



<b>AEROSPACE MATERIAL SPECIFICATION</b>	<b>AMS4787™</b>	<b>REV. H</b>
	Issued 1971-11 Reaffirmed 2008-11 Revised 2022-02	
Superseding AMS4787G		
Gold-Nickel Alloy, Brazing Filler Metal, High Temperature 82Au - 18Ni 1740 °F (949 °C) Solidus-Liquidus Temperature (Composition similar to P00820)		

### RATIONALE

AMS4787H is the result of a Five-Year Review and update of the specification. The revision prohibits unauthorized exceptions (3.5, 4.4.1, 5.1.3, 8.5), clarifies paste requirements (3.2.1.2), and allows prior revisions (8.4).

#### 1. SCOPE

##### 1.1 Form

This specification covers a gold-nickel alloy in the form of wire, rod, sheet, strip, foil, pig, powder, shot, chips, preforms, and a viscous mixture (paste) of the powder in a suitable binder.

##### 1.2 Application

This filler metal has been used typically for joining corrosion and heat resistant steels and alloys where corrosion and oxidation resistant joints with good strength up to 1300 °F (704 °C), but usage is not limited to such application. This filler metal is normally used for brazing, without flux, using a protective atmosphere.

##### 1.3 Classifications

Filler metal supplied to this specification is classified (see 8.6) as follows:

Class 1 - Standard composition (AWS A5.8M/A5.8 BAu-4)

Class 2 - Supplementary composition control

#### 2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

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## 2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AMS2222 Tolerances, Copper and Copper Alloy Sheet, Strip, and Plate

AMS2224 Tolerances, Copper and Copper Alloy Wire

## 2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

ASTM B214 Sieve Analysis of Metal Powders

## 2.3 AWS Publications

Available from American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33166-6672, Tel: 1-800-443-9353 or 305-443-9353, [www.aws.org](http://www.aws.org).

AWS A5.8M/A5.8 Specification for Filler Metals for Brazing and Braze Welding

## 3. TECHNICAL REQUIREMENTS

### 3.1 Composition

Products shall meet the requirements of AWS A5.8M/A5.8, BAu-4 and the following:

3.1.1 For Class 2 (see 8.6), copper shall be limited to 0.06% maximum, carbon to 0.005% maximum, and the following elements shall be limited to 0.002% maximum each; aluminum, cadmium, lead, magnesium, phosphorus, silicon, titanium, and zinc. The total of these elements shall not exceed 0.05% maximum.

### 3.2 Condition

The product shall be supplied as fabricated unless otherwise specified.

#### 3.2.1 Paste

Unless otherwise specified by the purchaser, shall consist of 84 to 90% by weight powder in a suitable binder and shall not contain flux.

3.2.1.1 Paste shall have a shelf life of not less than 6 months from date of manufacture; not more than thorough mixing shall be required to restore paste for use during that time.

3.2.1.2 Paste shall leave no adherent residue when heated in a protective atmosphere to a temperature higher than 1000 °F (538 °C).

### 3.3 Quality

The product, as received by purchaser, shall be uniform in color, quality, and condition and free from foreign materials and from imperfections detrimental to its working qualities. Wire, rod, sheet, strip, and foil shall be clean, sound, bright, and free from slivers, splitting, ragged edges, damaged ends, and other injurious imperfections. Pig, powder, shot, and chips shall have a metallic luster.

### 3.4 Sizes and Tolerances

The product shall be supplied in the following standard sizes and to the tolerances shown:

#### 3.4.1 Wire and Rod

##### 3.4.1.1 Nominal Diameters

Shall be as shown in Table 1.

**Table 1 - Standard diameter sizes**

Inches	Millimeters
0.005	0.13
0.007	0.18
0.010	0.25
0.015	0.38
0.025	0.64
0.031	0.79
0.040	1.02
0.047	1.19
0.062	1.57
0.094	2.39
0.125	3.18
0.175	4.44
0.188	4.78
0.225	5.72
0.250	6.35

##### 3.4.1.2 Diameter Tolerances for Wire and Rod

When not specified by AWS A5.8M/A5.8 or AMS2224 as applicable to refractory alloys.

#### 3.4.2 Sheet, Strip, and Foil

##### 3.4.2.1 Nominal Thicknesses

Shall be as shown in Table 2.

**Table 2 - Standard thicknesses**

Inches	Millimeters
0.001	0.025
0.0015	0.038
0.002	0.05
0.003	0.08
0.004	0.10
0.005	0.13
0.006	0.15
0.008	0.20
0.010	0.25
0.014	0.36
0.020	0.51
0.030	0.76

##### 3.4.2.2 Tolerances

In accordance with AWS A5.8M/A5.8, except that no roll shall weigh more than 75 pounds (34 kg).

### 3.4.3 Powder

#### 3.4.3.1 Mesh Designations

60, 100, 140, 200, and 325.

Powder shall be supplied in accordance with the limits on particle size distribution shown in Table 3, unless some other distribution is specified. Tests shall be in accordance with ASTM B214.

**Table 3 - Particle size distribution**

Mesh Designation	U.S. Standard Sieve	
60	Through a No. 40 sieve -	100%
	Through a No. 60 sieve -	95% minimum
	Through a No. 325 sieve -	10% maximum
100	Through a No. 60 sieve -	100%
	Through a No. 100 sieve -	95% minimum
	Through a No. 325 sieve -	15% maximum
140C	On a No. 100 sieve -	0.5% maximum
	On a No. 140 sieve -	10% maximum
	Through a No. 325 sieve -	20% maximum
140F	On a No. 100 sieve -	0.5% maximum
	On a No. 140 sieve -	10% maximum
	Through a No. 325 sieve -	55% maximum
200	On a No. 140 sieve -	0.5% maximum
	On a No. 200 sieve -	10% maximum
	Through a No. 325 sieve -	65% maximum
325	On a No. 200 sieve -	0.5% maximum
	On a No. 325 sieve -	10% maximum
	Through a No. 325 sieve -	90% minimum

3.4.3.1.1 When a mesh designation is not specified, 140F mesh shall be supplied.

3.5 Any exceptions shall be authorized by purchaser and reported as in 4.4.1.

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1 Responsibility for Inspection

The producer of the product shall supply all samples for producer's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

### 4.2 Classification of Tests

#### 4.2.1 Acceptance Tests

All technical requirements, other than shelf life of paste (3.2.1.1), are acceptance tests and shall be performed on each lot.

#### 4.2.2 Periodic Tests

Shelf life of paste (3.2.1.1) is a periodic test and shall be performed at a frequency selected by the producer unless frequency of testing is specified by purchaser.

### 4.3 Sampling and Testing

Shall be in accordance with the following: