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Central Means of Payment Antifraud Office (UCAMP) - Italy

**A community strategy
to protect the Euro
in the mediterranean area**



**Technical training on euro coin
*Italian C.N.A.C.***

Marrakech (Morocco) 25-27 November 2015

Emilio Bufacchi





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List of chapters

- Genuine euro coins - security features
- Genuine euro coins - production
- Counterfeit coins : production and technical features
- Technical analysis of counterfeit euro coins
- Unfit coins, medals and tokens, foreign coins
- Authentication and activity of the CNAC





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▪ Genuine euro coins - security features

- Physical tight tolerances
- Particular edge shape
- Special alloys
- Three layer structure (Key security feature for € 1,- and € 2,- coins)
- Specific electro-magnetic properties

The inner core of the bimetallic coin is slightly magnetic

the ring is not magnetic

★3





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ISTITUTO POLIGRAFICO
E ZECCA DELLO STATO

Genuine Euro Coins

Group 1



Group 2



Group 3





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Old common side



New common side (*enlargement of the European Union*)





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Shape of the edge

	1 Euro Cent
	2 Euro Cent
	5 Euro Cent
	10 Euro Cent
	20 Euro Cent
	50 Euro Cent
	1 Euro
	2 Euro





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Euro specifications € 2- edge lettering

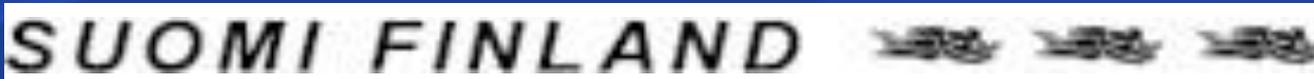
Belgium :



Germany :



Finland :



France :



Monaco :



Italy :



San Marino :



Vatican :



Cyprus :





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Euro specifications € 2- edge lettering

Slovakia :

S L O V E N S K Á R E P U B L I K A ★ ● ★

Ireland :

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★

Luxemburg :

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★

Netherlands :

G O D ★ Z I J ★ M E T ★ O N S ★

Austria :

2 E U R O ★ ★ ★ 2 E U R O ★ ★ ★ 2 E U R O ★ ★ ★ 2 E U R O ★ ★ ★

Portugal :

× × × × × × × D D D D D

Spain :

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★

Greece :

E Λ Λ Η Ν Ι Κ Η Δ Η Μ Ο Κ Ρ Α Τ Ι Α ★

Slovenia :

S L O V E N I J A ●

Malta :

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★





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Mint mark small design engraved on the surface of the coin characteristics of every National Mint





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Genuine euro coins - production





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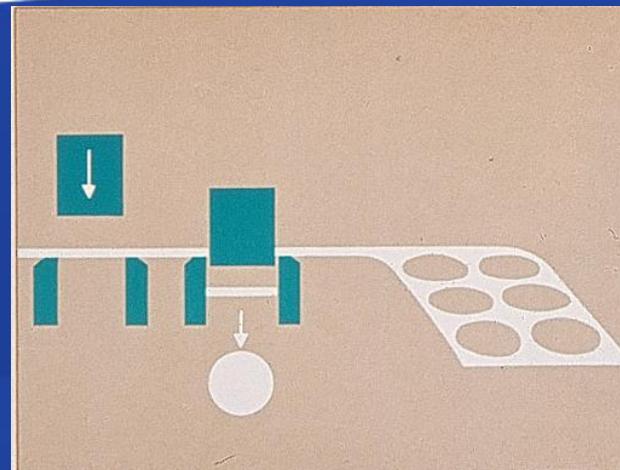


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material (blanks)



50 Ec Blank

1 Euro Blank

2 Euro Blank





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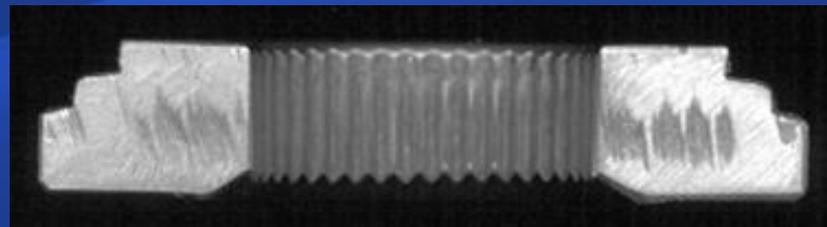


