

Ahlers Aerospace, Inc.			DOCUMENT NO. E100-001		
SUBJECT: MANUFACTURING STANDARDS	FSCM/CAGE NO. 3MBT2	DATE 05/15/17	SECTION N/A	PAGE 1	REVISION E



MANUFACTURING STANDARDS

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REVISION PAGE

PAGE	REVISION	DESCRIPTION
ALL	1	INITIAL CONCEPT 10/17/2008
ALL	A	RELEASED ECO 5085. 05/12/2009
ALL	B	REVISED ECO 5402. 10/06/2009
ALL	C	CHANGES PER E.C.O. 5828, 05/07/2010
ALL	D	CHANGES PER ECO 7685, 05/09/2014
ALL	E	CHANGES PER ECO 8391, 05/15/2017

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1.0 Purpose: This document provides specifications for the fabrication of Ahlers Aerospace products when interpretation of a drawing feature is required. When no specification is called out on the Ahlers drawing then the following will prevail.

2.0 General: The below standards will be used when an interpretation of an Ahlers drawing is required.

Drafting Standard: Ahlers Aerospace drawings are to be interpreted using the following standards: ANSI Y14.2M-1979, R1987. Geometric Characteristics:

Threaded Fasteners: Threaded fasteners are 60° V-form based on the American National Standard.

Thread Class: Thread class shall be class 2A for external threads and class 2B for internal threads based on the American National Standard.

Pipe Thread Form: Pipe thread forms are based on the American National Standard, NPT.

Printed Circuit Board Fabrication: Printed Circuit Boards shall be fabricated per IPC-D-275 standard.

Circuit Board Soldering: Circuit Board Soldering shall be per IPC-A-610 standard. Solder used in the assembly of Circuit Boards at Ahlers shall be the low temperature variety with a nominal composition of Sn63Pb37 (63% tin, 37% lead).

Conformal Coating: Conformal Coating of Circuit Boards shall be per Ahlers Procedure 04-009.

Critical Characteristic: Critical Characteristics are shown on the drawing as a box "C", or C, or Critical characteristics require 100% control of the feature and no deviations are allowed.

Major Characteristic: Major Characteristics are shown on the drawing as a box "M", or M, or Major characteristics are those features that, if not correct, could create a condition that increases the workload of the operator and require additional effort to correct or compensate.

Process Configuration: Process Configurations are used to define and control part configurations during processing at Ahlers Aerospace. The intent is to identify parts that are to be inventoried in a state that is less than complete. Any part number may utilize the letter "P" and numeral suffix. The Process Configuration would be defined by Operations within the ERP system.

Process Configurations may be ordered from external sources provided the description is definitive. Process configurations may be, but are not required to be, shown on the drawing as a "P#"

Examples of P-numbers are shown below.

P-number	Result
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-P1	Part machined to drawing except for final plating, anodizing or other process
-P2	Part complete except painting
-P3	Part complete except silkscreen

Note: the above numbers are examples and not to be construed as the only P-number utilized. The Ahlers ERP/drawing will specify the P-number.

R&D and test units may use "P" numbers. However, "P" numbers must be fully processed to the complete part number before use on production product.

Solder: See "Circuit Board Soldering" for PCB solder requirements.

Solder used to attach connectors on a hermetic sealed instrument shall have a nominal composition of Sn40Pb60 (40% tin, 60% lead), considered to be a high temperature solder.

Solder used to seal the perimeter of the instrument and create a hermetic seal shall have a nominal composition of Sn63Pb37 (63% tin, 37% lead), which has a lower temperature melting point than high-temp solder used to attached the connector.

Solder used to attach Alumel or Chromel terminals and wire shall be lead-free, silver bearing having a nominal composition of Sn96Ag4 (96% tin, 4% silver).

Silver Brazing of brass fittings shall use an alloy filler having a nominal composition of 15% silver, 80% copper, and 5% phosphorus.

Instrument Internal Wiring Guide: Unless otherwise specified in wiring diagram of PB use PVC multi-stranded wires.
Bus wire is tin plated 24 AWG copper wire.

NVIS Filter/Lens Installation: Refer to RP-1046.