General Manufacturing Specifications

CGX-FM-S-001

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PURPOSE

Convergix provides engineered manufacturing solutions. This requires a flexible and adaptive approach for supplying our manufactured parts. This Convergix General Manufacturing Specification establishes the expectations regarding the manufacture, inspection, and finishing of mechanical engineered parts produced for Convergix. These requirements are essential to the standardization of practices and the clear interpretation of our drawings.

Convergix commonly reuses designs for replacement parts or repeat projects, builds to customer prints, or complies to customer detailing requirements so this document is intended to serve as a single source of truth for Convergix's manufacturing expectations.

SCOPE

This is a guide for suppliers in the proper and consistent manufacture of engineered parts to produce equipment at Convergix. It is to be referenced as the instruction for fabricators, machinists, finishers, or other suppliers who are reading and interpreting Convergix drawings and written or verbal instructions for manufacturing purposes.

This Standard is distributed to all Convergix Suppliers that provide any type of manufacturing services, which includes material suppliers sense many provide other value-added services such as flame cutting, grinding, water jetting, deburring and more. Supplier receiving this document are responsible for acknowledging that they have familiarized themselves with any sections that pertain to the services they provide.

INPUTS

NAME / NUMBER	DESCRIPTION
CGX-SCM-S-001	General Supplier Standards
JMP-ME-S-005	Welding Standards
JMP-ME-S-009	Part Marking Standards
JMP-ME-S-010	Dowel Standard
JMP-ME-S-013	Materials, Finishes & Heat Treatment Standard

KEYTERMS

Supplier – A company engaged in the fabrication, machining, finishing, or treating of engineered parts for Convergix.

F&M Technical Specialist – Convergix assigns a Technical Specialist at each of Convergix's facilities. The TS's primary function is to be the technical expert to be consulted by Engineering, Build, and Suppliers on matters regarding manufacturing of parts from Convergix drawings.

F&M Buyer – The F&M Buyer is the single point of contact for the Supplier. The F&M Buyer issues PO's and tracks costs and timing. Technical questions shall be routed to the appropriate Technical Specialist or Mechanical Engineer through the F&M Buyer.

Drawing Standards - The drawings produced at Convergix are produced following the guidelines in our internal Mechanical Drawing Requirements Manual which is based on the following industry standards.

- ASME Y14.100-2017 Engineering Drawing Practices
- ASME Y14.5-2009 Dimensioning and Tolerancing

SPECIFICATIONS

1.1 Materials

Material stock sizes on the drawing are the nominal detail size and do not have material added to match bar stock sizing. It is the supplier's responsibility to choose the correct material size to make the part, considering material removal allowances for warping, twisting, scale, etc. The exception to this is weldments. Machining allowances will be added to welded structures.

Material specified on the drawing **shall not be replaced with a substitute without written consent** from the Technical Specialist. This includes substituting a different class of similar material. The Buyer is your single point of contact to connect with the Technical Specialist, who is the proper contact for making this decision or obtaining a decision from Engineering or Build.

1.2 Machining

Convergix requires all suppliers have industry best practices implemented and does not intend to intervene with established work process flow. Suppliers may be audited as per CGX-SCM-S-001 from time to time to assess quality, manufacturing, and overall business compliance. Drawings received from Convergix may have notes or dimensions that will be clarified in this section.

- Holes shall be machined from the mating surface to minimize tolerance stack-up.
    - *NOTE: Convergix Drawing Requirements Manual requires Engineers to detail holes from the mating surface or note 'from far side' when they cannot.*
- Inch threads shall be produced to the American National Standard for Unified Screw Threads, Class 2B/2A.
- Metric threads shall be produced to ISO 965-1, Class 6H/6g.
- Tapped holes & dowel holes shall be chamfered from the working side prior to tapping or machining to finished size to prevent burrs inside holes.
- Threaded holes shall have full form threads to a minimum depth of 2x the major diameter in all materials.
- Press fit dowel holes are to be drilled through and diameter tolerance is to be held to a minimum depth of 2x the diameter.
- Slip fit dowel holes require the diameter tolerance is to be held to a minimum depth of 2x the diameter.
- Dowel holes are to be machined to the class of fit specified in the table in Appendix 2 below regardless of drawing callout.
- Counterbores and countersinks are to be concentric with the thru hole within Ø.005".
- Dowels will be ordinate dimensioned with three-place decimal, and the title block positional tolerance of
- +/-.0005" for dowels applies.
- 0.03" chamfer or radius is required on all edges, pockets, holes (both sides), taps, and reams.
- All dimensions and tolerances are applied after any finishing (other than paint and powder coat) and/or heat treatment processes called out on the drawing. It is the machinist's responsibility to adjust sizing and tolerancing for finishing thickness or follow masking requirements called out on the drawing.

