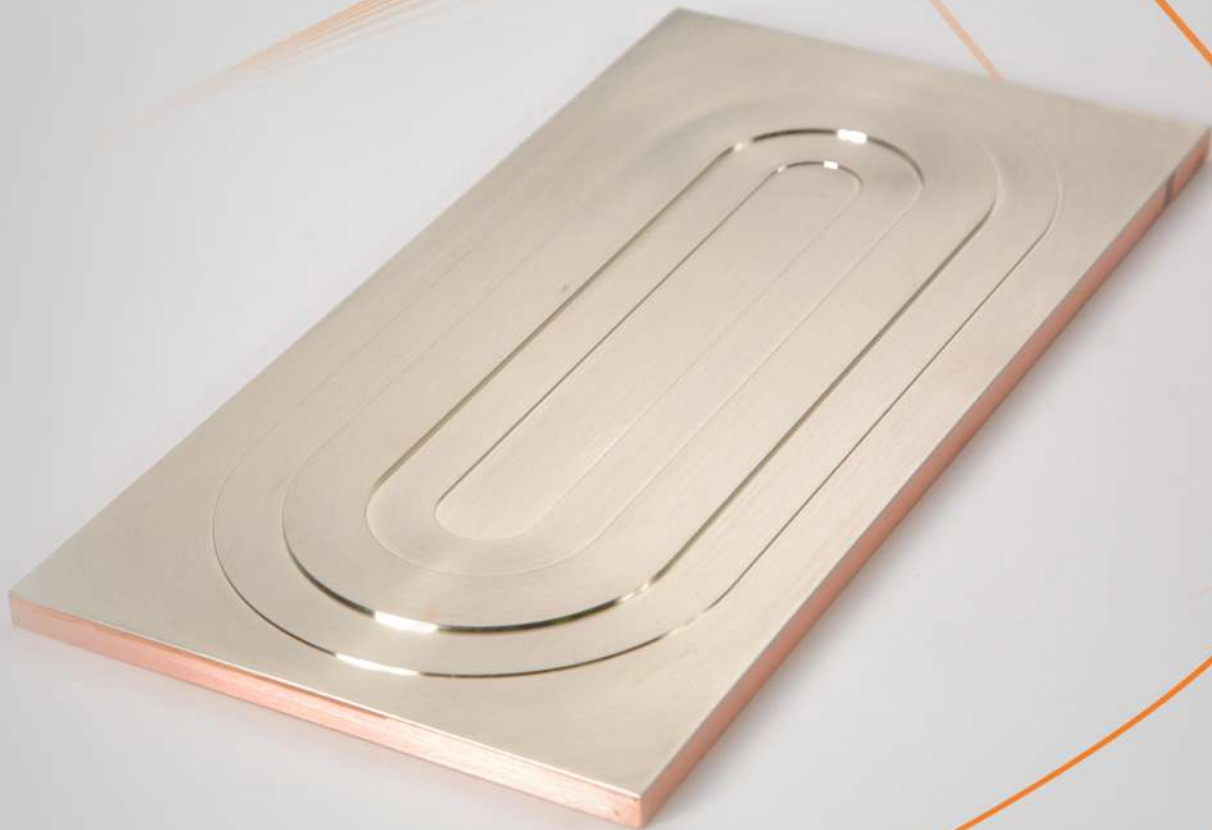


Giving every grain a **purpose**

# Sputtering Targets

SAFINA





## Sputtering Targets

Based on experience in precious metals, Safina has been manufacturing sputtering targets for last 20 years. Through past years Safina integrated the development, production and logistics in order to offer an exceptional level of quality, flexibility and proximity to the customer. We are a reliable partner in the manufacture of sputtering targets with the main focus on products quality, associate services and partnership.



### Industrial areas:

- Large area coatings
- Semiconductor industry
- Decorative coatings
- Optical media
- Laboratories and R&D centers
- Special applications

## Large Area Coatings



The large area coatings industry is represented by multiple market sectors:

- Architecture glass
- Automotive glass
- Displays
- Photovoltaics
- Solar technology
- Mirrors
- Medical

Safina develops continuously its product range and services to be competitive and able to offer customized solutions for new applications.

As one of leading suppliers, Safina offers multiple products for a large area coating applications, particularly for flat glass coatings. Safina R&D team pays attention namely to the key production concerned with silver planar and silver rotatable targets (both cylindrical and dogbone) in various constructions and designs according to individual customer needs.

## Planar Targtes

Planar targets are offered in standard segmented desing or in special monolithic design using stain-less steel clamps.

