

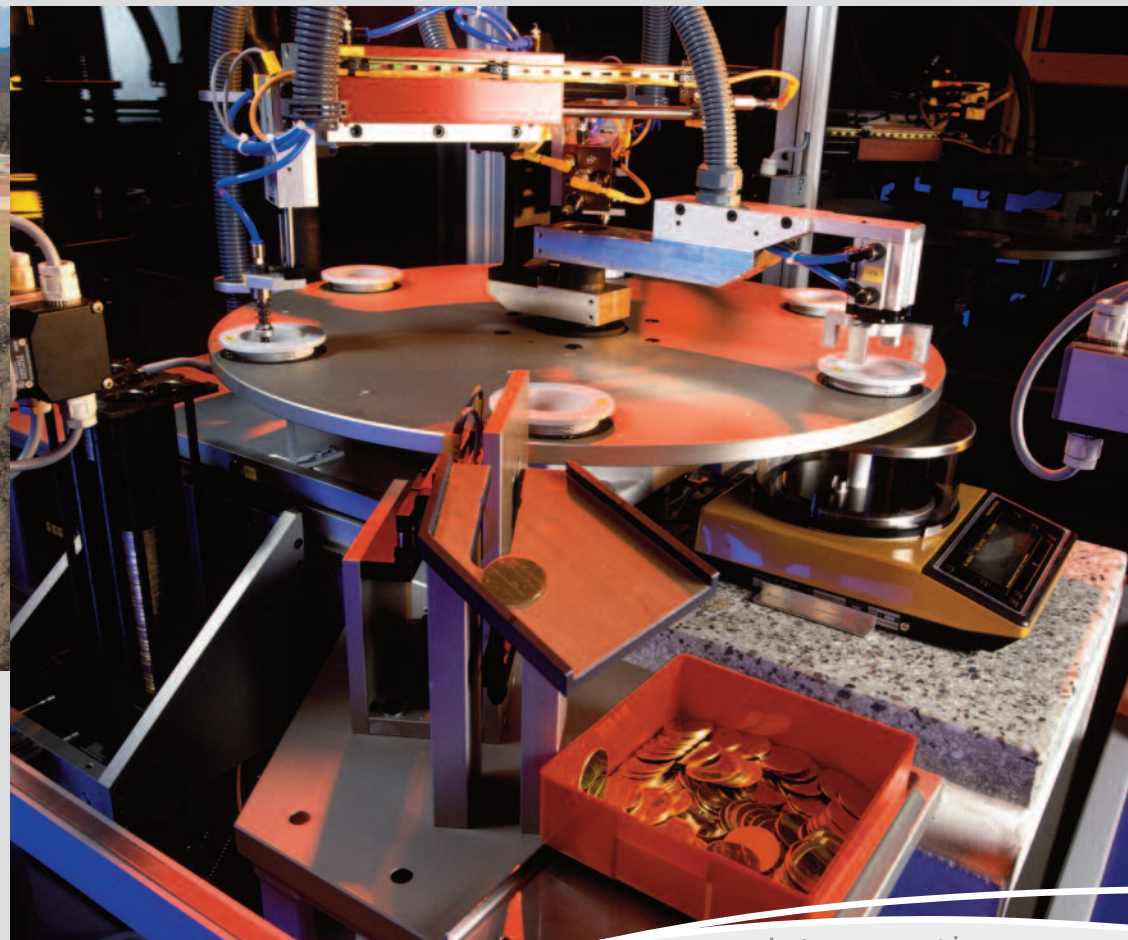
## Mint industry



Tronrud Engineering AS  
Flyplassveien 22, Eggemoen  
N-3514 Hønefoss

Tel: +47 32 16 18 20  
Fax: +47 32 15 75 68

[www.tronrud.no](http://www.tronrud.no)



Putting ideas into practice



Eggemoen site



Design and service



Waterjet



Welding



Machining



Assembly



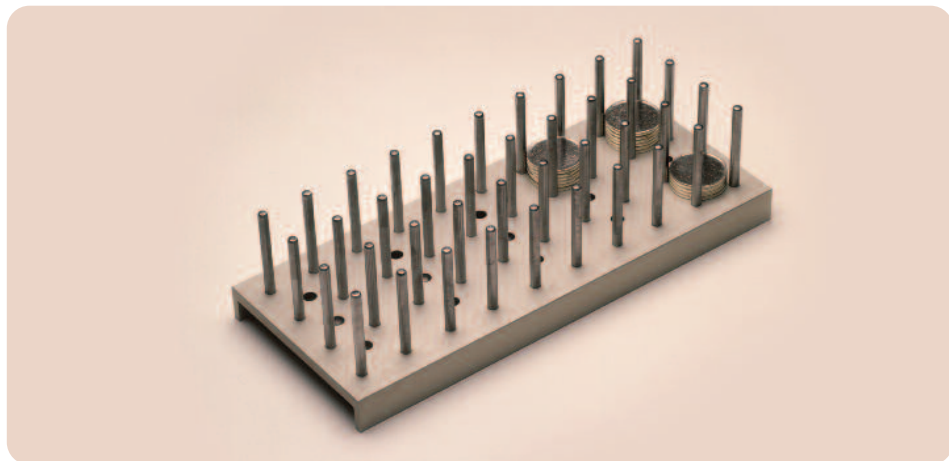
**Tronrud Engineering** was founded by Ola Tronrud in 1977 and is a supplier of specialist machinery to the industry both at home and abroad. We assist our customers with the development of profitable industrial products and technical solutions.