- See Finishing & Plating section below for more details.
- Clean blind holes free of chips, coolant, and oil.
- When drawings call for threaded inserts suppliers are required to properly machine the feature to accept the designated insert, but not required to install the insert unless specifically requested by Convergix.

For greater detail about edge & surface requirements for machined details and machined plates reference Appendix 1 (A, B, & C)

1.3 Surface Finishes

Convergix has expectations for surface texture to drive uniformity to all parts, regardless of manufacturer. The surface finish mark ▽ has the following requirements:

- Machined surfaces require a 125 µin Ra maximum surface finish, unless otherwise specified. This applies to all machined details, regardless of material.
- HRS ground plates and aluminum plates require a 125 µin Ra maximum surface finish top and bottom, unless otherwise specified.
- Flame cut, plasma cut, and/or water jet cut standard process finish is expected on plate edges when these processes are specified on the print and there are not specific notes that require these edges to be machined.

Surface finish other than 125 µin Ra will have the finish noted ▽xx . The number is the maximum Ra allowed for the surface. Ra is µin for US customary units and µm for metric units.

Supplier is responsible for proper packaging during shipping to protect the surface finish.

For more information about Surface Finishes specific to the type of part/application, reference Appendix 1

1.4 Weldments

Weldment drawings are on two sheets, one for fabrication dimensions, and one for machining when 'after weld' machining is required.

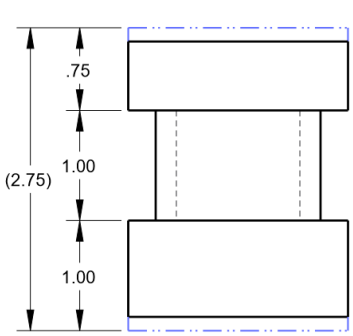
When two drawings are required, the files will be named as shown below.

1. Fabrication File (*PartNumber*_1)

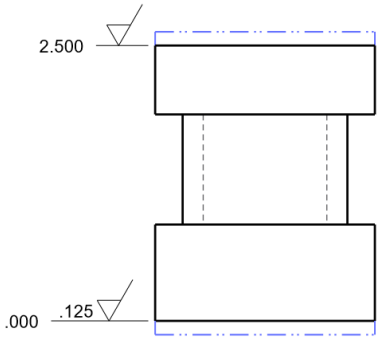
The fabrication drawing will have only dimensions relating to material stock sizes and weld locations.

2. Machining File (*PartNumber*_2)

The machining drawing will have only dimensions relating to material removal and machined features.



Fabrication



Machining

Phantom lines will be used on both drawings to show material thicknesses or burn patterns prior to machining. Reference dimensions will be shown for overall weldment size.

The image above shows the use of a surface finish symbol 

that defines the material removal allowance for the first machining operation for the zero surface. This replaces the use of a START dimension.

1 Weld Codes
- Follow the welding codes of the American Welding Society (approved ANSI).
- AWS D1.1, AWS D1.2, and AWS A2.4 will be the most applicable to Convergix work.
- Any other welding code used must be held to ANSI standards and documented accordingly.
- Per Convergix standards, welding code callouts or symbols will not be noted on drawing unless specifically required. If callouts are present on drawing, they must be adhered to.

2 Pre-Weld Deburring
- 0.03” chamfer is required on edges of all plates, gussets, and capped tubes.
- 0.03” chamfer is required on holes and pockets in plates and gussets.
- 0.015” chamfer or radius is required on all sheet metal edges.

3 Pre-Weld Prep
- Face tube seams toward inside of frames when possible.
- Bevel all butt joints.
- Preheat aluminum plate 3/4” and up.
- Flux core required on plate weldments or tube to plate welds when the plate is 3/4” thick and up.
- Tubing caps will not be shown on the drawing. A note CAP OPEN TUBE will be present when tubes need to be capped or DO NOT CAP when an open tube is required.
- The Supplier is required to fabricate a cap when required. Caps shall be 1/8 – 1/4” thick and inset from tube edge 1/8 -3/16 and be fully welded and ground smooth.
- Pre-machined features on a component of a weldment will have a note in the under the *Description* that says PREMACHINE or will have YES in the *Machining* box on JR’s new drawing formats.

