

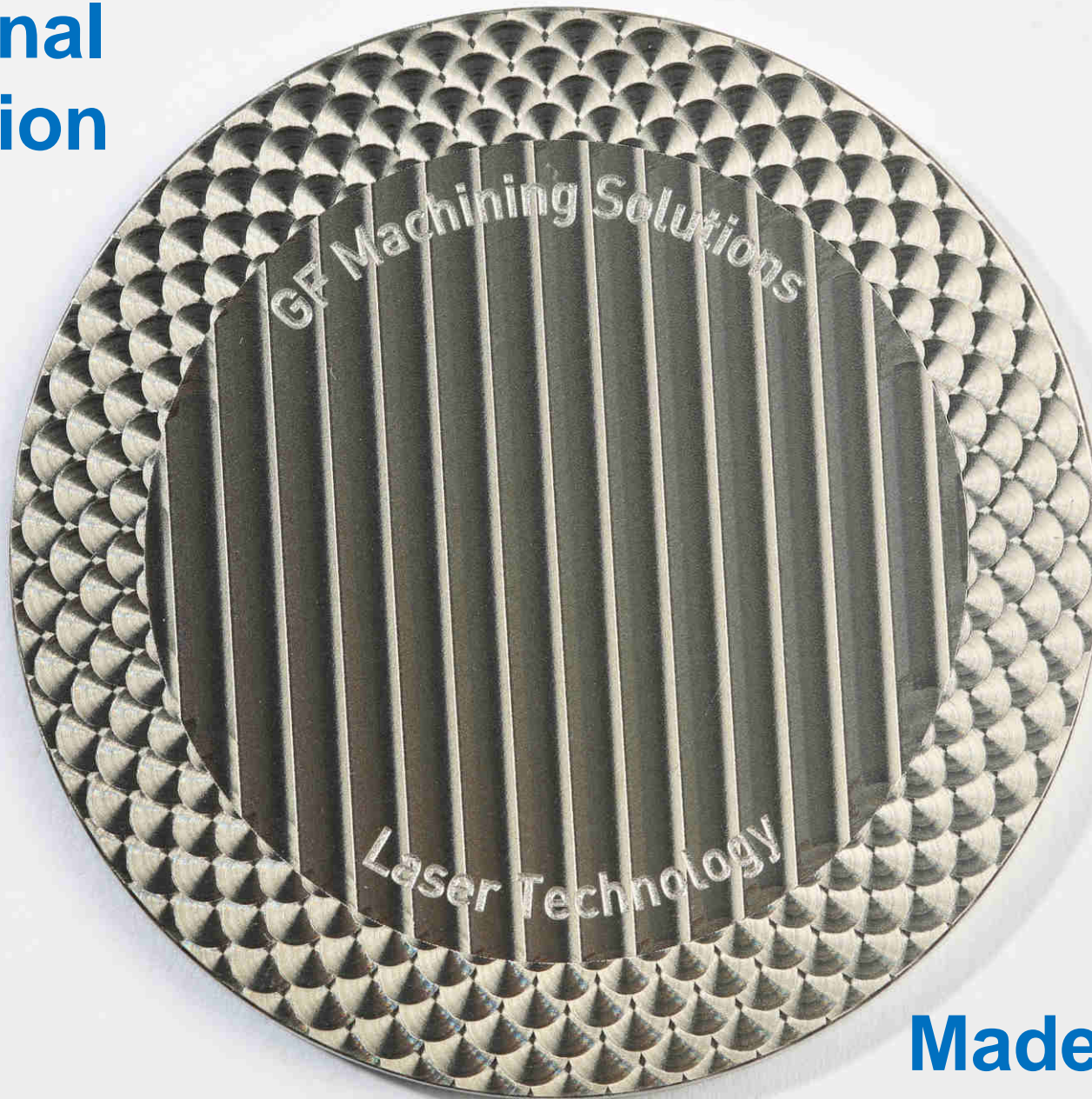


GF Machining Solutions

GF Laser Texturing : Révolution dans la décoration horlogère

J-Paul Nicolet / 15.06.2016

Traditional decoration

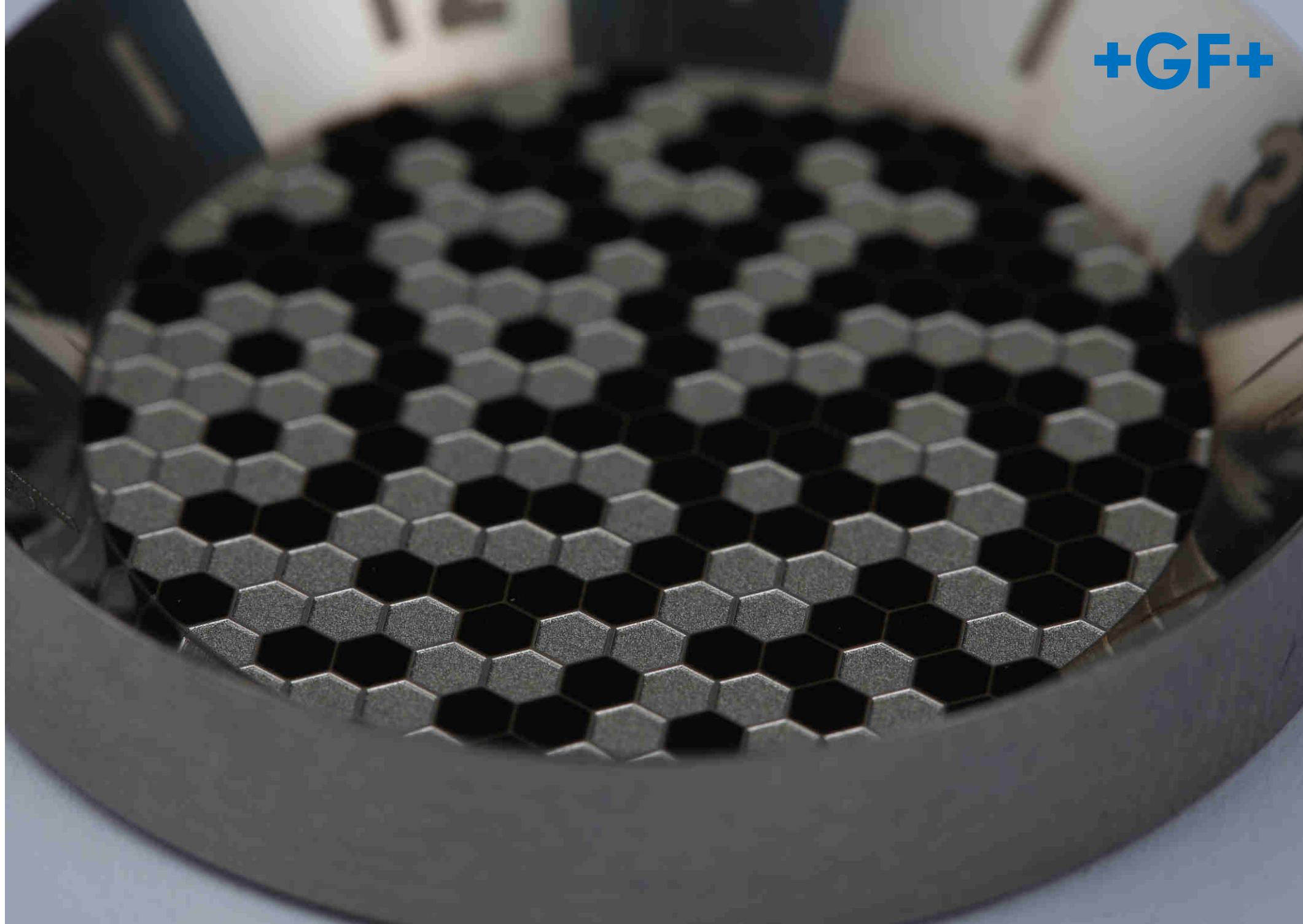


