



# Standard Specifications for Wire

Umicore's business unit, Jewellery and Industrial Metals, offers an unrivaled wide range of precious metals products and related services to the jewelry industry and various industrial applications. Its Canadian Manufacturing and Refining site is certified under ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018.

The 'Standard Specifications' series outlines the established benchmarks for customized orders, tailored to meet the prevalent demands of the precious metals industry in North America while showcasing Umicore's extensive production capabilities. If, however, you have a specific request that extends beyond the parameters outlined here, please feel free to contact us for personalized assistance. Umicore consistently updates its 'Standard Specifications' in response to customer feedback, evolving market trends, and technological progress.

These 'Standard Specifications' outline Umicore's capabilities in the following areas:

- Material
- Temper (Tensile and Elongation)
- Surface Finish
- Length and/or Weight
- Wire Size
- Tolerance
- Straight Length, Coil, or Spool (Small or Large)
- Packaging

To expedite the processing of product inquiries and orders, we suggest utilizing the terminology presented in the 'Standard Specifications' and clearly indicating any variations from these specifications.

Throughout the 'Standard Specification' series, all dimensions are denominated in millimeters, and temperatures are expressed in degrees Celsius. Conversions to inches, feet, and degrees Fahrenheit are provided solely for reference purposes.

## Materials

Group	Description	Fine Metal Content
<b>GOLD</b>	10 Karat Yellow Gold	41.67%
	10 Karat White Gold	
	10 Karat Red Gold	
	14 Karat Yellow Gold	58.33%
	14 Karat White Gold	
	14 Karat Red Gold	
	14 Karat Palladium White Gold	
	14 Karat Green Gold	
	14 Karat Heat Treatable Yellow Gold	75.00%
	18 Karat Yellow Gold	
	18 Karat White Gold	
	18 Karat Red Gold	
	18 Karat Palladium White Gold	
	18 Karat Green Gold	79.17%
	19 Karat White Gold	
	22 Karat Yellow Gold	91.67%
24 Karat Yellow Gold (Fine Gold)	99.90%	
<b>SILVER</b>	Coin Silver	89.90%
	Sterling Silver	92.50%
	Arctic Fox™ (Anti-Tarnish Silver)	92.70%
	Fine Silver	99.90%
<b>PLATINUM</b>	90% Platinum 10% Iridium	90.00%
	95% Platinum 5% Ruthenium	95.20%
	Fine Platinum	99.90%

Upon inquiry, high-karat alloys and precious metals of 99.99% purity can be provided. The nickel content in alloys without nickel as the alloying element remains below 90 ppm, while Lead and Cadmium content remains below 40 ppm.

## Temper

The default temper is soft unless otherwise specified. Additional temper options, including ¼ Hard, ½ Hard, ¾ Hard, Hard, Spring Hard, and Extra Spring Hard, can be provided upon request. For Ready-Stock™ wire, the standard temper is ½ Hard. The temper can also be indicated by the ultimate tensile strength (UTS), in which case a tolerance of 10% will be applied.

## Surface Finish

The surface will maintain a consistent appearance, reflecting the typical color associated with the chosen alloy. It will also be free from any orange peel texture, foreign inclusions, oxidation, tarnish, visible scratches, and blisters. It's worth noting that items ordered with a soft temper might not exhibit immediate shine upon arrival. Nevertheless, after undergoing processes such as polishing, rolling, or drawing, the surface will attain a shiny finish.

Wire can be provided in two different finishes:

1. **As-drawn:** The surface is smooth and reflective.
2. **Brushed:** The surface is smooth but no apparent reflection is observable.

## Wire Size

**Round Wires:** Diameters ranging from **0.15 mm to 15.00 mm** are available (min 0.20 mm for Fine Silver). Wires with a diameter less than 0.50 mm will necessitate an additional day for strand annealing.

**Shaped Wires:** We only have the below listed sizes available. For other sizes, new tooling would need to be acquired.

SQUARE WIRE							
mm	inch	mm	inch	mm	inch	mm	inch
0.410	0.0161	0.800	0.0315	2.000	0.0787	3.500	0.1378
0.460	0.0181	0.900	0.0354	2.150	0.0846	3.750	0.1476
0.500	0.0197	1.000	0.0394	2.250	0.0886	4.000	0.1575
0.560	0.0220	1.100	0.0433	2.400	0.0945	4.250	0.1673
0.600	0.0236	1.170	0.0461	2.500	0.0984	4.500	0.1772
0.635	0.0250	1.200	0.0472	2.600	0.1024	4.750	0.1870
0.640	0.0252	1.250	0.0492	2.750	0.1083	5.000	0.1969
0.660	0.0260	1.290	0.0508	2.790	0.1098	5.250	0.2067
0.700	0.0276	1.500	0.0591	3.000	0.1181	5.500	0.2165
0.711	0.0280	1.650	0.0650	3.112	0.1225	5.750	0.2264
0.750	0.0295	1.770	0.0697	3.170	0.1248	6.000	0.2362
0.760	0.0299	1.849	0.0728	3.250	0.1280	6.500	0.2559
0.770	0.0303	1.880	0.0740	3.330	0.1311		