4 Weld Patterns
- Plates (including top plates on tube bases) - 4” welds on a 12” pattern (8” space).
- Sheet metal – 1” welds on a 12” pattern (11” space).
- Fully welded seams will be noted on print when required.
- Full perimeter weld required on floor plates. Stitch welding not allowed on plates that are fastened to a concrete floor.
- Full seam welds required on material over 1-1/4” thick.
- Multiple pass welds required on materials over 2” thick.
- Welding of ground plates must be done upside-down to maintain plate flatness.

- Special welding requirements will be noted on the print when required.

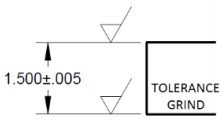
5 Finishing and Inspection
- All welds must be free of slag.
- Outside facing weld seams on tubes must be ground smooth and flush with the tubing surface and have no voids or porosity.
- All 'plug welds' must completely fill the void and then be ground flush and sanded smooth to the face of the part being attached.
- Remove weld spatter.
- Remove paint and other markings.
- Welds must be high quality in terms of strength.
- Welds must be high quality in terms of cosmetic appearance.
-

6 Stress Relief
- Stress Relief is not required unless specified on the Convergix drawing. Suppliers may choose to stress relieve weldments to improve machining conditions if desired.
- If a Convergix drawing does not specifically call for Thermal Stress Relief suppliers can use their discretion as to which method is used.
- When Convergix Drawings call specifically for Thermal Stress Relief suppliers must not deviate from this process without written approval on a case by case bases from the projects Technical Specialist.

For greater detail about edge & surface requirements for weldments reference Section 1.18.

1.5 Ground Plate

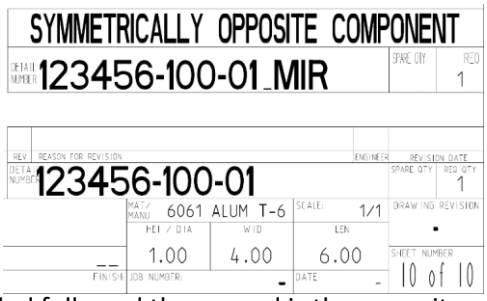
CLEAN UP GRIND (CUG) and TOLERANCE GRIND are noted in the PROCESS field of the title block. The drawings will be dimensioned as shown in the image to the right. Flatness and parallelism within .005" per foot accumulative corner to corner are expected using these notes.



1.6 Shown & Opposite

Check with each BU to assure alignment with their Shown & Opposite drawing specifications. If there are no specifications, symmetrically opposite drawings are handled in two different ways depending on whether the job originated inside our PLM system or is outside of it.

Legacy parts that are shown and opposite are defined on one drawing sheet. The orthographic views are of the SHOWN part. An isometric view of each will be on the sheet and labelled SHOWN and OPPOSITE. An extra table is used above the revision block area of the title block with the opposite part's name, suffixed with _MIR, and its quantity.



Parts originating in PLM that are shown and opposite are defined on two drawing sheets. The first is the shown part detailed fully and the second is the opposite part with only an isometric view. Shown part numbers are suffixed with -1, opposites with -2. The following notes will be on each drawing:

- e.g. for the AS-SHOWN part

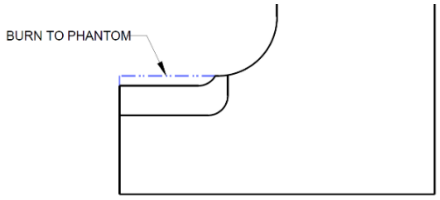
NOTES:
1) THIS COMPONENT HAS A SYMMETRICALLY OPPOSITE COMPONENT
SEE *PartNumber*-2 DRAWING FOR OPPOSITE COMPONENT

- e.g. for the OPPOSITE part

NOTES:
1) THIS COMPONENT IS A SYMMETRICALLY OPPOSITE COMPONENT
SEE *PartNumber*-1 DRAWING FOR AS-SHOWN COMPONENT

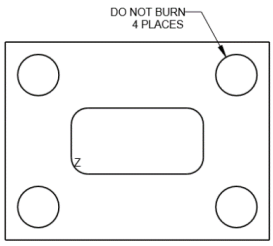
1.7 Burn and Water Jet

Burn & water jet drawings will have notes describing the requirement to cut perimeters and internal features marked with a 'Z', and/or to phantom lines in areas with post machining.