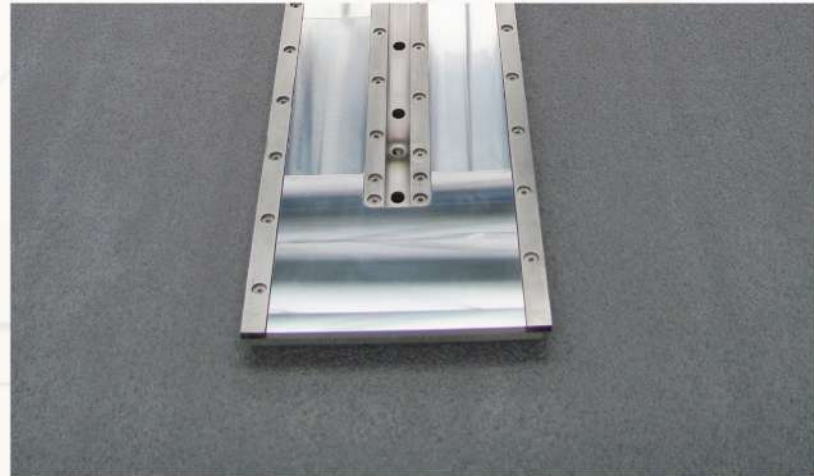
Our targets offer homogenous mictosttructure and avarage grain size  $<50 \mu\text{m}$  with combination of thickness up to 41 mm. Desing of targets can be improved based on customers request and errosion profile of sputtered target.



Standard desing / Utilization rate 20-30%

## Silver sputtering targets physical data

Standard purity:	99,99% (4N)
Density:	10,49 g/cm <sup>3</sup>
Microstructure:	Homogenous recrystallized (annealed)
Average grain size:	$<50 \mu\text{m}$
Melting point:	961 °C
Electrical resistivity:	1,59 $\mu\Omega\text{cm}$
Thermal resistivity:	418 W/mK
Appearance:	Silver gray



Clamps design / Utilization rate 30-50%

## Rotary Targets

Safina offers rotary targets from precious metals (Ag, Au and their alloys) and also non precious metals (Zn and Zn based alloys). Metal is sprayed Cold gas sprayed or Thermal sprayed on stainless steel backing tubes with length up to 4 metres and with the thickness of metal up to 13 mm. Rotary targets can be manufactured with dogbone design to achieve higher utilization rate (80-90%).



## Semiconductor Industry

Semiconductor industry, one of the largest consumers of sputtering targets (and also evaporating materials) is the next key market for Safina. We manufacture and supply high purity materials from precious metals and their alloys for various sputtering and evaporation coating systems with tailored specifications, monitoring critical impurities according to strict requirements of semiconductor applications.



## Decorative Coatings

Safina can offer many types of rotary and planar sputtering targets as well as evaporation materials for decorative coatings. Applying the optimization of target geometry, high oxidation and wear resistance, superior uniformity and coating quality can be provided.

Safina has a lot of experiences with jewellery alloys and we are able to prepare alloys based on customers request for final colour.



### The most common alloys:

Name	Au	Ag	Cu	Zn
Au 14 kar.51	585	50	365	
Au 14 kar.320	585	320	95	
Au 14 white	585		281	49
Ag 92,5		925	75	
925 Ag, Sagin Plus		925	51	23



## Optical Media

Safina manufactures wide variety of sputtering targets for optical discs, such as CD, CD-R, DVD-R etc.

Targets are produced based on requested design and geometry keeping stable high quality and precision machining.

Our products match with numerous types of metallizers made by Singulus, M2, Tapematic etc. Our targets are made from pure silver or from silver alloys.



## Laboratories and R&D Centers

Following the demand of numerous laboratories, R&D centers and universities, Safina offers high-purity precious metals and their customized alloys.

We manufacture wide range of rectangular as well as disc shape sputtering targets, foils, pellets and e-beam sources, in standard or customized sizes, designated for PVD or ion thin film applications, such as electronic microscopy, conductive, optical or IR coatings.



