe to have hoist rings mounted on front and back edges (8 total). Rings provided by Ridgeview.
- Dies to be painted black with Ridgeview part number and operation number stenciled in white on front.
- Ball bearing die sets are required for all progressive dies.
- A 2" high clamping area on 2 ½" minimum width parallel to be provided at each end of die shoe with a 1 ¼" wide, open ended bolt slot, 1 ½" long on 6" centers.
- A 4 ½" minimum gap required between parallels for hilo access on tooling less than 5,000 lbs.
- An 8 ½" minimum gap required between parallels for hilo access on dies weighing over 5,000 lbs. Maximum overall width of extended hilo forks is 30" inside width.
- Information, i.e. stock thickness, pitch, shut height; total weight shall be imprinted on punch holder or die shoe.
- Max die weight of 40,000 lbs. 160" length (max).
- All stop blocks with groove on top surface 0.045" deep by .500" wide.
- If first hit scrap needs removal from die, or if first hit note is required, sample must be mounted to the front.
- A "property of" tag shall be affixed, or the information stamped directly, in an appropriate location on the base. The tag/information to be supplied.

PURCHASED COMPONENTS

- Shaped buttons must have shaped drop through.
- Spring cages are to be used if pad clearance is less than ½".
- Pads that bottom out must be identified.
- Maximum standard spring compression will be 25% for blue, 20% for red and 15% for gold.
- Green springs are not allowed.
- Shoulder bolts are not allowed.
- Spools to be 1 ¼" minimum body diameter tapped spools with hole or flats for holding when removing screw.

SAMPLING REQUIREMENTS

- Prior to tooling due date, supplier is expected to submit 6 master (laid out) parts, layout results on acceptable form and tied to a ballooned drawing (if applicable), a completed Ridgeview New Tool Check-Off Sheet.
- At completion of the tool/die the following CAD information must be provided:
 - 3D geometry to be in STEP format.
 - 2D geometry to be in DXF or IGES format.
 - Replacement steels to have detailed drawing or replacement parts supplied at a competitive price.
 - The strip design must be in a separate file from the rest of the information and in 2D geometry to be in DXF or IGES format.
- An updated copy of perishables (from the Bill of Material) must be provided in an Excel format.
- Supplier will be required to have a Die Maker present for the PTR run at Ridgeview.

ACCEPTABLE INVOICE & PAYMENT

- Supplier may invoice Ridgeview upon completion of tooling, submission of acceptable samples, and following a satisfactory production trial run (PTR) at Ridgeview. A satisfactory PTR run encompasses the resolution of die-builder related issues identified during the PTR.
- Ridgeview reserves the right to debit the Supplier for expense(s) caused by performance, quality, reliability and/or timing issues with the tooling. These expenses may include, but are not limited to, multiple PTR runs, expedited freight, additional layout & capability studies, sorting, overtime, etc.
- Ridgeview will return any invoice submitted prior to an appropriate sample submission.
- Invoices shall be paid in full 25th prox. from the date of proper invoice, unless otherwise stated on the purchase order.