BURN TO PERIMETER AND PHANTOM LINES

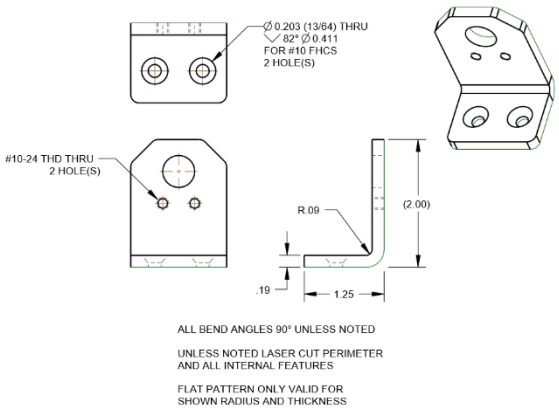
Do not burn or water jet features that are not marked as such.
The expectation is that burn tolerance is +/- 1/16".
Draft angle allowance is not to exceed .015" per 1" of thickness for water jet edges.



BURN PERIMETER AND (1) POCKET MARKED 'Z'

1.8 Laser & CNC Router

Laser Cut, Laser Cut & Bend, and CNC Router details will be drawn with two or three orthographic views and an isometric. Flat pattern views are provided. Dimensions will be given for overall size, flanges, bend radius, and secondary operations expected to be supplied complete. Notes will be used to clarify. The image on the right is an example of this.



0.015” chamfer or radius is required on all sheet metal edges.

Sheet Metal parts are not required to have part number engraved/etched, but these parts are required to be tagged with part number when delivered to Convergix.

For greater detail about edge & surface requirements for sheet metal reference Section 1.19.

1.9 Heat Treat

Heat treat specification is shown in the title block field HEAT TREAT. The value is a 3-point spread on the Rockwell C scale. It is the expectation of Convergix that the supplier will double temper to achieve this hardness. Process critical tooling may need special requirements that will be identified during the design process, discussed with the supplier and the Technical Specialist, and noted on the drawing.

1.10 Inspection

Convergix expects a high level of quality from our in-house manufacturing teams as well as our suppliers. Inspection of parts is expected in terms of accuracy of dimensions and the tolerancing applied, the overall quality appearance of the part, the function of process critical treatments, and the general aesthetics of the final finish.

1.11 Part Marking

All machined details shall have a part number engraved or machined on the part on a non-mounting surface location in a single line font. The text height can range from 1/16” – 3/16” depending on the size of the part. Exceptions will be shown and noted on the drawing.

NOTE: Components that specify a manufacturing process of Lasercut, Waterjet, or CNC Router are not considered machined details and are exempt from engraving requirements.

Parts that specify a finish of paint or powder coat are not required to be part marked as the finish will obscure the marking. The drawing may specify specific engraving or part number tagging that conflicts with this instruction. In this case, follow the note on the drawing to comply.

Part marking must be executed in a manner that ensures the mark is legible after finishes such as black oxide, anodize, zinc, nickel, etc. Laser etching is an example of a marking that would not be visible after these finishes.

Round parts or exceptionally small parts are not required to be engraved or etched unless specified on the drawing. These parts must be delivered in a labeled bag, box, or be wire tagged.

All text shown in the solid model of the part must be engraved by machining in the location, font, and size shown. Text shown on Convergix drawings will be specifically noted if the intent is for it to be engraved.

Drawings of plates will commonly have letters shown near holes as labels for clarity of matching to hole callouts. These letters are not intended to be engraved on the part. It is assumed the supplier understands this and does not engrave them on the part.

Convergix prefers that all parts are machine engraved but we understand this is not always practical or possible. Hand engraving is acceptable provided the text is legible and uniform.

1.12 Finishing and Plating

All dimensions and tolerances are applied after any finishing and/or heat treatment processes called out on the drawing. It is the supplier's responsibility to adjust for this. The required finish will be noted in the title block field FINISH. Type of finish and color, if applicable, will be noted.

1.13 Paint and Powder Coat

Paint or powder coat requirements will be noted in the title block field FINISH. Paint or powder coat and color will be specified. Color will be defined by RAL numbers, powder manufacturer and part number, or paint manufacturer and color. Suppliers are responsible for requesting a color sample from Convergix at the time of order if there is a paint code called out on a drawing that the supplier does not already have a confirmed color match for. The drawing may be noted by Engineering or Build to return to Convergix for masking and finish painting.

All Convergix components should be properly processed (cleaned, sandblasted, etc.) prior to powder coating to remove the risk of any blemishes or defects in the finish. This includes the removal of part markings applied by Convergix, material suppliers, or other upstream processes.