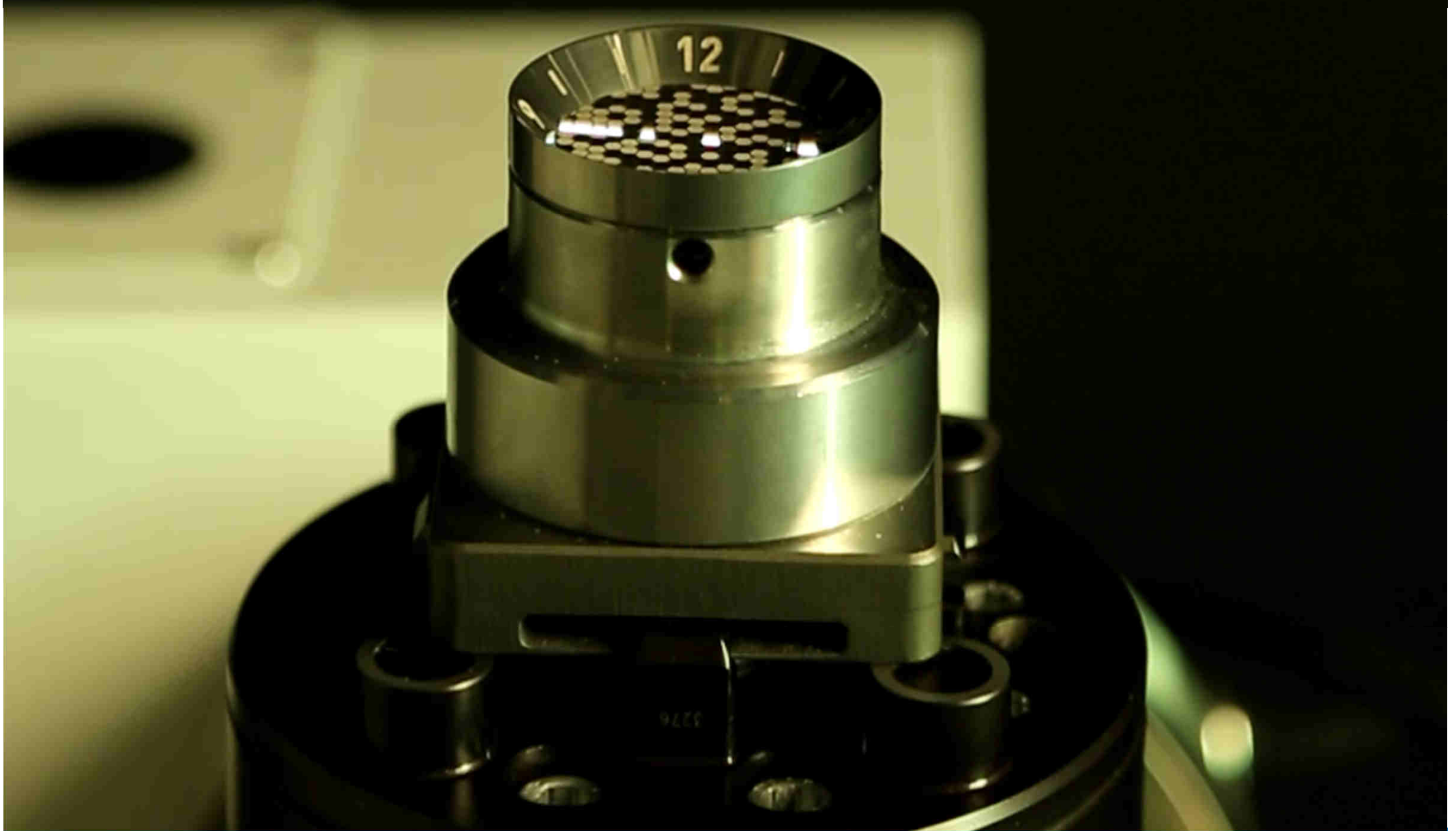
**Made by
Laser Texturing**

LASER P 400 U

Dual Femto-Nano







+GF+

+GF+



WATCH INDUSTRY DEMO PART



2 TECHNOLOGIES COMBINED IN ONE SOLUTION