Our talented staff works closely with the customer throughout the project process, from idea through design and construction to commissioning of pre-installed machines.

Several thousand projects have been completed during the more than 30 years Tronrud Engineering has existed. A few of them are shown in this brochure.



## Transport palette TP2050

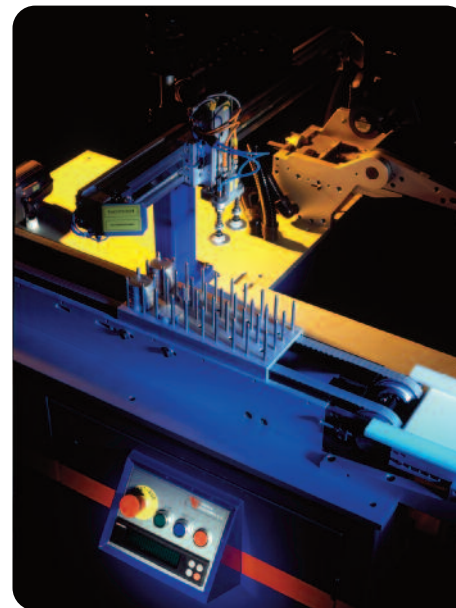


The TP2050 is our key to automation and handling of flawless blanks intended for high-quality coins and medals. The system is specially designed for the production of proof blanks, and is equally suitable for both small and large series. It is flexible, requiring only short adjustment times in the machines for the various dimensions.

The palette is common for all our machines: R2050, RI2050, IO2050, UO2050, IP2040, KA2050 and US1540. The blanks/coins do not leave the palette between processes. This reduces the possibilities for scratches on a product which requires flawless surface.

Blank minimum diameter:	20(18) mm
Blank maximum diameter:	50 mm
No. of blanks in palette:	ca 250 (2.3 mm thickness)
Palette weight:	ca 1.5 kilos (net weight)
Dimensions:	l 300 mm - w 125 mm - h 90 mm

## Annealing/Polishing



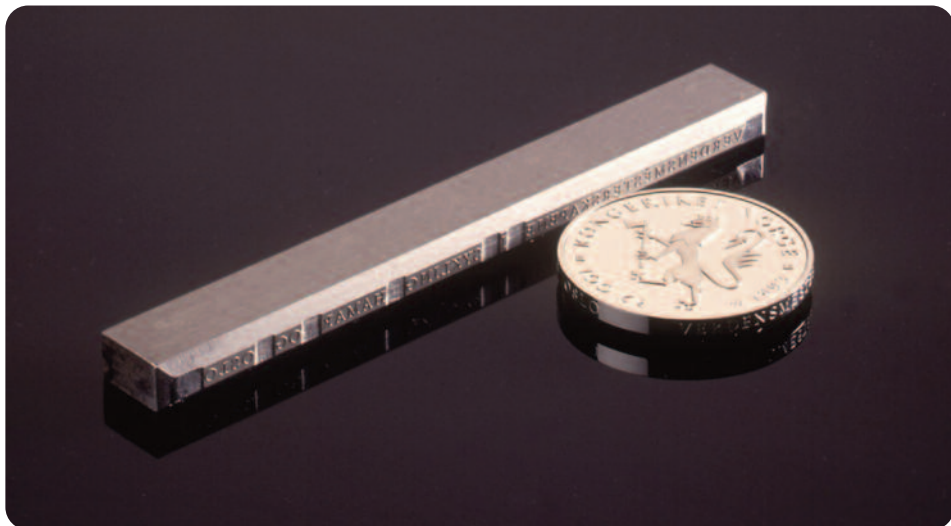
Handling system for automatic load and unload of blanks from Solo furnaces. The TP2050 palette system is the key for automatic handling. Blanks are carefully picked from the palette prior to annealing and placed back into the palette after annealing.

To complete the handling system, we supply a palette conveyor for automatic transport between the load and unload positions on each side of furnace.

This automation unit provides automatic handling in and out of a polishing machine, as well as during the polishing process.