Powder coat Suppliers are responsible for following the surface preparation requirements specified by the Powder Manufacturer.

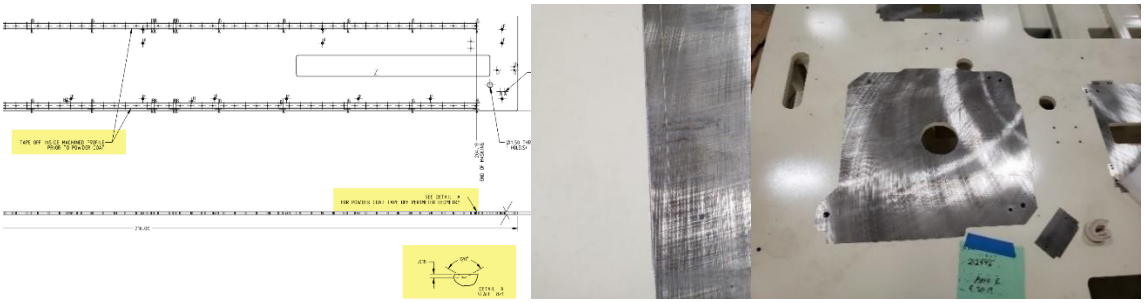
1.14 Masking Machined Surfaces

Convergix's standard is to 'Mask all Machined Surfaces' with no note required on the drawing. Sectional Masking & No Masking required can be noted in the following ways when desired.

- Masking may be specified on the drawing by Engineering in one of two ways:
  - If the entire plane(s) will be masked, the drawing note shown below should be on the drawing with a leader note to the specific surface(s) to be masked.
  - e.g. MASK WERE NOTED PRIOR TO FINISH COATING
- If only certain areas of a plane or surface need to be masked for a mating component to mount, Convergix Standard is to model a 90° V-groove .8mm deep with the centerline following the perimeter of the mating feature on the surface and add the drawing note

below. Please note, this should only be done when required to achieve tolerances required by the application and the entire surface is not permitted to be masked.

- Standard Drawing Note with leader to V-Groove:
  - MASK INSIDE MACHINED PROFILE P



- Masking may be routed to return to the Builder after manufacturing for masking. This method is preferred for partial surface masking or other complex masking requirements. The following note may be used on the drawing by Engineering or by Build.
  - e.g. MASK BY BUILD
- If the entire plane will be masked, this may be marked on the hard copy black CONTROLLED print by Build. These notes shall also be marked on the red CONTROLLED master hard copy for redlining purposes.

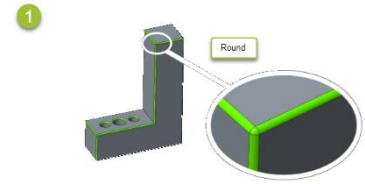
1.15 Machined Detail Components

The expectations for machined detail components are listed below:

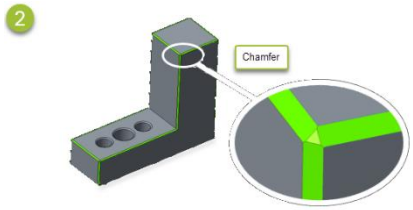
- Machined surfaces require **125 Ra** surface finish **minimum**, unless special finish is noted.
- Chamfer or Radius **all** edges **0.03 inches** deep, unless otherwise noted.
- Chamfer clearance holes **0.03 inches** deep **minimum**.
- Chamfer **all** tapped holes **0.03 inches** larger than the tap diameter.
- Chamfer **all** reamed holes **0.03 inches** larger than the reamer diameter.
- Remove surface blemishes and tool marks by tumbling or grinding/buffering.

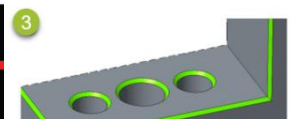
Acceptable Detail Edges

I. Chamfer or Rounds are both acceptable for edge and corner finishing



II. Edge chamfers with corner chamfer





Note: *All edges and corners must be deburred to a* ***minimum*** *of* ***0.03 inches*** *chamfer or radius*

III. All Holes must be chamfered with a **minimum** of a **0.03 inch** chamfer.

Note: *Threaded and reamed holes must be chamfered* ***prior*** *to tapping. Through holes must be chamfered on* ***both*** *sides.*