Laser

- Decorations
- Innovative textures
- Engravings

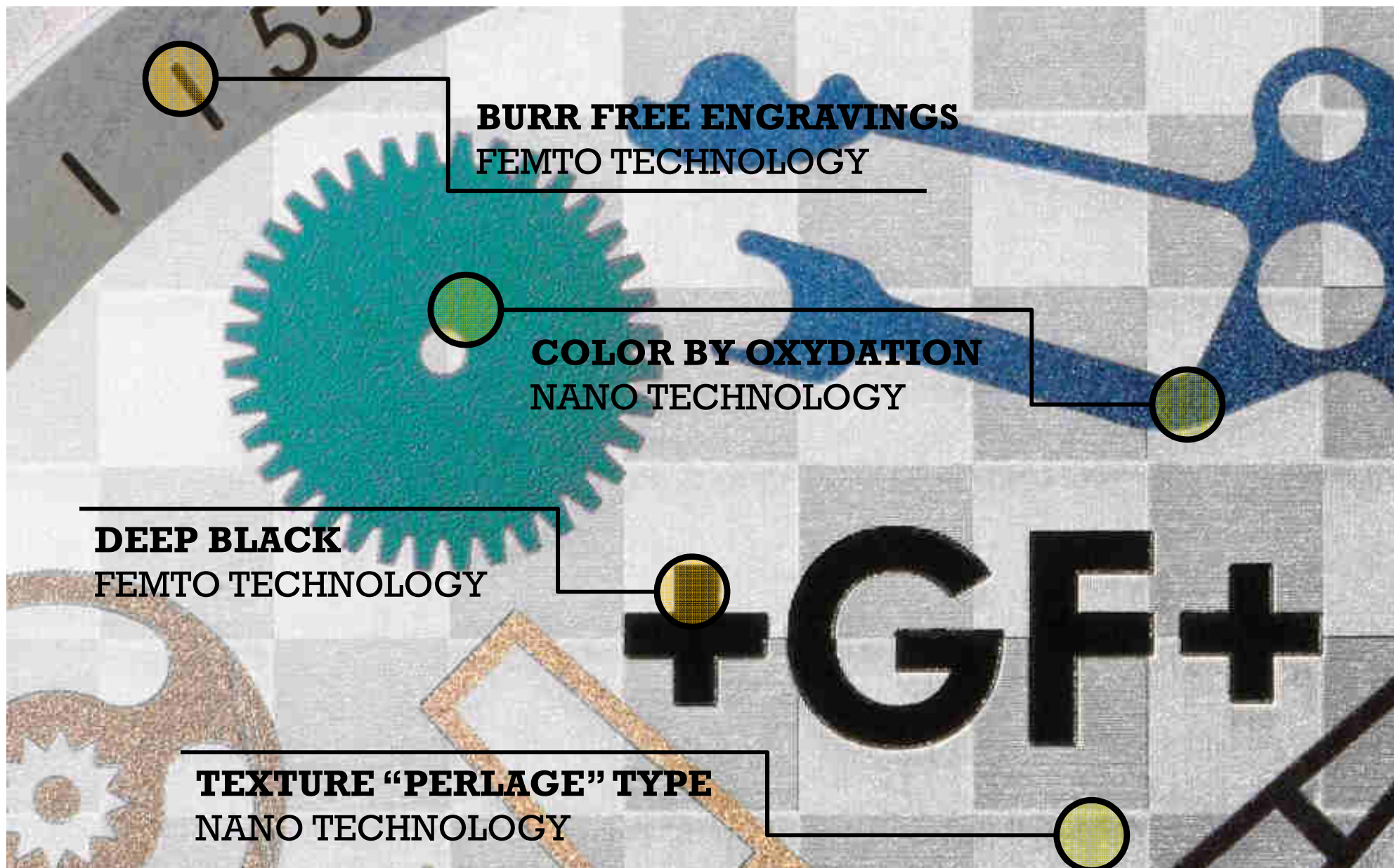
Benefits

- More design possibilities
- Less human mistake risks
- No subcontracted jobs
- More repeatability

