



AEROSPACE RECOMMENDED PRACTICE	ARP1917™	REV. B
	Issued 1992-01 Revised 2002-09 Reaffirmed 2013-07 Cancelled 2021-12 Superseded by AS7766	
Clarification of Terms Used in Aerospace Metals Specifications		

RATIONALE

ARP1917 has been designated cancelled and superseded by AS7766.

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Systems Group, SAE, as of December 2021 and has been superseded by AS7766, Terms Used in Aerospace Metals Specifications. The requirements of the latest issue of AS7766 shall be fulfilled whenever reference is made to the cancelled ARP1917. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications, noting that it has been superseded by AS7766.

Cancelled specifications are available from SAE.

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<https://www.sae.org/standards/content/ARP1917B>

1. SCOPE:

This Aerospace Recommended Practice (ARP) clarifies terms used in Aerospace materials and process specifications. The terms clarified in this ARP are not intended to supersede those terms for which clarification is already provided in existing specifications.

2. REFERENCES:

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2300	Steel Cleanliness, Premium Aircraft-Quality, Magnetic Particle Inspection Procedure
MAM 2300	Steel Cleanliness, Premium Aircraft-Quality, Magnetic Particle Inspection Procedure, Metric (SI) Measurement
AMS 2301	Steel Cleanliness, Aircraft-Quality, Magnetic Particle Inspection Procedure
MAM 2301	Steel Cleanliness, Aircraft-Quality, Magnetic Particle Inspection Procedure, Metric (SI) Measurement
AMS 2303	Steel Cleanliness, Aircraft-Quality, Martensitic Corrosion-Resistant Steels, Magnetic Particle Inspection Procedure
MAM 2303	Steel Cleanliness, Aircraft-Quality, Martensitic Corrosion-Resistant Steels, Magnetic Particle Inspection Procedure, Metric (SI) Measurement
AMS 2304	Steel Cleanliness, Special Aircraft-Quality, Magnetic Particle Inspection Procedure
MAM 2304	Steel Cleanliness, Special Aircraft-Quality, Magnetic Particle Inspection Procedure, Metric (SI) Measurement

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM E 45 Determining the Inclusion Content of Steel

3. TERMS:

AGITATION: Intentionally induced movement of parts or material, or intentionally induced circulation of the liquid media around parts or material.

AIRCRAFT-QUALITY STEEL: (see clarifications under Steel Quality)

ACCEPTABLE TO PURCHASER: Does not require prior written approval from purchaser, but allows vendor to make a decision and purchaser the right to disapprove the decision.

AGREED UPON BY PURCHASER AND VENDOR: Requires concurrence of both purchaser and vendor. Such concurrence is typically documented by way of the purchase order.

ALUMINUM CASTING, PREMIUM GRADE: Aluminum castings that have guaranteed mechanical properties at drawing-designated areas. Representative castings are destructively tested periodically to verify the mechanical properties.

AS CAST: Castings that have had gates and risers removed, and cleaned free of mold material, but have not been subject to subsequent heat treatment.

AUTHORIZED BY PURCHASER: Requires prior written approval from the purchaser.

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3. (Continued):

BAR, ROD AND WIRE: A solid square, rectangular (other than sheet, strip, or plate), round, regular hexagon, or octagon shaped material whose length is greater than its cross section with diameter, thickness or distance between parallel surfaces falling into Table 1 below:

TABLE 1 - Bar, Rod or Wire

Material	Bar	Rod	Wire
Al & Al Alloys	0.375 inch (9.52 mm) or larger between parallel surfaces with square rectangular, hexagon, or octagon cross section	0.375 inch (9.52 mm) diameter and larger	Under 0.375 inch (9.52 mm) diameter or distance between parallel surfaces
Cu & Cu Alloys	Flat products (square or rectangular over 0.188 inch (4.78 mm) thick and up to and including 12 inch (305 mm) wide	Round, hexagonal or octagonal products of any size furnished in straight lengths	Any size furnished in coils Flat wire is any shape in straight lengths up to 0.188 inch (4.78 mm) thick inclusive and 1.25 inch (31.8 mm) wide inclusive
Ti & Ti Alloys	0.5 inch (12.7 mm) and over in diameter or distance between parallel surfaces	0.5 inch (12.7 mm) and over in diameter or distance between parallel surfaces	Under 0.5 inch (12.7 mm) in diameter or distance between parallel surfaces

BEST COMMERCIAL PRACTICE: A term used to describe the workmanship of metal products which meet the commonly recognized industry quality standard for a particular alloy, surface condition, product form, heat treat condition, and, most importantly, the method of fabrication. This term is no longer used in specifications since the standard can vary from mill to mill and product to product and is subject to interpretation.

BILLET (REFORGING, REROLLING OR EXTRUSION STOCK): A solid metal product that is intended for subsequent hot working into finished or semi-finished products.

CAPABLE OF: A term applied to certain requirements which need not be verified by the producer. If subsequent testing by the purchaser or its designee establish that the material does not meet the requirement, the material may be rejected. This term is no longer used in AMS specifications. The recommended practice is to require periodic testing at the frequency determined by the producer.

3. (Continued):

CAST NUMBER (APPLICABLE TO ALUMINUM WROUGHT PRODUCT): Sequential identification of aluminum ingot/billet of the same alloy that are melted and poured in one or more drops without change in the processing parameters.

CERTIFICATION: A formal written document attesting that a specific operation or product meets standards and/or requirements specified within the applicable document.

