Material Standards & Specifications

Specialty Products Company

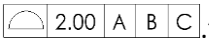
MSS	4.000	General Interpretation & Process Note
Approved by:	HLR	
Revision:	Q	• Added new precedence statement • A.1, A.12, B.6, B.9 reworded • Added TDA & ECN to A.6 • Added A.13, A.14, A.15 • Additional requirements added to B.3 • PFS clarification added to B.7
Date:	28-Mar-22	

** NOTE: All SPC Suppliers building to drawings referencing this standard must maintain compliance with *all* items in this standard – do not focus only on new changes! **

Requirements defined in a TDA, PO, and NCR that differ from this standard will take precedence.

Scope:
This specification summarizes the default assumptions regarding interpretation of drawings and general processing practices during manufacture.

A. Drawing & 3D Data Interpretation:

1. In general, do not proceed with manufacture of parts if something is unclear, undefined, or contradictory; human error can and does occur, so if clarification is needed, contact SPC directly.
2. The primary unit for all dimensions is metric. If given, secondary dimensions are inches. If inches are used in the manufacturing of a product, convert the primary metric dimension to inches for an accurate value to avoid rounding errors.
3. For interpretation of the following note:
   "*UNDIMENSIONED FEATURES ARE CONSIDERED NOMINAL AT 3D MODEL SURFACES WITH TOLERANCE ±0.50mm [0.020"]* or 

   ."
   If no datums are present on print, use best fit comparison. Interpretation and exceptions will be handled by SPC Engineering or Quality departments. To be verified via 3D scan, CMM or other applicable method.

   External Manufacturing: Supplier is required to show conformance on FAI's and monitor based on their process controls.

   SPC Internal Manufacturing: Manufacturing is required to show conformance on FAI's unless requirement is waived by the Design or Quality Engineer or respective department manager. Manufacturing will monitor the requirement based on process controls.

4. Circled drawing dimensions are considered critical for form and/or fit and will be specifically checked during receiving inspection.

5. Numbered notes preceded by a triangular flag correspond to one or more numbered flags in views on the drawing that show where the note applies on the part/assembly.
6. Manufacturing deviations from drawing and/or model specifications - including materials and finishes - must be approved by Specialty Products via TDA or ECN prior to manufacture except where specifically noted as 'optional' on drawings.
7. Projected and section views on drawings follow the '3rd Angle Projection' convention. ()
8. Material and finishes are specified using US-based published standards (ASTM, etc.). It is the supplier/manufacturer's responsibility to ensure that the *performance* parameters as defined in the referenced standard are met by the delivered parts. Due to inconsistencies allowed by published lists of 'equivalent standards', they are not to be used to determine suitable substitution of materials or finishes.
9. Inside corners shown as sharp in 3D data and with no relevant notations on the corresponding drawing may be assumed to allow a fillet radius due to tooling of up to 0.80mm [0.032”].
10. Unless otherwise specified, hole depths (↧) may be flat bottom or up to 118° drill point and depth shall be measured to where full diameter stops (i.e.: gage pin depth, not drill point depth). Any steps at hole bottoms must not violate a 118° taper from where full diameter stops.
11. Circularity shall be measured at 4 equally spaced heights when not explicitly called out on the print.
12. When obsolete standards or specifications are encountered, contact SPC Quality Engineer or Manager for direction.
13. Machining witness marks (i.e.: drill point for centering) on threaded end of bolts are permissible so long as their existence does not compromise the performance or strength of the bolt/threads. There are no allowances for machining witness marks on the head of the bolt.
14. GEOMET® alternatives such as Ecoguard™ may be permissible upon approval from SPC Engineering or Quality departments. Such approval will be recognized on any of the following documents: a drawing revision, a TDA, or notes found on the PO.
15. Mass is not considered an inspection value and is only listed for reference unless specifically notated on the drawing as requiring inspection.

B. General Process Notes:

1. “As-processed” surface finish is acceptable except as specifically noted on the CAD data or drawing.
2. Surface finish specifications indicated via the surface finish symbol on a drawing define the required finish in Roughness Average (R_a) unless otherwise noted.
3. All machined parts shall have sharp edges and corners deburred and be cleaned of all cutting and machining fluids and be free of loose metal chips prior to storage and/or shipment unless otherwise noted.
4. Any steel parts to be shipped to SPC with no surface finish - regardless of whether this will be its final form or not - must be free of corrosion upon arrival and thus should be coated with light oil. Alternative means for temporary corrosion prevention may be permitted with prior approval from SPC.
5. For welded assemblies, Gas Metal Arc Welding (GMAW) is the default welding process. Welds shall not be ground for appearance. Exceptions may be noted on the print.
6. All dimensions noted on parts or assemblies/weldments that call for post processing (heat treatments, platings and coatings of all types, etc.) are to be met *after* the finish process is applied. Thus, unfinished part dimensions should be adjusted to compensate for finish thickness, as necessary. Parts that will be finished as part of an upper-level assembly (typically a weldment) contain a notation to this effect, in which case the upper-level drawing provides the finish specification that must be accounted for in the manufacture of the part. If the upper-level finish

information is not available to the supplier, SPC Purchasing can provide it from the appropriate drawing.

7. Threaded connections that are assembled prior to packaging for sale are to be treated with anti-seize compound. This applies to steel-steel, steel-aluminum, and aluminum-aluminum joints. A recommended compound is Loctite Silver which contains graphite and metallic flake, is inert, petroleum-based (no evaporation), and temperature resistant (to 1600°F and will not harden with extreme heat or cold). An acceptable substitution is Permatex Anti-Seize Lubricant. All other substitutions must be approved in writing before application. Components or assemblies assembled under the Peterson Fluid Systems (PFS) name need not comply unless otherwise specified.
8. For welded assemblies involving a bushing receiver ring, insufficient space may sometimes exist for the specified weld bead size as measured from the face of the ring. In this case, any weld bead overlapping the face of the ring must be ground flush with the face unless an exception is made via notes on the drawing.
9. Steel welded assemblies shall conform to the quality requirements found within Table 1, Quality Level B of ISO 5817.