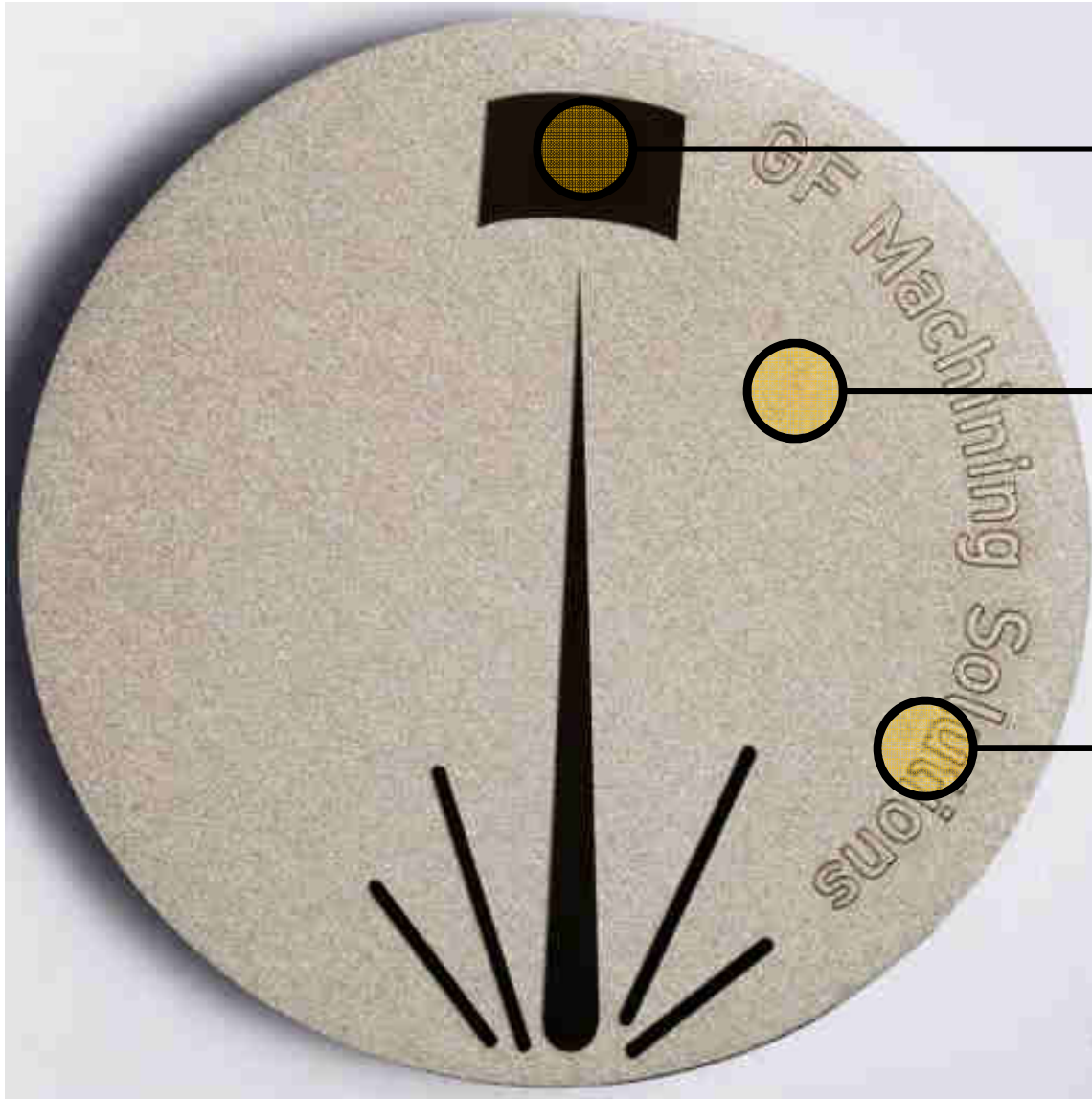


WATCH INDUSTRY

DEMO PART



WATCH INDUSTRY DEMO PART



DEEP BLACK
FEMTO TECHNOLOGY

LASER BLASTING
NANO TECHNOLOGY

BURR FREE & CLEAN
IN LIVE, FEMTO & NANO
TECHNOLOGIES



LASER P 400 U

TWO LASERS IN ONE MACHINE



CATCH MORE BUSINESS OPPORTUNITIES

New Materials & Engraving capabilities

NEW DIMENSION ON PRODUCT DESIGN

Nano scale texturing

OPTIMIZE PRODUCTIVITY

2 Technologies - 1 Machine

SCALABLE

Evolve your solution on the time, to fit to your specific needs

AUTOMATION READY

Optimize your production



LASER P 400 – NEW POSSIBILITIES HIGHLIGHTS



EXTREME QUALITY

New Burr free engraving

DIMENSIONS WITH FEMTO LASER

New design \ functional texturing

UNLIMITED POSSIBILITIES

New materials

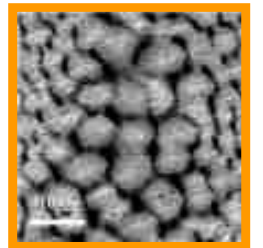
SCALABLE & FOR PRODUCTION

Customized for your today`s needs

REDUCE
MANUFACTURING
PROCESS



PLAY WITH NANO
SCALE TEXTURING



SHAPPHIRES
GLASSES
POLYMERS
CERAMICS



...