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minting tools



Working die

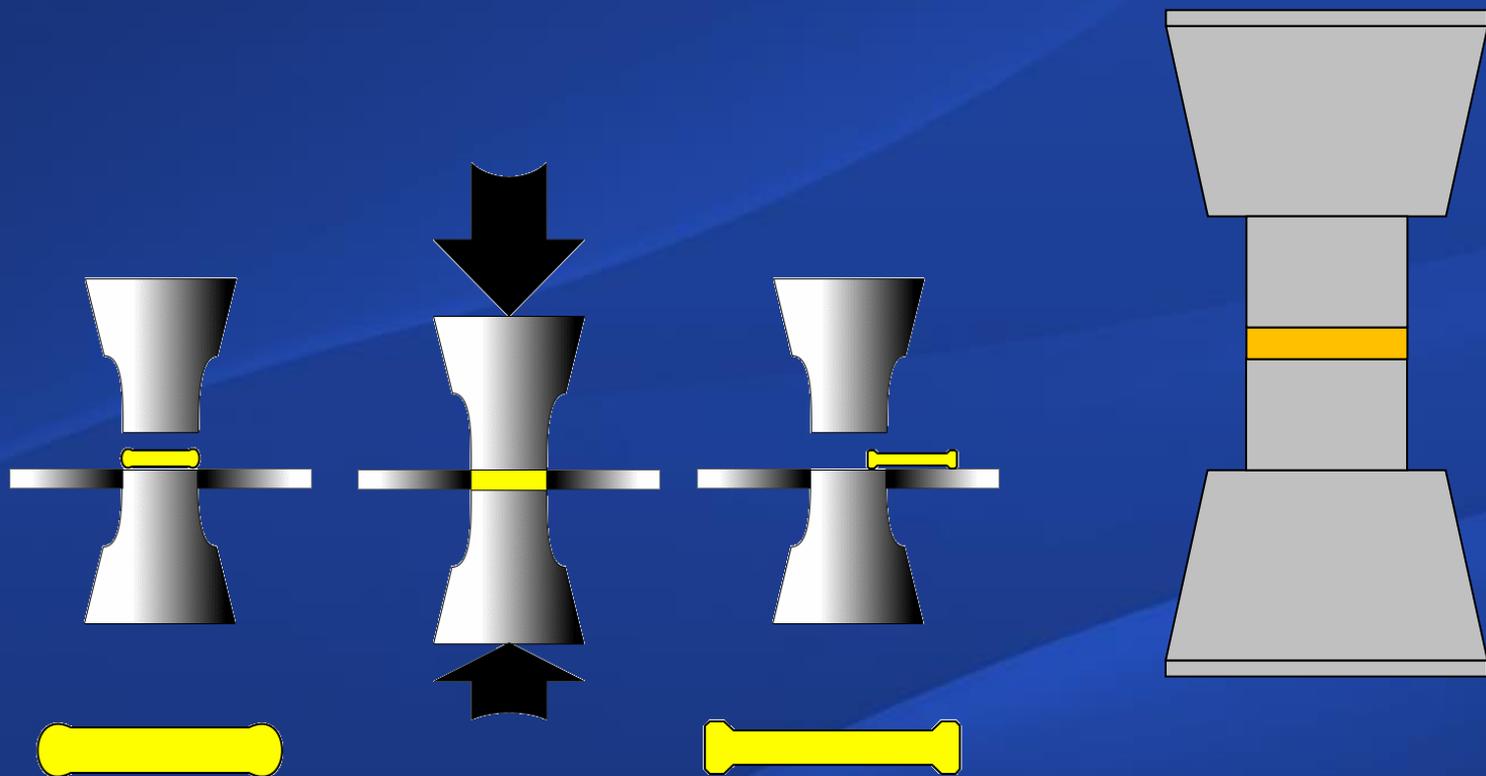


Collar (milled shape of the coin)





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High speed minting machines (two types: horizontal and vertical)





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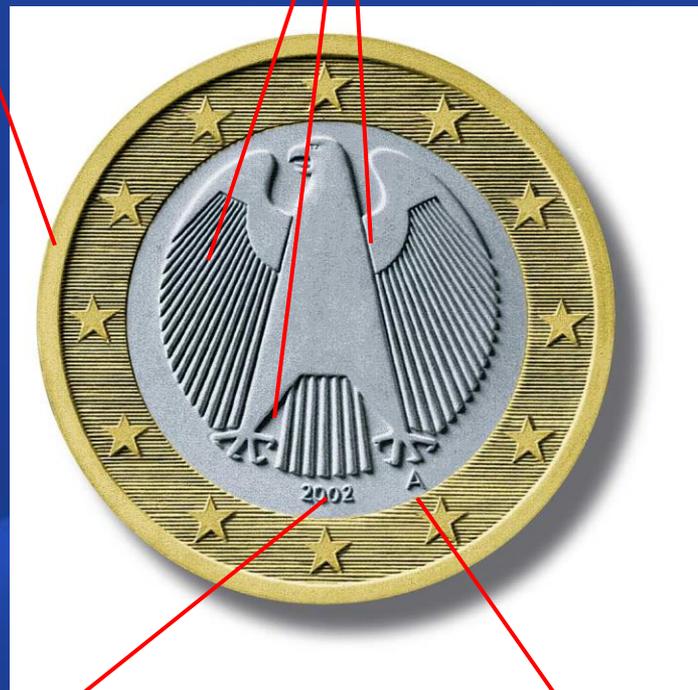
Coin terminology