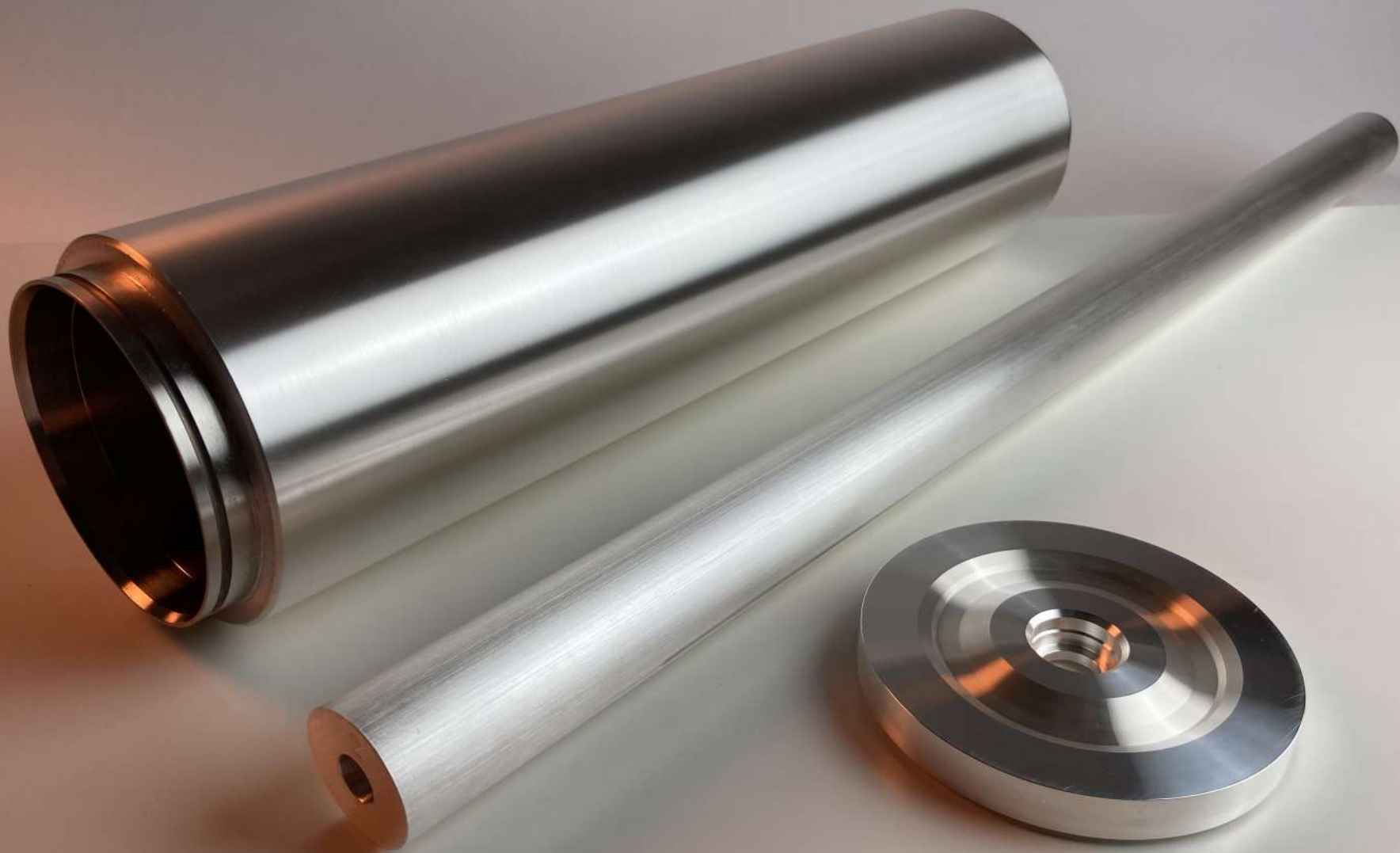
## Services

In order to satisfy individual needs together with sputtering targets manufactured by classic production techniques, Safina is able to offer special services like:

- Target design optimization to reach maximal level of utilization rate.  
Acknowledging high value of precious metal sputtering targets, Safina offers the optimization of each target design in order to increase its utilization rate and reduce the cost of ownership. Optimizing the design, we can increase customer's flexibility in production or reduce the total cost of ownership for precious metal sputtering targets.
- Manufacturing of backing plates from Cu and Mo based on customers drawings.
- Bonding of sputtering targets on supplied backing plates or on backing plates made in Safina. We offer Nanofilm and Indium bonding technology. Targets can be bonded from thickness starting on 1 mm.
- Recycling is one of the most important part of precious metal business. Safina recycles waste material containing precious metals for its subsequent and full-fledged use. We also provides the establishment and accounting of Material account as well as worldwide precious metal transfers via Material accounts through other precious metal manufacturers, refineries and banks.

## Quality Assurance

Safina enforces EN ISO 9001 and EN ISO 14 001 certified standards and places an extraordinary emphasis on quality of its products. Our laboratories guarantee reliable control over quality of materials and precision and correctness of analytic results.



Safina has maintained a quality management system according to ISO 9001 since 1997  
and an environmental management system according to ISO 14001 since 2005.



**SAFINA, a.s.**

Vídeňská 104, 252 50 Vestec,  
Czech Republic



[www.safina.eu](http://www.safina.eu)  
[targety@safina.cz](mailto:targety@safina.cz)  
+420 241 024 274