APPENDIX WQS-300-1

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AWS D17.1 EXCEPTIONS & CLARIFICATIONS, PACAERO-WENATCHEE

The exceptions noted in the blue font shown below are to be clearly defined and considered part of our terms and conditions (T&C's) of our quote and P.O. acceptance letters. Business development shall include language that states such and provide an internet link to these requirements available through the PacAero-Wenatchee website. Any revisions made herein, business development must be notified to ensure our linked website information is revised and reconciled with these statements accordingly.

PacAero-Wenatchee has provided our customer partners with reliable and hermetic groove, fillet, and seam laser welded joints since the early '90's. Our welding systems, from design through production and final inspection, comply with AWS D17.1M Class C requirements as standard, with the following exceptions and clarifications. If you have any questions, please contact your PacAero-Wenatchee representative for more information.

A1.1. D17.1M § 4.3.2 – **Groove Weld Penetration**

Note: Ref. WQS-300-1, A1.4.

a. Incomplete joint penetration (IJP) welds are normal to PacAero-Wenatchee (Ref. Figure 8). Therefore, customers must define on their DWG minimum penetration (or min-max range) per weld joint.

A1.2. **T and Dissimilar Material Stacks** (PacAero-Wenatchee Explosion Bonded Material)

Note: This exception/clarification was submitted to AWS for official interpretation 04/08/25, initially reviewed receiving unofficial interpretation agreement 04/15/25, placed queue for official interpretation and TAC review and potential inclusion into D17.1 revision "N" if officially approved.

a. Where bonded material makes up a portion of T, T will become the LMC thickness of the material within the bonded stack to be welded.

b. If more than one joint component is of bonded material, T shall become the LMC thickness of the thinnest material within the bonded joint to be welded.

c. Maximum penetration in a bonded joint shall never exceed 0.80* T.

A1.3. D17.1M § 4.3.4 – **General Drawing Essential Information**

a. DWG essential information will be required to be defined on the DWG provided with PO before the PO will be accepted.

A1.4. D17.1M § 5.4 – **Performance Qualification**

Note: Ref. WQS-300-1, A1.1.

a. Machine Operator (Operator) qualification samples shall be full (T) penetration welds per Class A requirement.

b. Qualified operators may produce any IJP depth within the qualified range defined by Table 5.5.

A1.5. D17.1M § 5.4.7 – **Inspection and Examination Requirements**

a. Unless specifically required (defined) on customer DWG (Ref A1.3), PacAero-Wenatchee substitutes hermetic leak testing to ≤ $1x10^{-9}$ccs He @1 ATM differential pressure for radiographic and ultrasonic welds per precedent set by AWS C3.6M/C3.6:2016-AMD2 § 6.5.3.3.

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A1.6. D17.1M Table 7.1 – **Acceptance Criteria**

a. Arc Strikes/Gouge Marks are not applicable to LBW.

b. Maximum Weld Reinforcement, T-Joint Penetration, and Double Side Welding approaches are not available at PacAero-Wenatchee.

A1.7. D17.1M Table 5.3, § 7.3 & Annex B – **NDT** (Non-Destruct Testing)

a. Penetrant, Radiographic, Tension, Bend, Fracture Toughness, Ultrasonic Testing, Magnetic Particle Examination, and Chemical Analysis are not capabilities available within PacAero-Wenatchee.

b. If NDT testing is required, as defined on customer DWG per Class identification, the customer will define the number, type of specimens to be tested, and the lab(s) where testing shall occur.