



# Standard Specifications for Plate

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Umicore's business unit Jewellery and Industrial Metals provides an unrivalled wide range of precious metals products and related services to the jewellery industry and to a variety of industrial applications. Its North American production site is both ISO9001 and ISO14001 certified.

The 'Standard Specifications' series define the standard specifications for custom orders. They correspond to the needs of the majority of the precious metals industry in North America and illustrate most of Umicore's production capabilities. Should you, however, have a request that seems to fall outside of what is published here, then please don't hesitate to contact us for further assistance. Umicore updates its 'Standard Specifications' regularly

For each product the 'Standard Specifications' show:

- Product name and description
- Characteristics needed to fully define the product and a drawing illustrating the definition of those, where appropriate
- Available materials for these products
- Standard production capabilities and tolerances
- Temper
- Standard packaging

In order to speed up the processing of product inquiries and orders we encourage you to use the terminology used in the 'Standard Specifications' and to clearly indicate any requests that deviate from these 'Standard Specifications', such as tighter specifications.

Throughout the 'Standard Specification' series all dimensions are provided in mm and temperatures in °C. Conversions to inches, feet and °F are for reference only.

# Plate

## Product

### Characteristics:

- Material
- Thickness
- Width
- Length<sup>1</sup>
- Camber (edgewise bow)
- Flatness
- Tolerances (if different from the 'Standard Specifications')
- Vickers hardness or temper (see charts in appendix)
- Surface finish and quality

### Available Materials:

From stock: 10Y, 10W, 14Y, 14W, 14D, 18Y, 18W, 18D, 19W, 24Y, SSW, FIS, COS, ANT, FPT, 90W, 95R, 95H

### Production Capabilities:

	MINIMUM	MAXIMUM	TOLERANCE	COMMENTS
THICKNESS	0.5 mm/0.020"	4.0 mm/0.158"	0.05 mm/0.002"	3.0 mm/0.118" and thicker
			0.03 mm/0.001"	thinner than 3.0 mm/0.118"
WIDTH		150 mm/6.00"	1 mm/0.04"	SSW
		100 mm/4.00'	1 mm/0.04"	10Y, 10W, 10R, 10G, SSW, FIS, 14Y, 14W, 18Y, 18W, ANT
		50 mm/2.00"	1 mm/0.04"	All gold alloys over 18K and platinum alloys.
LENGTH (FLAT PIECES)		2000 mm/78"		Standard length is 1524mm/5 ft. Longer lengths are coiled (maximum thickness 1.5 mm/0.06", soft temper).
CAMBER	0 mm/0"	13 mm over 1830 mm/0.5" over 6'		As per ASTM B41. Note that tighter tolerances may be accommodated by special request.
FLATNESS	0 mm/0"	1.6 mm/0.06"		Note that tighter tolerances may be accommodated by special request.

Other dimensions and tolerances may be available on request.

### Temper:

Standard temper is soft<sup>2</sup>. Other tempers are available on request.

### Surface:

Uniform in appearance, of typical colour for the temper and alloy ordered, and free of orange peel, foreign inclusions, oxide or tarnish, scratches greater than 0.02 mm/0.0008" and blisters. Items ordered at soft temper may not appear shiny when first received. Once polished, rolled or drawn the surface will shine up.

Plate can be supplied in one of two finishes:

- As rolled: in this case the surface roughness is less than 12 µm. The surface is smooth and reflective.
- Brushed: in this case the surface roughness is greater than 12 µm. The surface is smooth and no clear reflection is visible.

Box or envelope depending on the size of the product.

<sup>1</sup> Instead of the length also the mass can be used to define the volume ordered.