<b>HALF ROUND WIRE</b>			
<b>mm x mm</b>	<b>inch x inch</b>	<b>mm x mm</b>	<b>inch x inch</b>
<b>0.500 x 0.750</b>	0.0197 x 0.0295	<b>1.500 x 2.000</b>	0.0591 x 0.0787
<b>0.500 x 1.100</b>	0.0197 x 0.0433	<b>1.500 x 2.500</b>	0.0591 x 0.0984
<b>0.635 x 1.295</b>	0.0250 x 0.0510	<b>1.500 x 3.000</b>	0.0591 x 0.1181
<b>0.711 x 1.397</b>	0.0280 x 0.055	<b>1.500 x 3.250</b>	0.0591 x 0.1280
<b>0.750 x 1.500</b>	0.0295 x 0.0591	<b>1.500 x 3.500</b>	0.0591 x 0.1378
<b>0.760 x 3.840</b>	0.0299 x 0.1512	<b>1.500 x 4.000</b>	0.0591 x 0.1575
<b>0.762 x 3.810</b>	0.0300 x 0.1500	<b>1.500 x 4.500</b>	0.0591 x 0.1772
<b>0.800 x 3.900</b>	0.0315 x 0.1535	<b>1.500 x 5.000</b>	0.0591 x 0.1969
<b>0.900 x 1.240</b>	0.0354 x 0.0488	<b>1.500 x 6.000</b>	0.0591 x 0.2362
<b>0.900 x 1.700</b>	0.0354 x 0.0669	<b>1.500 x 7.000</b>	0.0591 x 0.2756
<b>0.900 x 1.800</b>	0.0354 x 0.0709	<b>1.500 x 8.000</b>	0.0591 x 0.3150
<b>1.000 x 1.500</b>	0.0394 x 0.0591	<b>1.524 x 3.429</b>	0.0600 x 0.1350
<b>1.000 x 2.000</b>	0.0394 x 0.0787	<b>1.630 x 3.250</b>	0.0642 x 0.1280
<b>1.000 x 2.500</b>	0.0394 x 0.0984	<b>1.650 x 2.500</b>	0.0650 x 0.0984
<b>1.000 x 3.000</b>	0.0394 x 0.1181	<b>1.778 x 4.902</b>	0.0700 x 0.1930
<b>1.000 x 3.500</b>	0.0394 x 0.1378	<b>1.778 x 6.426</b>	0.0700 x 0.2530
<b>1.000 x 4.000</b>	0.0394 x 0.1575	<b>2.000 x 2.500</b>	0.0787 x 0.0984
<b>1.000 x 5.000</b>	0.0394 x 0.1969	<b>2.000 x 3.000</b>	0.0787 x 0.1181
<b>1.000 x 6.000</b>	0.0394 x 0.2362	<b>2.000 x 3.500</b>	0.0787 x 0.1378
<b>1.000 x 8.000</b>	0.0394 x 0.3150	<b>2.000 x 4.000</b>	0.0787 x 0.1575
<b>1.016 x 7.938</b>	0.0400 x 0.3125	<b>2.000 x 4.500</b>	0.0787 x 0.1772
<b>1.020 x 7.940</b>	0.0402 x 0.3126	<b>2.000 x 6.000</b>	0.0787 x 0.2362
<b>1.100 x 1.500</b>	0.0433 x 0.0591	<b>2.000 x 7.000</b>	0.0787 x 0.2756
<b>1.130 x 5.550</b>	0.0445 x 0.2185	<b>2.000 x 8.000</b>	0.0787 x 0.3150
<b>1.200 x 2.100</b>	0.0472 x 0.0827	<b>2.060 x 4.110</b>	0.0811 x 0.1618
<b>1.200 x 2.800</b>	0.0472 x 0.1102	<b>2.500 x 4.100</b>	0.0984 x 0.1614
<b>1.270 x 2.540</b>	0.0500 x 0.1000	<b>2.540 x 5.080</b>	0.1000 x 0.2000
<b>1.300 x 2.500</b>	0.0512 x 0.0984	<b>2.590 x 5.180</b>	0.1020 x 0.2039
<b>1.300 x 2.620</b>	0.0512 x 0.1031	<b>3.000 x 4.500</b>	0.1181 x 0.1772
<b>1.450 x 2.900</b>	0.0571 x 0.1142	<b>4.100 x 8.200</b>	0.1614 x 0.3228