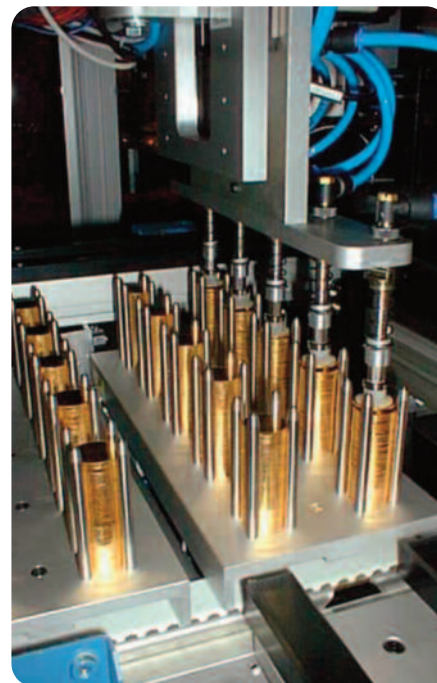
## Edge lettering



Edge lettering and serial numbering of coins after striking. This procedure ensures the proof quality of the coin edge, and eliminates the problems connected to striking edge lettered blanks. The edge lettering process is followed by the packing process immediately.



## Blanking

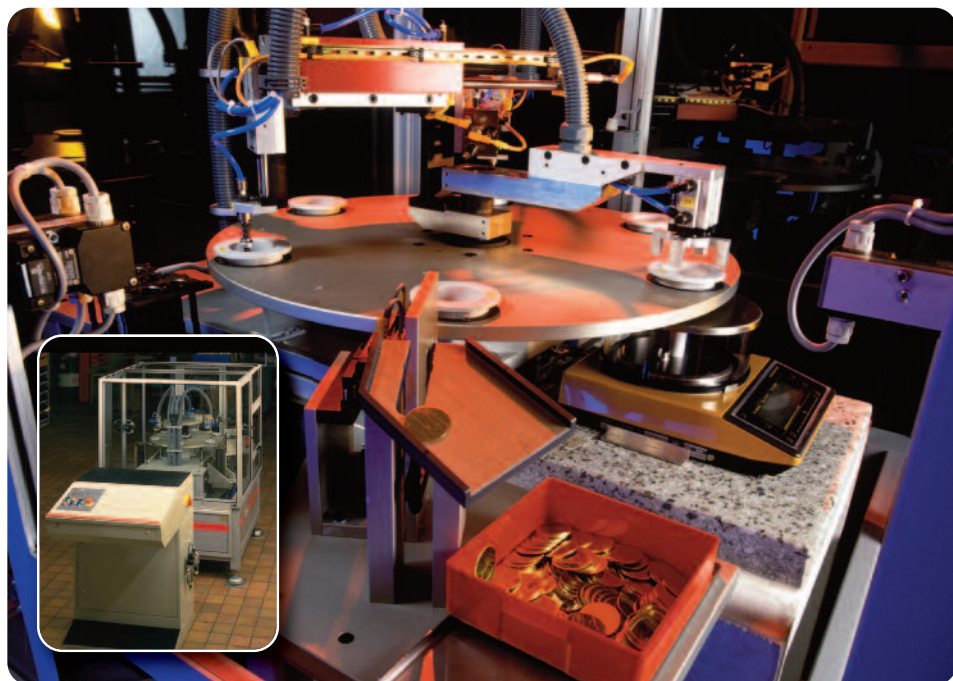


Handling system for controlled unload of blanks from the blanking press.

Avoid bulk storage and scratches! Automatic handling system direct from blanking press to our TP2050 palette. Ensures high quality handling right from the start.



## Control Unit Proof and Circulation Coins

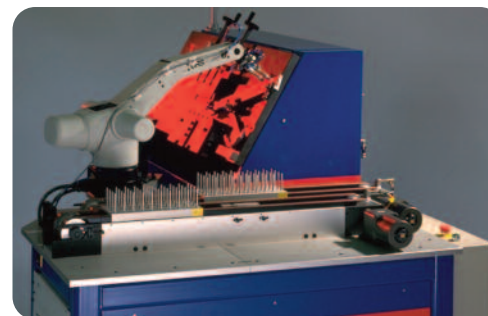


Control unit for weighing blanks after blanking. The blanks are handled on the palette TP2050. The KA2050 very carefully weighs and sorts proof blanks automatically.

Blanks off tolerance limits are rejected, whereas accepted blanks return to the TP2050 palette.



## Rimming



Rimming machine for blanks. It is suitable for medals and blanks in most materials. Purpose: To rim the blank edge after blanking, before polishing. This ensures correct blank diameter and edge profile before coining.

For fully automatic operation of the rimming machine, we have developed the RI2050 system, which consist of a robot (CRS), operating with our standard TP2050 palette system.





## Packing



Stacking machine for coin rolls. Coin rolls wrapped in plastic, are stacked in various patterns. Strapping machine which straps the stacks is an integrated part of the machine.

This is a very effective and flexible solution for circulation coins.



## Weight control and palletizing



Automatic control and stacking system. Strapped stacks of coin rolls or other objects are weighed and stacked in patterns onto pallets. Max. weight of each objects is 15kg. Normal speed is 4 objects per minute.

This is the ultimate system for stacking onto pallets.

Key words:

Compact, flexible, robust and accurate!