START \ EVOLVE



Our LASER line → 2016



*for Mold & Die Laser Texturing
and Part production Laser Engraving*



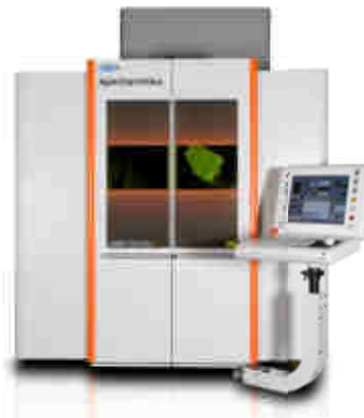
LASER P 400 U



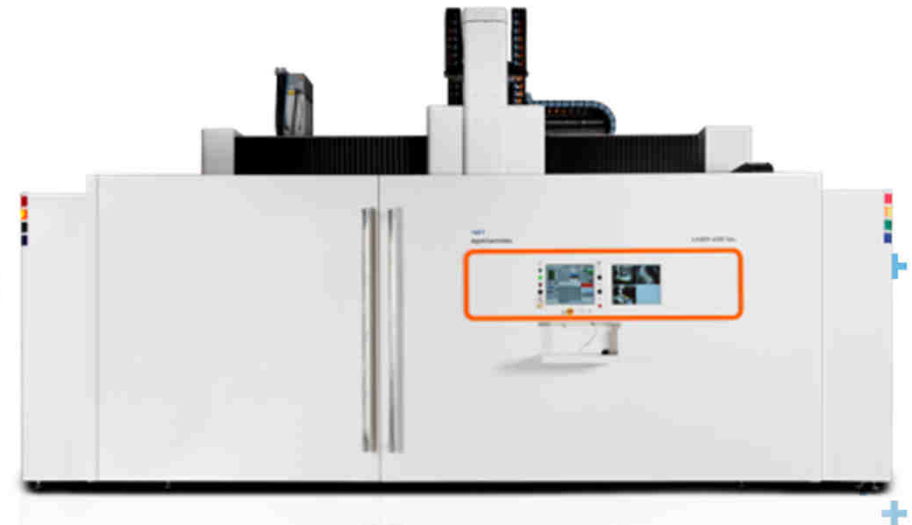
LASER P 600 U



LASER P 1000 U

