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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



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



- **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





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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 |



Euro specifications € 2- edge lettering

Belgium :

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★

Germany :

EINIGKEIT UND RECHT UND FREIHEIT *

Finland :

SUOMI FINLAND

France ::

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★

Monaco :

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★

Italy :

2 ★ 2 ★ 2 ★ 2 ★

San Marino :

2 ★ 2 ★ 2 ★ 2 ★

Vatican :

2 ★ 2 ★ 2 ★ 2 ★

Cyprus :

2 EYPΩ 2 EURO 2 EYPΩ 2 EURO





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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 ★ ★ 2 ★ ★

Luxemburg :

2 ★ ★ 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 D

Spain :

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★

Greece :

Ε 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 ●

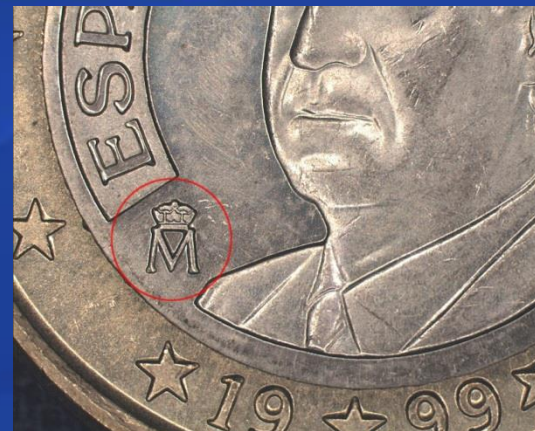
Malta :

2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 2 ★ ★ 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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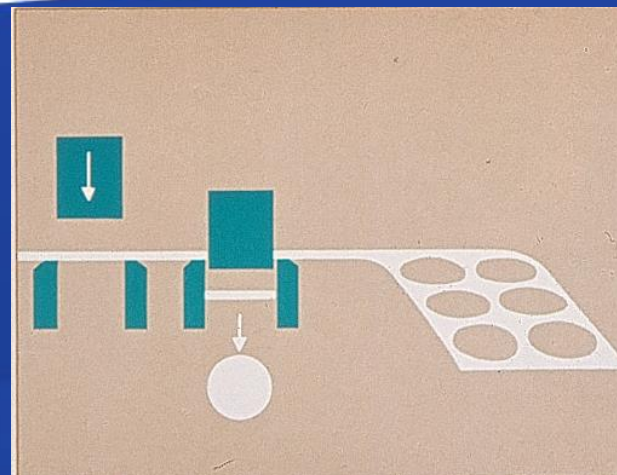


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material (blanks)



50 Ec Blank



1 Euro Blank



2 Euro Blank





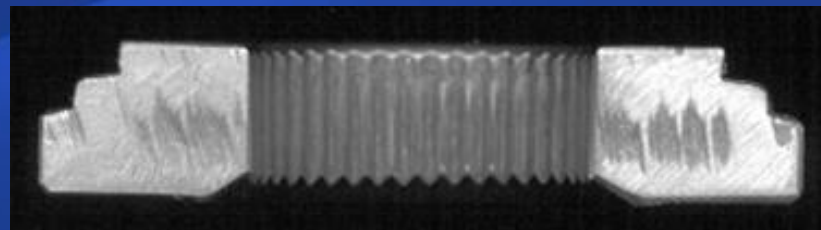
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minting tools