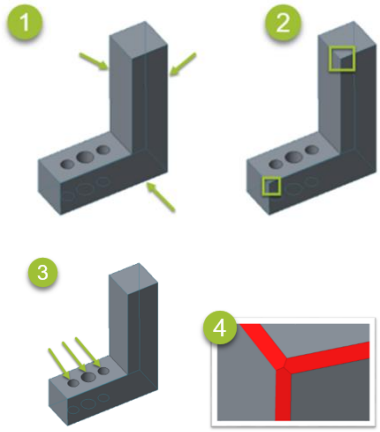
Unacceptable Detailed Edges

I. Edges Not Broken

II. Sharp Corners or Points

III. Holes Not Chamfered

IV. Chamfers that leave a sharp corner or point.



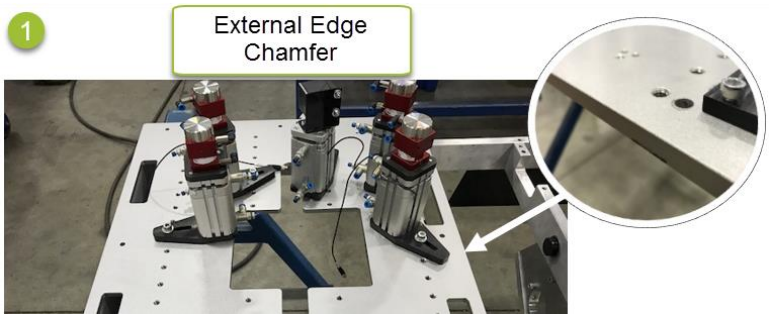
1.16 Working With Aluminum Plates

The expectations for working with Aluminum Plates are listed below:

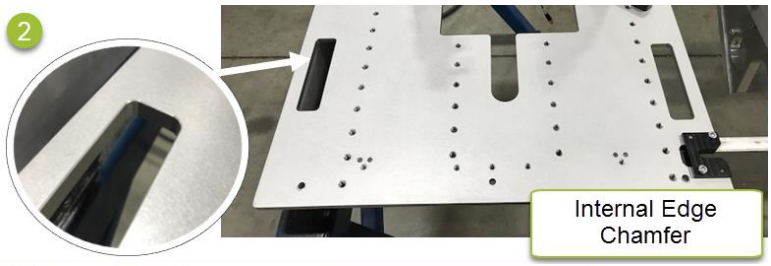
I. Machined surfaces require **125 Ra** surface finish **maximum**, unless special finish is noted.
II. Chamfer or Radius **all** edges **0.03 inches** deep, unless otherwise noted.
III. Chamfer clearance holes **0.03 inches** deep **minimum**.
IV. Chamfer **all** tapped holes **0.03 inches** larger than the tap diameter.
V. Chamfer **all** reamed holes **0.03 inches** larger than the reamer diameter.
VI. If required per print or to achieve a more uniformed finish, buff the plate to remove surface blemishes and tool marks. (Must use an Orbital DA Sander and medium (red) scotch brite pad to ensure finishes match other components.)

Aluminum Plate Edges and Finish

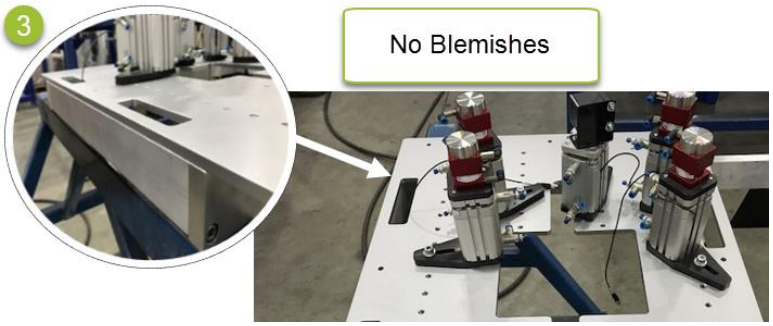
I. All external edges have a **0.03 inch** chamfer or radius.



II. All internal edges have a **0.03 inch** chamfer or radius.



III. Surface finish is **uniform** with **no** tool marks or blemishes.



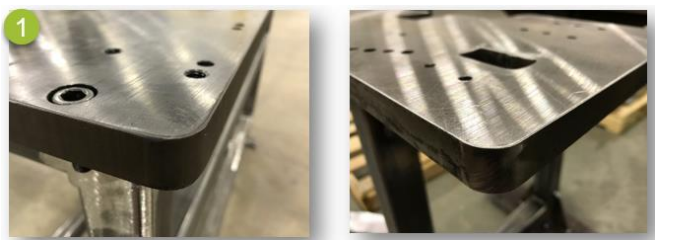
1.17 Working With Hot Rolled Steel Plates

The expectations for working with Hot Rolled Plates are listed below:

I. Machined surfaces require **250 Ra** surface finish **maximum**, unless special finish is noted.
II. Chamfer or Radius **all** edges and internal pockets **0.03 inches**.
III. Chamfer clearance holes **0.03 inches** deep **minimum**.
IV. Chamfer **all** tapped holes **0.03 inches** larger than the tap diameter.
V. Chamfer **all** reamed holes **0.03 inches** larger than the reamer diameter.
VI. Plate thickness grinding requires **125 Ra** surface finish **maximum**.