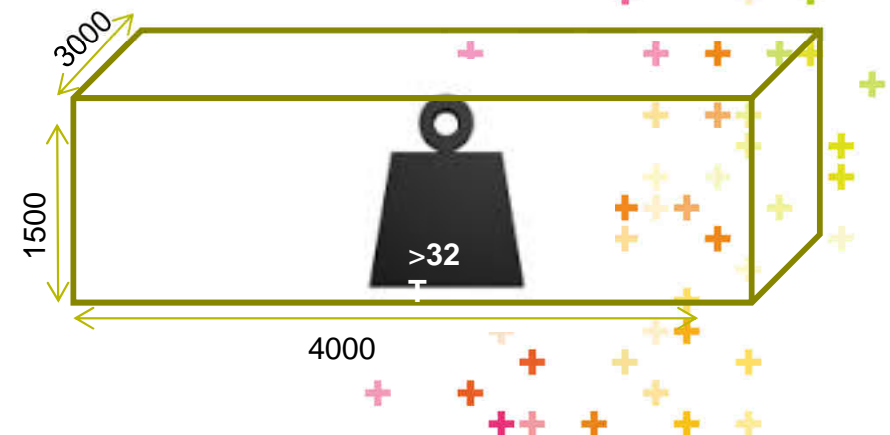


LASER P 1200 U



LASER P 4000 U

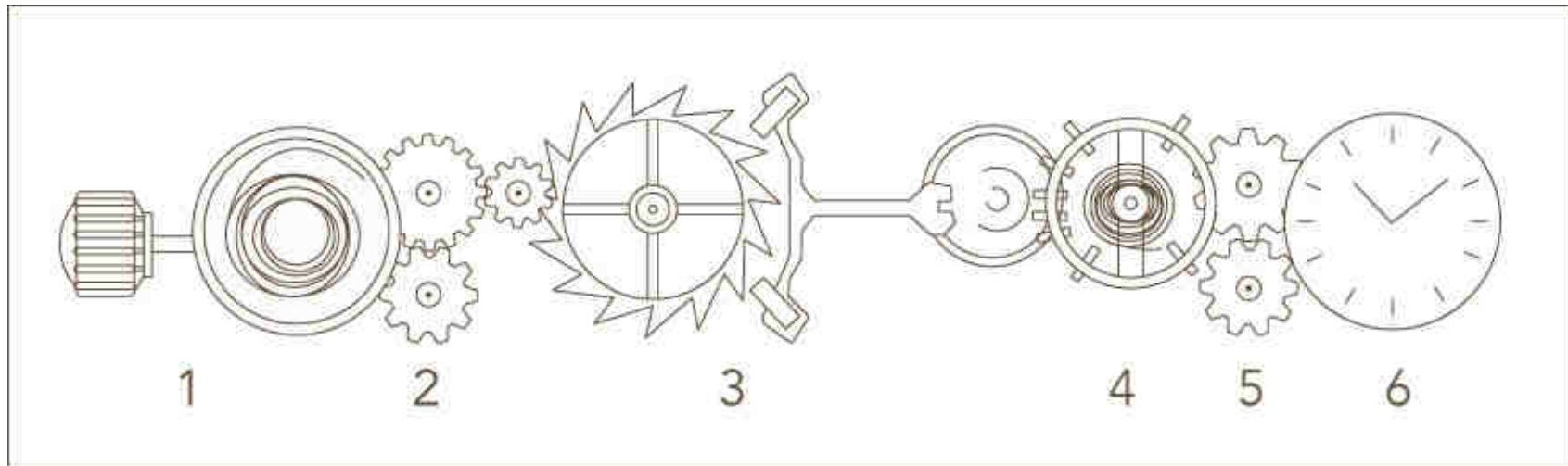
Max. work piece dimensions in 5-axis operation (mm)



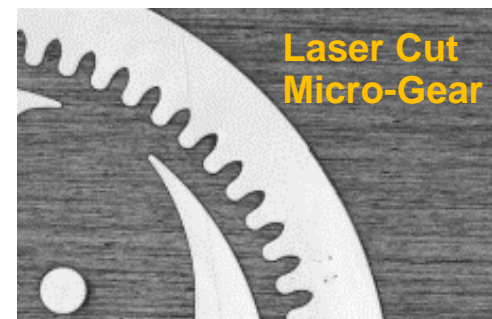
GF Machining Solutions

Laser Micro Solutions:

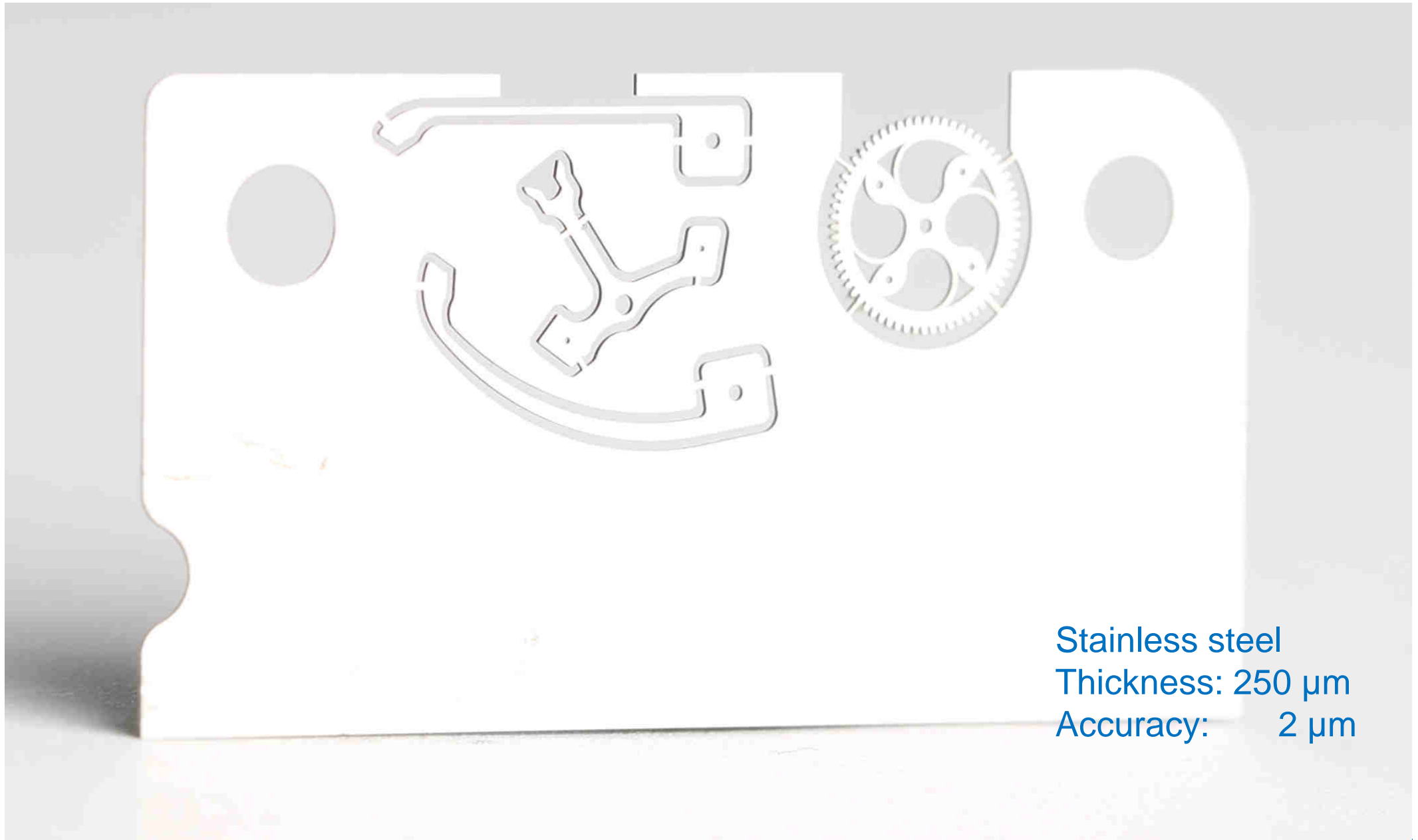
Key Applications within Watch Industry



- Example Watch Parts
 - Mainspring (1-2)
 - Gear Train (2)
 - Escapement (3)
 - Balance Wheel (4)
 - Dial Train (5)



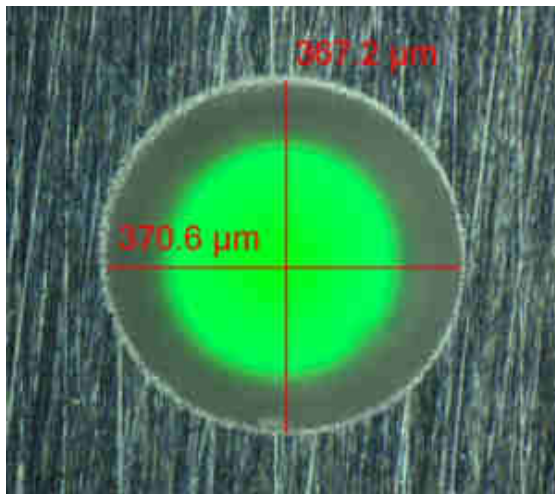
Sample parts



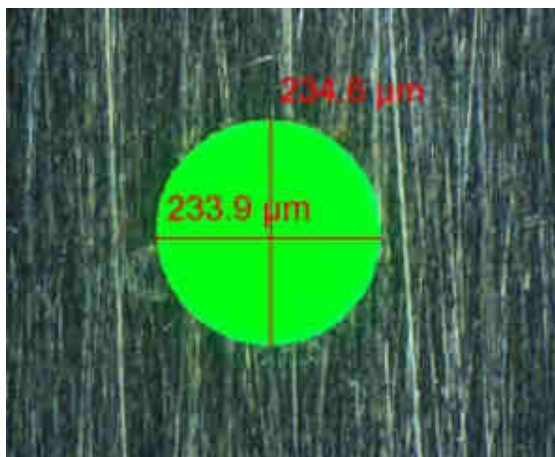
Stainless steel
Thickness: 250 μm
Accuracy: 2 μm