# Strip

## Product

### Characteristics:

- Material
- Thickness
- Width
- Length<sup>3</sup>
- Camber (edgewise bow)
- Flatness
- Tolerances (if different from the 'Standard Specifications')
- Vickers hardness or temper (see charts in appendix)
- Surface finish and quality

### Available materials:

From stock: 10Y, 10W, 14Y, 14W, 14D, 18Y, 18W, 18D, 19W, 24Y, SSW, FIS, COS, ANT, FPT, 90W, 95R, 95H

Made to order: 10H, 10G, 10R, 14H, 14G, 14R, 18G, 18R, 22Y, FPD or any customer specified alloy

### CONTINUOUSLY VARIABLE THICKNESSES AVAILABLE

		0.08 mm to 0.12 mm/0.003" to 0.005"	0.121 mm to 0.20 mm/0.005" to 0.008"	0.201 mm to 0.25 mm/0.008" to 0.01"	0.251 mm to 0.5 mm/0.01" to 0.02"	0.51 mm to 1.0 mm/0.02" to 0.04"	1.01 mm to 1.5 mm/0.04" to 0.06"	1.51 mm to 2.0 mm/0.06" to 0.08"
Single widths available	1.51 mm/0.0595"	•	•	•				
	2.32 mm/0.0915"	•	•	•				
	2.40 mm/0.0945"	•	•	•				
	2.55 mm/0.1005"	•	•	•				
	2.71 mm/0.1065"	•	•	•				
	2.94 mm/0.1155"	•	•	•				
	1.55 mm/0.0610"	•	•	•				
	2.37 mm/0.0935"	•	•	•	•			
	2.44 mm/0.0960"	•	•	•	•			
	2.59 mm/0.1020"	•	•	•	•	•		
	2.74 mm/0.1080"	•	•	•	•	•		
	2.97 mm/0.1170"	•	•	•	•	•		
	3.05 mm/0.1200"	•	•	•	•	•		
	3.23 mm/0.1270"	•	•	•	•	•		
	3.34 mm/0.1315"	•	•	•	•	•		
	3.43 mm/0.1350"	•	•	•	•	•		
	3.61 mm/0.1420"	•	•	•	•	•		
	3.73 mm/0.1470"	•	•	•	•	•		
	3.82 mm/0.1505"	•	•	•	•	•		
	3.90 mm/0.1535"	•	•	•	•	•		
3.96 mm/0.1560"	•	•	•	•	•			
4.48 mm/0.1765"	•	•	•	•	•			
4.62 mm/0.1820"	•	•	•	•	•			
Continuously variable widths available	4.43 mm to 12.7 mm/0.17" to 0.5"	•	•	•	•	•		
	12.7 mm to 25 mm/0.5" to 1"	•	•	•	•	•	•	
	25 mm to 50 mm/ 1" to 2"	•	•	•	•	•	•	•
	50 mm to 114 mm/ 2" to 4.5"			•	•	•	•	•

<sup>3</sup> Instead of the length also the mass can be used to define the volume ordered.

Tolerance on thickness: 0.015 mm/ $\pm$ 0.0006" for thicknesses over 0.30 mm/0.012"; 0.010 mm/ $\pm$ 0.0004" for thicknesses below 0.30 mm/0.012"

Tolerance on width: 0.05 mm/0.002"

Other dimensions and tolerances may be available on request.

### Camber:

Maximum 13 mm/½" per 1830 mm/6 feet (as per ASTM Standard B41).

### Flatness:

At soft temper, when initially uncoiled, the strip will lie flat on a table to within 1.6 mm/0.06".

### Length

:

Strip is typically coiled. Cardboard reels are available on special request.

### Temper:

Standard temper is soft. Other tempers are available on request.

### Surface:

Uniform in appearance, of typical colour for the temper and alloy ordered, and free of orange peel, foreign inclusions, oxide or tarnish, scratches greater than 0.02 mm/0.0008" and blisters. Items ordered at soft temper may not appear shiny when first received. Once polished, rolled or drawn the surface will shine up.

Strip can be supplied in one of three finishes:

- As rolled: the surface roughness is less than 12  $\mu$ m. The surface is smooth and reflective.
- Brushed: the surface roughness is greater than 12  $\mu$ m. The surface is smooth and no clear reflection is visible.
- Mirror: the surface roughness is less than 8  $\mu$ m and the reflection is sharp and well defined. Coils are often interleaved with paper to avoid scratches or mars caused by rubbing. This finish is available on request for some alloys, sizes and generally for tempers greater than ¼ hard.

### Packaging:

Box or envelope depending on the size of the product.