Hot Rolled Steel Plate Edges and Finish

I. All external edges have a **0.03 inch** chamfer or radius.



II. All internal edges have a **0.03 inch** chamfer or radius.

1.18 Working With Weldments

The expectations for working with Weldments are listed below:

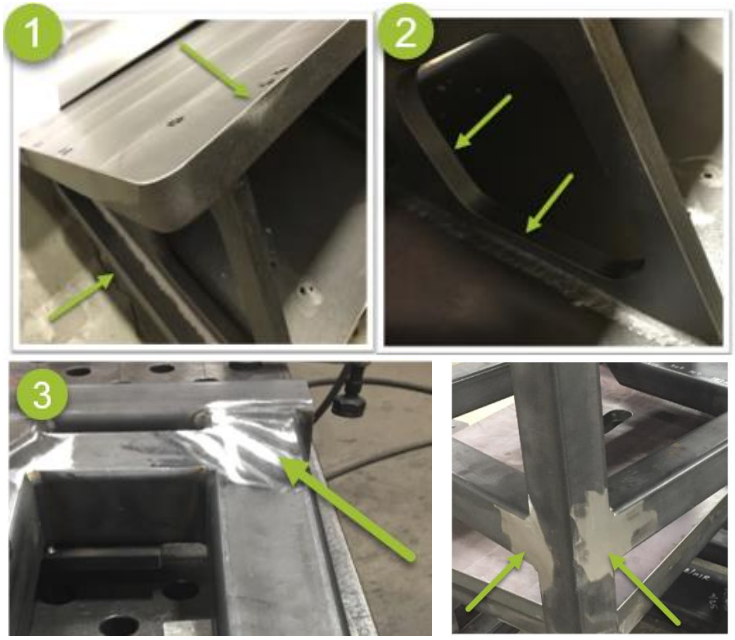
I. Grind external welds **smooth** or **flush** with tube surface.
II. Remove Slag and Weld spatter.
III. Machined weldments:
IV. All machined surfaces require 250 Ra surface finish minimum.
- Chamfer or radius all machined edges **0.03 inches**.
- Chamfer clearance holes **0.03 inches** deep **minimum**.
- Chamfer **all** tapped holes **0.03 inches** larger than the tap diameter.
- Chamfer **all** reamed holes **0.03 inches** larger than the reamer diameter.

Acceptable Weldment Edge Practices

I. For **Plate Weldments**, all external edges have a **0.03 inch** chamfer or radius.

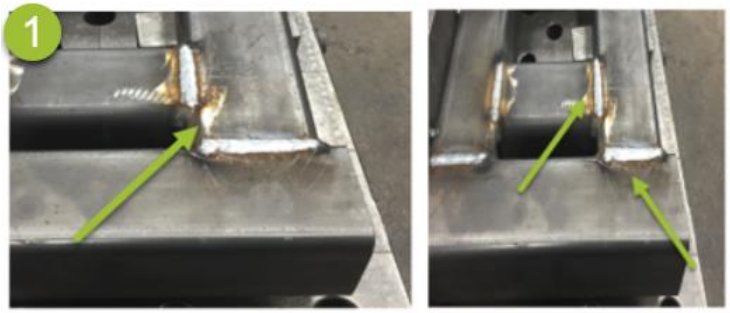
II. For **Plate Weldments**, all internal edges have a **0.03 inch** chamfer or radius.

III. For **Tube Weldments**, external welds must be ground **smooth** or **flush** with tube surfaces.



Unacceptable Weldment Edge Practices

I. For **Tube Weldments**, external edges that are not ground smoother.



1.19 Working With Sheet Metal

The expectations for working with Sheet Metal are listed below:

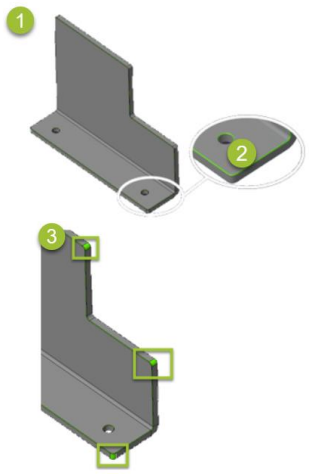
I. **0.13 inches** radius on **all** corners unless specified otherwise on the print.
II. Deburr **all** edges a **minimum** of **0.015 inches** chamfer or radius.
III. Countersink **all** holes to a **minimum** of **0.015 inches** chamfer.
IV. Chamfer **all** tapped holes **0.03 inches** larger than the tap diameter.

Acceptable Sheet Metal Edge Practices

I. **All** edges deburred to a **minimum** of **0.015 inches**.

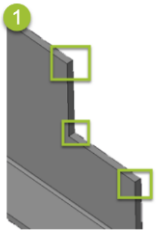
II. **All** holes countersunk to a **minimum** of **0.015 inches**.

III. **All** corners must have a **0.13 inch** radius, unless specified otherwise on the print.



Unacceptable Sheet Metal Edge Practices

I. **Sharp** corners on sheet metal details.



1.20 Dowel Fits

Regardless of drawing callout, all dowel holes are to be machined to the following classes of fit based on size and whether they press or slip fit.

English Dowels	
PRESS	**SLIP**
Ø1/8" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø1/8" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)
Ø3/16" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø3/16" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)
Ø1/4" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø1/4" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)
Ø5/16" +0.0000"/-.0008"	Ø5/16" +.0004”/+0.0012”

FOR DOWEL [qty] HOLE(S)	FOR DOWEL [qty] HOLE(S)
Ø3/8" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø3/8" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)
Ø1/2" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø1/2" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)
Ø5/8" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø5/8" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)
Ø3/4" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø3/4" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)
Ø7/8" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø7/8" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)
Ø1" +0.0000"/-.0008" FOR DOWEL [qty] HOLE(S)	Ø1" +.0004”/+0.0012” FOR DOWEL [qty] HOLE(S)

Metric Dowels	
PRESS	**SLIP**
Ø3mm M7 (-0.002mm/-0.012mm) FOR DOWEL [qty] HOLE(S)	Ø3mm F8 (+0.006mm/+0.020mm) FOR DOWEL [qty] HOLE(S)
Ø4mm M7 (+0.000mm/-0.012mm) FOR DOWEL [qty] HOLE(S)	Ø4mm F8 (+0.010mm/+0.028mm) FOR DOWEL [qty] HOLE(S)
Ø5mm M7 (+0.000mm/-0.012mm) FOR DOWEL [qty] HOLE(S)	Ø5mm F8 (+0.010mm/+0.028mm) FOR DOWEL [qty] HOLE(S)
Ø6mm M7 (+0.000mm/-0.012mm) FOR DOWEL [qty] HOLE(S)	Ø6mm F8 (+0.010mm/+0.028mm) FOR DOWEL [qty] HOLE(S)
ø8mm M7 (+0.000mm/-0.015mm) FOR DOWEL [qty] HOLE(S)	ø8mm F8 (+0.013mm/+0.035mm) FOR DOWEL [qty] HOLE(S)
Ø10mm M7 (+0.000mm/-0.015mm) FOR DOWEL [qty] HOLE(S)	Ø10mm F8 (+0.013mm/+0.035mm) FOR DOWEL [qty] HOLE(S)
Ø12mm M7 (+0.000mm/-0.018mm) FOR DOWEL [qty] HOLE(S)	Ø12mm F7 (+0.016mm/+0.034mm) FOR DOWEL [qty] HOLE(S)
Ø16mm M7 (+0.000mm/-0.018mm) FOR DOWEL [qty] HOLE(S)	Ø16mm F7 (+0.016mm/+0.034mm) FOR DOWEL [qty] HOLE(S)
Ø20mm M7 (+0.000mm/-0.021mm) FOR DOWEL [qty] HOLE(S)	Ø20mm F7 (+0.020mm/+0.041mm) FOR DOWEL [qty] HOLE(S)
Ø25mm M7 (+0.000mm/-0.021mm) FOR DOWEL [qty] HOLE(S)	Ø25mm F7 (+0.020mm/+0.041mm) FOR DOWEL [qty] HOLE(S)

OUTPUTS

NAME / NUMBER	DESCRIPTION
	Convergix Manufacturing Specifications

REVISION HISTORY

DATE	DESCRIPTION	DOCUMENT CHANGED BY
2024-31-5	Initial Draft	**Frank Lazowski**