Key Processes within Watch & Medical Device Industries **+GF+**

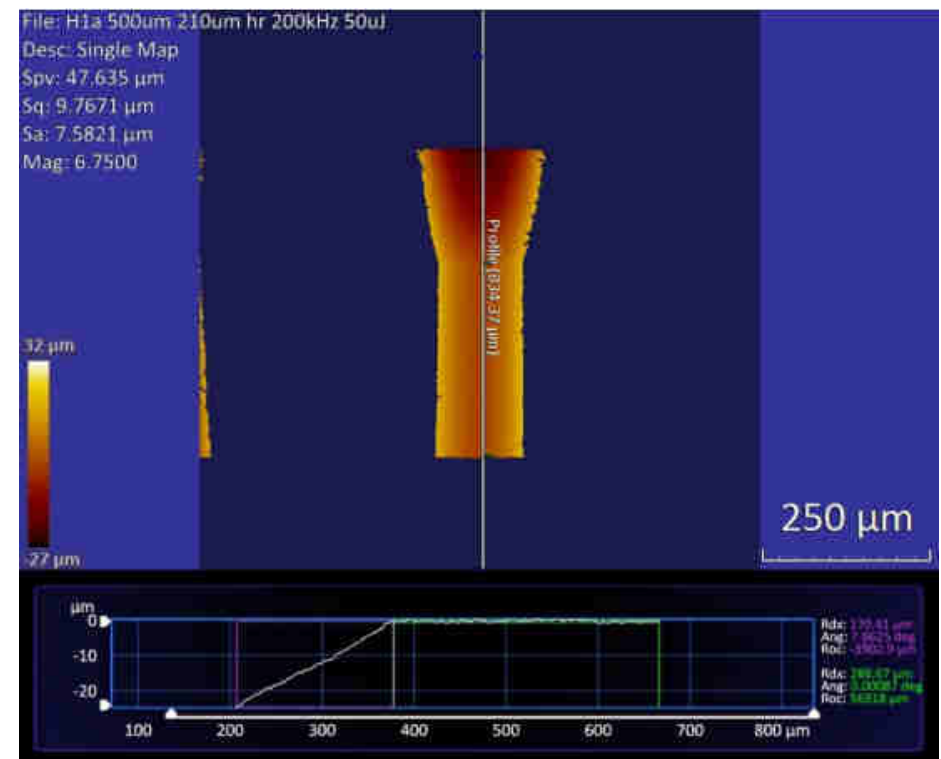
- Micro Hole Drilling (Shape Control)



- Laser Entrance
(30 degree taper)



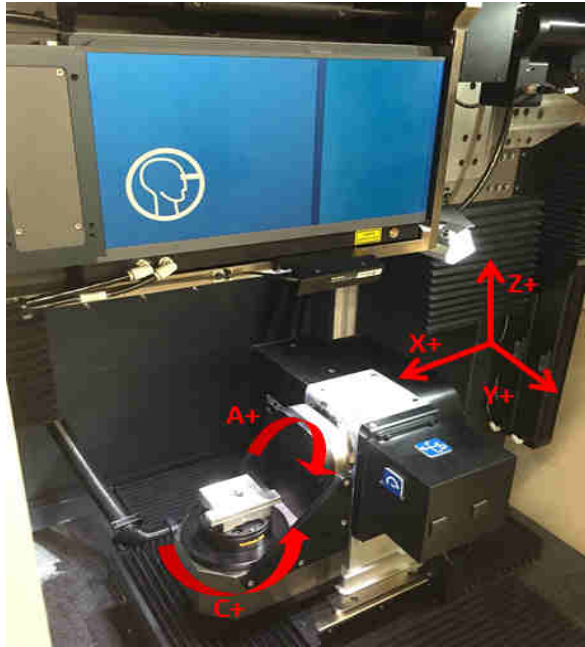
- Laser Exit
(zero taper)



- Profile of laser cut hole

ML-5

3 or 5-axis laser workstation



- Key components:

- Fully integrated ultrafast laser (*Femtosecond*) and scanner
- Precision ground natural granite base
- Options for in-line touch probe, optical camera, laser confocal sensor, and mechanical milling spindle

MLDS Multi Station Laser Workstation



GF Machining Solutions

Thank you for your attention!

Any interest: visit our booth A70

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Laser Business Dev.