Working die

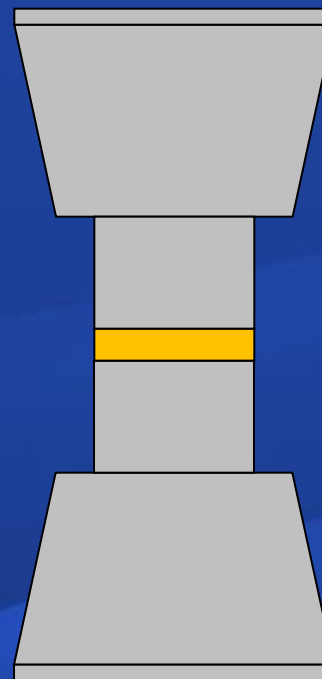
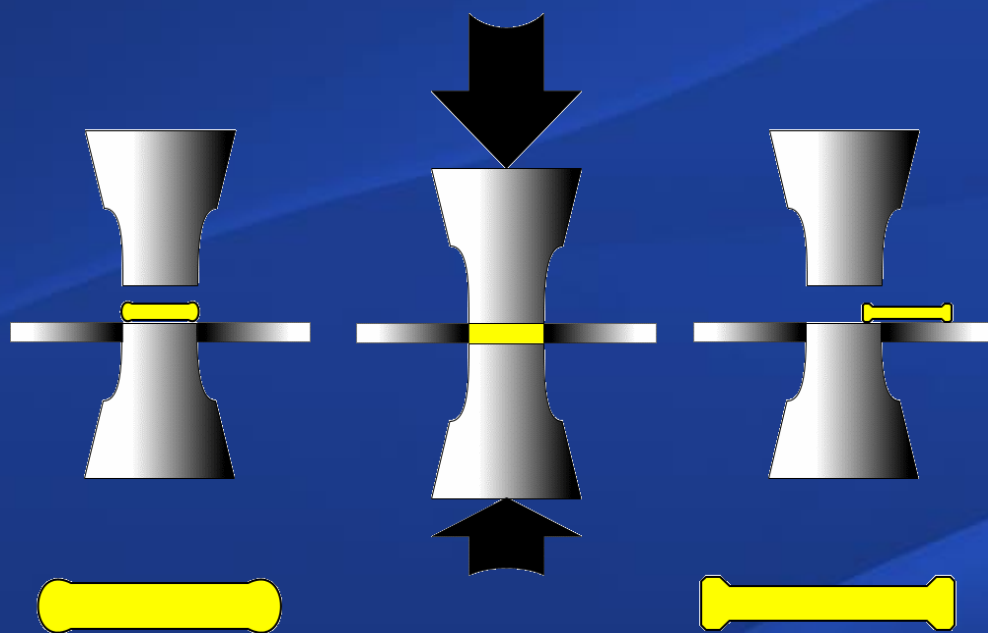


Collar (milled shape of the coin)





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MEF
DIPARTIMENTO DEL
TESORO

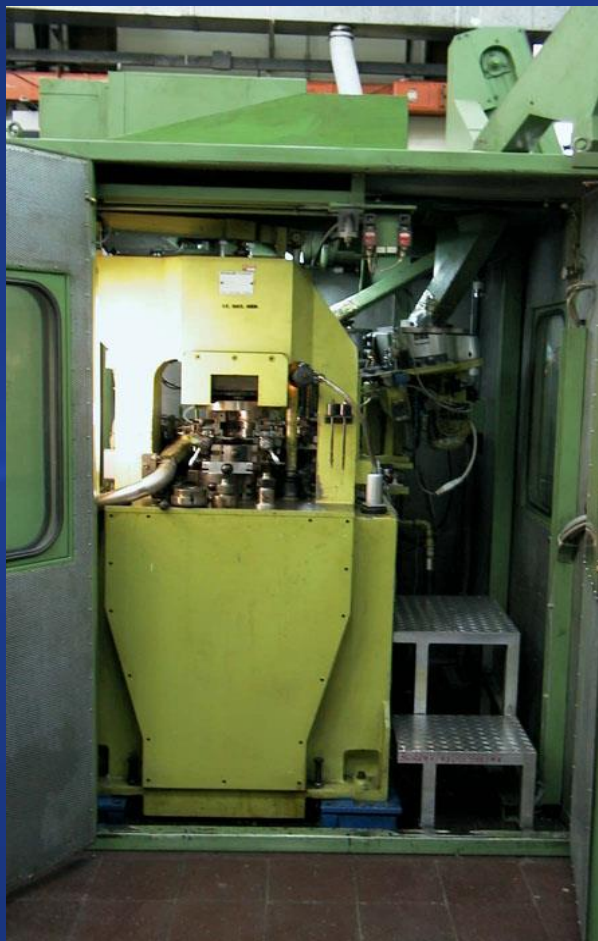


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High speed minting machines (two types:
horizontal and vertical)





