LEGOR®
Extraordinary matter

Gold Electroforming for Jewelry

Turnkey solutions for 14-18-21-22 gold electroforming with SHELLFORM Gold

LIGHTWEIGHT DESIGN.
FULL CONTROL.
INDUSTRIAL PERFORMANCE.

Shaping gold, redefining possibilities

Electroforming is transforming the way modern jewelry is designed and produced. By building metal atom by atom, it enables the creation of hollow yet durable gold pieces that maintain the look and feel of solid jewelry—at a fraction of the weight.

In a market where gold cost and design complexity are key challenges, electroforming offers a new balance between aesthetics, performance, and efficiency.

WHY ELECTROFORMING

More design. Less weight. Better value.

Electroforming allows manufacturers to rethink both product and profitability.

Lightweight performance

Up to 3x lighter than stamping and 6x lighter than casting, enabling larger, more comfortable designs.

Cost efficiency

Reduced gold consumption while preserving the perceived value of the piece.

Design freedom

Complex geometries, organic shapes, and fine textures—previously difficult or impossible to achieve.

Market advantage

Bigger, lighter, and more affordable jewelry that meets evolving consumer expectations.

LEGOR APPROACH

A powerful process, when under control

Electroforming is not just a technology: it is a complex, multi-step process where consistency, bath stability, and parameter control are critical. Without the right expertise and integration deposit quality can vary, thickness can be inconsistent and production becomes difficult to scale.

Our approach: a complete solution from chemistry to process

Legor supports customers with **turnkey gold electroforming projects**, combining:

- Advanced electroforming chemistries
- Dedicated equipment solutions
- Process know-how and technical support

A fully integrated approach designed to ensure stable and reproducible results, industrial scalability and consistent quality across production cycles.

PROCESS OVERVIEW

A controlled process, step by step

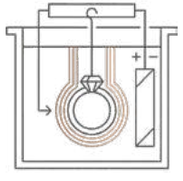
Electroforming is a sequence of precisely controlled operations that transform a temporary core into a finished gold piece.

Each phase plays a critical role in defining thickness, surface quality and mechanical properties.

Process steps

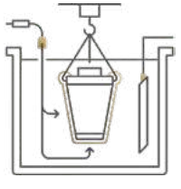
1. MANDREL CREATION

Casting low temperature melting alloy using a centrifugal method to create the mandrel



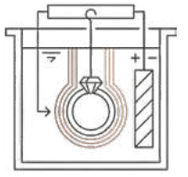
2. COPPER PLATING CYCLE

The madrels electroplated with copper



3. ELECTROFORMING PROCESS

The copper plated mandrels are treated in the electroforming tank for precious metal treatment



4. 2ND COPPER PLATING CYCLE

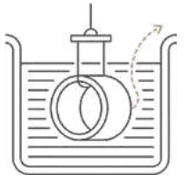
The precious metal parts undergo a second copper treatment

5. PUNCTURING

Holes are punched or drilled into the 3-layer plated mandrel

6. ALLOY REMOVAL

The original mandrel alloy is removed with a centrifugal oven



7. COPPER REMOVAL

The copper layers and remaining alloy are removed by acid treatment

8. ANNEALING

The electroformed item goes through an oven to heat treat the parts providing target hardness

9. EXTERIOR FINISHING

The holes are closed and final finishing executed

PRODUCT REALIZATION

1.
MANDREL PREPARATION

2.
GOLD DEPOSITION

3.
CORE REMOVAL

4.
FINISHED HOLLOW SHELL

GOLD ELECTROFORMING PROCESS

SHELLFORM GOLD

High-performance gold alloy deposition (14–22 Kt)

SHELLFORM Gold, Legor's electroforming process, is designed for the controlled deposition of gold alloys across multiple carat ranges: 14Kt, 18Kt, 21Kt, and 22Kt.

- Deposit thickness up to >300 microns
- Stable alkaline electrolyte
- High bath turnover and process consistency
- Smooth, fine-grained deposits
- Excellent ductility and mechanical integrity
- Good solderability
- Cadmium-free formulation
- Hallmarkable 14K, 18K, 21K, 22K

OPTIMIZED PERFORMANCE

SHELLFORM Gold ensures:

- precise control of gold content
- high resistance to nitric acid
- uniform deposition without nodules
- balanced hardness and ductility

SHELLFORM Gold is ideal for high-quality electroformed jewelry requiring both aesthetic consistency and mechanical reliability.

APPLICATIONS

Designed for modern jewelry manufacturing

Electroforming enables a new generation of lightweight gold products:

- HOLLOW FINE GOLD JEWELRY
- RINGS, PENDANTS, EARRINGS
- CHAINS AND BANGLES
- WATCH CASES

The perfect solution for combining visual impact with reduced weight and cost.

VALUE FOR YOUR BUSINESS

Beyond technology: measurable advantages

Choosing Legor electroforming solutions means adopting a more efficient and competitive way to produce gold jewelry. Reduced gold consumption lowers costs while preserving the perceived value of the final piece, and the ability to create larger, lightweight designs opens new opportunities in product development.

At the same time, a stable and controlled process ensures consistent quality and reliable production, supporting scalability and faster response to market demands.

Electroforming becomes not just a technique, but a strategic tool to enhance both creativity and business performance.

Legor: your partner in gold electroforming

From formulation to industrial implementation, Legor supports you at every stage of the electroforming journey.

Turnkey solutions.
Proven performance.
Global expertise.

GET IN TOUCH TO DEVELOP YOUR ELECTROFORMING PROJECT

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