# Solder Flush Strip

## Product Characteristics:

- Material
- Thickness
- Width
- Length<sup>4</sup>
- Camber (edgewise bow)
- Flatness
- Tolerances (if different from the 'Standard Specifications')
- Vickers hardness or temper for the non solder alloy (see charts in appendix)
- Surface finish and quality for the non solder alloy

## Available materials:

From stock: 10Y, 14Y, SSW

Made to order: 14W, or any customer specified alloy Both regular and heat treatable products are available.

## Production Capabilities:

All solder flush sheet products are a standard 50 mm/2" width as bonded. Greater widths are available on request. A substrate of yellow gold mill product has a layer of solder metallurgically bonded to it. The standard ratio is 88% substrate to 12% solder. Both regular and heat treatable products are available. See strip page for details on dimensions, tolerance and surface finish.

## Surface:

As for strip. The solder side of the strip is marked at the piece or coil ends. This can help identifying the working side of this bimetal alloy in cases where the colour difference between the solder and the gold alloy is not very pronounced.

## Packaging:

Box or envelope depending on the size of the product.

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<sup>4</sup>Instead of the length also the mass can be used to define the volume ordered.

## METAL DESCRIPTION LEGEND

CODE	DESCRIPTION
10Y	10 karat yellow gold
10H	10 karat yellow gold heat treatable
10W	10 karat white gold
10G	10 karat green gold
10R	10 karat red gold
14Y	14 karat yellow gold
14H	14 karat yellow heat treatable
14W	14 karat white gold
14D	14 karat palladium white gold
14G	14 karat green gold
14R	14 karat red gold
18Y	18 karat yellow gold
18W	18 karat white gold
18D	18 karat palladium white gold
18G	18 karat green gold
18R	18 karat red gold
19Y	19 karat yellow gold
19W	19 karat white gold
22Y	22 karat yellow gold
24Y	24 karat yellow gold

KARAT	MINIMUM GOLD CONTENT	COMMENTS
9	37.50%	High karat alloys available on request
10	41.67%	High karat alloys available on request
14	58.33%	High karat alloys available on request
18	75.00%	High karat alloys available on request
19	79.17%	High karat alloys available on request
22	91.67%	High karat alloys available on request
24	99.90%	99.95% and 99.99% available on request



## Silver

CODE	DESCRIPTION	MINIMUM SILVER CONTENT	COMMENTS
SSW	Sterling silver	92.50%	93.5% silver available on request
FIS	Fine silver	99.90%	99.95% and 99.99% available on request
COS	Coin silver	89.93%	
SOF	Solder flush	92.52%	
ANT	Arctic Fox™ Anti-tarnish silver	92.70%	

## Platinum

CODE	MINIMUM PLATINUM CONTENT	DESCRIPTION
90W	90.00%	90% Platinum 10% Iridium
95W	95.00%	95% Platinum 5% Iridium
95H	95.20%	95% Platinum Heat Treatable®
95R	95.20%	95% Platinum 5% Ruthenium
FPT	99.90%	99.9% Platinum (99.99% available on request)

## Palladium

CODE	MINIMUM PALLADIUM CONTENT	DESCRIPTION
FPD	99.90%	99.9% Palladium
95D	95.00%	95% Palladium 5% Silver and Gallium

## Impurity Levels For All Jewellery Products

Nickel	90 ppm (for alloys without nickel as alloying element)
Lead	40 ppm
Cadmium	40 ppm

## Umicore Precious Metals Canada Inc.

451 Denison Street  
L3R 1B7 Markham, Ontario Canada

Phone: 1-905-475-9566  
Toll free phone: 1-800-263-1669

Fax: 1-905-475-0703  
Toll free fax: 1-800-827-4779  
Email: [canada-salesweb@am.umicore.com](mailto:canada-salesweb@am.umicore.com)  
[www.umicorepreciousmetals.com](http://www.umicorepreciousmetals.com)

## Umicore Precious Metals USA Inc.

300 Wampanoag Trail  
Rivlerside, RI 02915  
USA

Toll free phone: 1-877-795-5060  
Toll free fax: 1-877-455-0651  
Email: [usa-salesweb@am.umicore.com](mailto:usa-salesweb@am.umicore.com)  
[www.umicorepreciousmetals.com](http://www.umicorepreciousmetals.com)