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Coin terminology

■ Common/European side
face value /
denomination

background

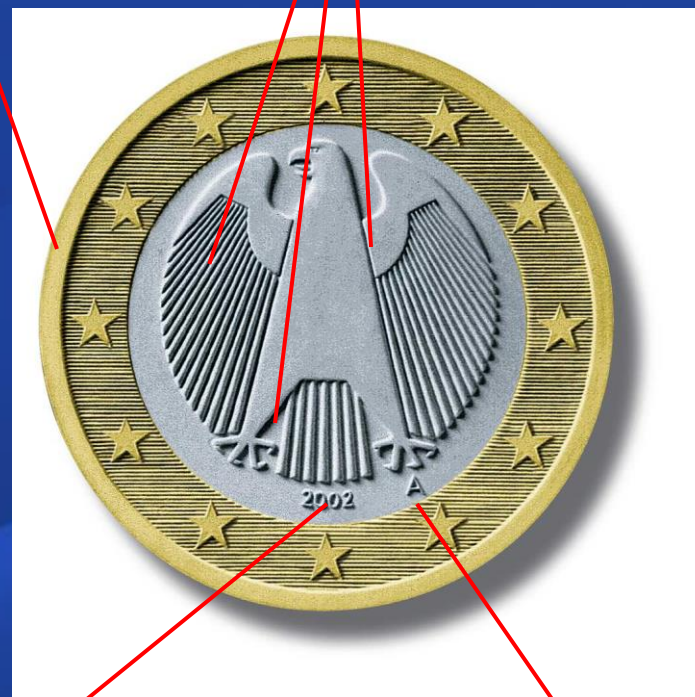
rim

■ National side
engraving/relief



ring

insert / core



year

mintmark





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Counterfeit coins: production and characteristics





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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





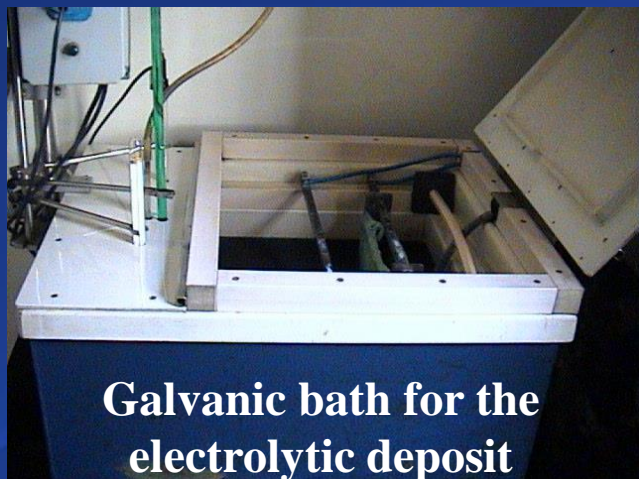
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Galvanic bath for the
electrolytic deposit



Hydraulic press

Eccentric press



R



23





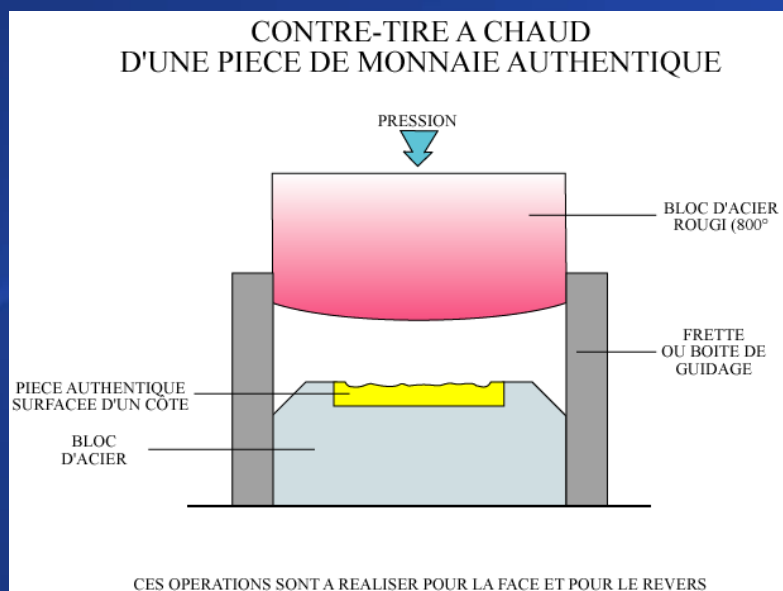
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Countfeit dies "italian method"





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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