<b>RECTANGULAR WIRE</b>			
<b>mm x mm</b>	<b>inch x inch</b>	<b>mm x mm</b>	<b>inch x inch</b>
<b>0.500 x 0.750</b>	0.0197 x 0.0295	<b>1.500 x 5.000</b>	0.0591 x 0.1969
<b>0.500 x 1.500</b>	0.0197 x 0.0591	<b>1.500 x 6.000</b>	0.0591 x 0.2362
<b>0.500 x 2.000</b>	0.0197 x 0.0787	<b>1.500 x 7.000</b>	0.0591 x 0.2756
<b>1.000 x 1.500</b>	0.0394 x 0.0591	<b>1.500 x 8.000</b>	0.0591 x 0.3150
<b>1.000 x 2.000</b>	0.0394 x 0.0787	<b>2.000 x 2.500</b>	0.0787 x 0.0984
<b>1.000 x 2.500</b>	0.0394 x 0.0984	<b>2.000 x 3.000</b>	0.0787 x 0.1181
<b>1.000 x 3.000</b>	0.0394 x 0.1181	<b>2.000 x 3.500</b>	0.0787 x 0.1378
<b>1.000 x 3.500</b>	0.0394 x 0.1378	<b>2.000 x 4.000</b>	0.0787 x 0.1575
<b>1.000 x 4.000</b>	0.0394 x 0.1575	<b>2.000 x 4.500</b>	0.0787 x 0.1772
<b>1.000 x 4.500</b>	0.0394 x 0.1772	<b>2.000 x 5.000</b>	0.0787 x 0.1969
<b>1.000 x 5.000</b>	0.0394 x 0.1969	<b>2.000 x 6.000</b>	0.0787 x 0.2362
<b>1.000 x 6.000</b>	0.0394 x 0.2362	<b>2.000 x 7.000</b>	0.0787 x 0.2756
<b>1.000 x 7.000</b>	0.0394 x 0.2756	<b>2.000 x 8.000</b>	0.0787 x 0.3150
<b>1.000 x 8.000</b>	0.0394 x 0.3150	<b>2.500 x 3.500</b>	0.0984 x 0.1378
<b>1.500 x 2.000</b>	0.0591 x 0.0787	<b>2.500 x 4.000</b>	0.0984 x 0.1575
<b>1.500 x 2.500</b>	0.0591 x 0.0984	<b>2.500 x 4.500</b>	0.0984 x 0.1772
<b>1.500 x 3.000</b>	0.0591 x 0.1181	<b>2.500 x 5.000</b>	0.0984 x 0.1969
<b>1.500 x 3.500</b>	0.0591 x 0.1378	<b>2.500 x 6.000</b>	0.0984 x 0.2362
<b>1.500 x 4.000</b>	0.0591 x 0.1575	<b>3.000 x 4.500</b>	0.1181 x 0.1772
<b>1.500 x 4.500</b>	0.0591 x 0.1772		

<b>TRIANGULAR WIRE</b>			
<b>mm x mm</b>	<b>inch x inch</b>	<b>mm x mm</b>	<b>inch x inch</b>
<b>1.650 x 2.100</b>	0.0650 x 0.0827	<b>2.300 x 4.550</b>	0.0906 x 0.1791
<b>2.100 x 2.650</b>	0.0827 x 0.1043	<b>2.450 x 3.200</b>	0.0965 x 0.1260

## Tolerances

### For Round Wire:

- Diameter > 1 mm:±0.03 mm
- Diameter < 1 mm:±0.02 mm

### For Shaped Wire:

- ± 0.1 mm on each side.

There won't be any designated size tolerances for orders with short lengths and/or small weights.

## Straight Length, Coil, or Spool

**Straight Length:** It is offered in sizes ranging from 1 mm to 15 mm in diameter, with the option to cut lengths between 305 mm and 1220 mm.

**Coil:** It is offered in sizes ranging from 0.75 mm to 3 mm in diameter. Coil IDs are available in 6", 8", or 12", dependent on size and temper requirements. Shaped wire needs to be in a soft temper to be coiled, restricted to a 12" ID. Otherwise, it will be cut to length.

**Spools:** It is offered in sizes ranging from 0.15 mm to 3 mm in diameter. Spools come in either small or large sizes, each with the following specifications:

Spool Description	Max Weight on Spool	Flange Dia.	Barrel Dia.	Traverse	Arbor Hole (Bore) Dia.
Large	8 kg	11.75"	6.3"	3.6"	2.05"
Small	2.5 kg	5.25"	3.5"	2.75"	0.625"

## Packaging

Depending on the size of the product, the order will be packaged in either a box or an envelope.

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