CERTIFIED (QUALIFIED) OPERATOR: A person who is authorized to perform a specific operation after having fulfilled the pre-established requirements.

CLEANLINESS (INTERNAL CLEANLINESS OF STEEL): Term used to describe type and amount of nonmetallic inclusions in steel. The following documents define material cleanliness:

ASTM E 45
AMS 2300
MAM 2300
AMS 2301
MAM 2301
AMS 2303
MAM 2303
AMS 2304
MAM 2304

COGNIZANT ENGINEERING ORGANIZATION: The engineering organization responsible for the design of the part, or the designee of this engineering organization.

COLD FINISHING: Process by which the final material dimensions and/or surface characteristics are produced by mechanically working the material at a temperature below the recrystallization temperature.

COLD WORKING: Process by which metal is strain hardened by mechanical deformation that is performed at a temperature that is below the recrystallization temperature.

COMMERCIAL PACKAGING: Packaging meeting common carrier rules and regulations in order to provide safe delivery to destination.

CONTRACTOR: All parties involved in a contract except when it is referenced in government specifications (see Government Contractor). This term is no longer used in AMS specifications.

COUPON: A piece of material from which a specimen is prepared.

DROP NUMBER (APPLICABLE TO ALUMINUM WROUGHT PRODUCT): Sequential identification number of aluminum ingots poured simultaneously from the same cast.

3. (Continued):

ESSENTIALLY FREE FROM: Having a detectable quantity of a condition or named constituent, but the quantity is not sufficient to cause a detrimental effect on the product. There is no specific value of what the quantity should be. This term is no longer used in AMS specifications.

EXCESSIVE INTERGRANULAR CORROSION: The degree of intergranular corrosion that is greater than what is typically experienced from test samples of the same alloy, temper, and thickness, and heat treated to the applicable specification. There is no accepted standard. This term is no longer used in AMS specifications.

FINISH MACHINED: A part surface that has been machined to the final drawing dimensions. Holes to be drilled at assembly may be excluded.

FOIL: Flat rolled products thinner than those covered in Table 3.

GOVERNMENT CONTRACTOR: When used in government specifications (Federal, Military, NASA, and DOD), it is defined as an organization or individual performing work or providing services to the government in accordance with a contract.

HEAT (MELT OR HEAT LOT): Material which, in the case of batch melting, was cast at the same time from the same furnace and was identified with the same heat number; or, in the case of continuous melting, was poured without interruption. (See definition of cast number and drop number used in aluminum industry).

HEAT TREAT LOT: A quantity of material or parts heat treated in the same furnace at the same time. For continuously heat treated material, a heat treat lot is that quantity of material heat treated in the same furnace at the same temperature and environment without interruption. A "continuously heat treated lot" is typically limited to an 8-hour shift.

HOT FINISHING: A process by which final material dimensions and/or surface characteristics are produced by mechanically working the metal at a temperature above the recrystallization temperature. In some heat resistant alloys, process parameters may result in a small amount of residual strain hardening being retained.

HOT WORKING: Changing the shape of the metal by mechanical work at or above the recrystallization temperature of the metal, resulting in no intentional strain hardening.

HYDRAULIC TUBING: Material used typically for transmission of fluids under pressure. The material has a wall thickness appropriate to the temperature and/or pressure of the fluid being transported. Hydraulic tubing is typically not used for mechanical applications.

INSPECTION LOT: A quantity of parts with the same attributes submitted for inspection at the same time.

MATERIAL LOT: Material taken from a single heat of metal, processed at the same time into the same size and shape of product, and heat treated as a single heat treat lot.

3. (Continued):

MAY: This word is used to indicate an option, and does not express a mandatory requirement.

MECHANICAL TUBING: Heavy-walled typically cylindrical tubing, intended primarily for the machining of circular rings, flanges, shafts, etc., having a wall thickness which is a substantial proportion of the outer diameter. Such tubing is not normally used for the transmission of fluids, and parts made from it are usually machined all over. This product is sometimes known as "hollow bar."

NONMETALLIC INCLUSIONS: Insoluble impurities, such as oxides, aluminates, sulfides, and silicates, which are trapped mechanically, or are formed during solidification.

PIPE MATERIAL: A hollow product designated by "nominal pipe size" and "ANSI schedule number." This material is generally suitable for carrying fluids and may also be suitable for mechanical applications.

PLATE: Flat rolled product having the nominal thickness shown in Table 2.

TABLE 2 - Plate

Material	Nominal Thickness
Al & Al Alloys	0.250 inch (6.35 mm) and over
Cu & Cu Alloys	Over 0.188 inch (4.78 mm) (and greater than 12 inch (3.05 mm) wide)
Ni & Ni Alloys	Over 0.187 inch (4.75 mm)
Steel	0.187 inch (3/16 inch nominal) (4.75) and over
Ti & Ti Alloys	0.1875 inch (7.76 mm) and over

PREMIUM (AIRCRAFT) QUALITY: (see definition under Steel Quality)

PREPRODUCTION PARTS: Parts made for evaluation prior to production to ensure the production practice is capable of producing parts meeting design criteria.

PROCESS LOT: A group of parts that have the same part number and are at the same location in the fabrication process. These parts have either been processed as a single load, or, in the case of continuous processing, have been processed with the same process parameters in the same equipment. A "continuous processing lot" is typically limited to 8 hours or the completion of the process if the process takes longer than 8 hours.