Common/European side
face value / denomination

background

rim

National side
engraving/relief



ring

insert / core

year

mintmark





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Counterfeit coins: production and characteristics





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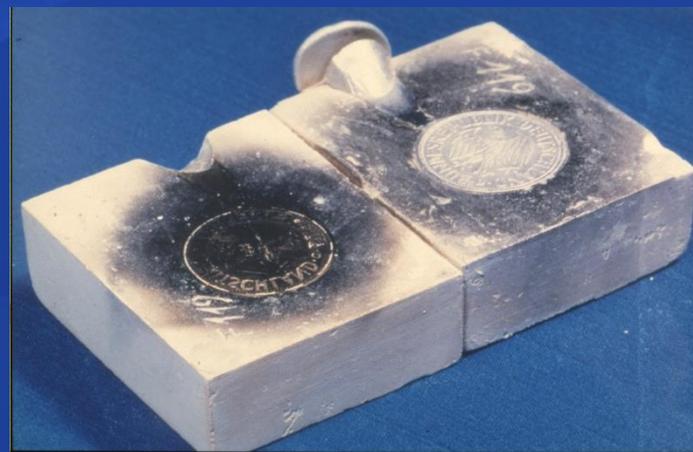
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Counterfeit cast coins





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Liquid metal is poured into the casting mould to produce a coin

Mould instead of dies





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Counterfeit stamped coins





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Production of dies to strike coins



galvanic nickel plating copy

galvanic copy





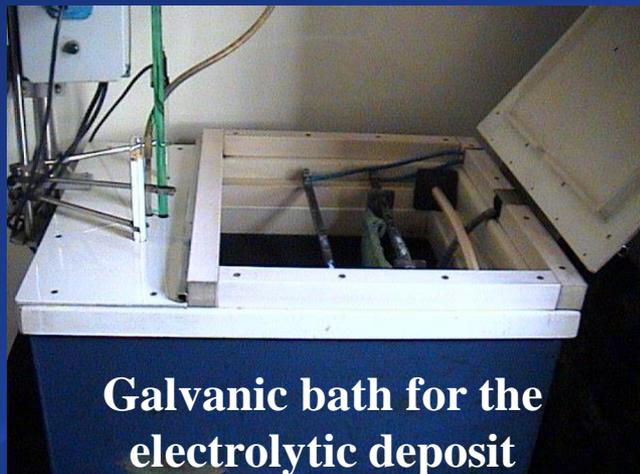
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Galvanic bath for the electrolytic deposit



Hydraulic press

Eccentric press





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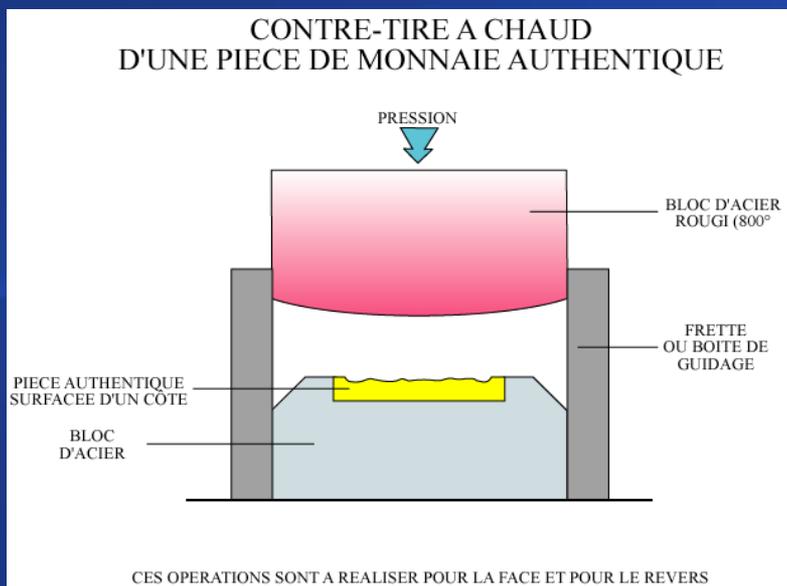


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Countfeit dies "italian method"





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Computer design and laser engraving



Counterfeit die





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Electro discharge method



Counterfeit die

By means of an electro discharge machining it is possible to obtain a counterfeit die (workpiece-electrode) using a genuine coin as tool-electrode.





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Blanks production





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Counterfeit dies, edge lettering tool and coin





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Electroerosion



Edge lettering machine



Polishing machine



Furnace



Eccentric press

