

# Lézeres anyagmegmunkálás

FMN332E-1

## Bevezetés a lézeres anyagmegmunkálásba

FBN332E-1

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### Egy kis történelem

- 1960 május, Kalifornia
- 1970 első kereskedelmi forgalomban kapható lézerek
- 1980 a közvélemény tudomást szerez a lézerről (CD, lézershow-k)



1982. augusztus 17.



- 1990 táján új iparág születik

...

# A lézer

- angolul a LASER=  
Light **A**mplification by **S**timulated **E**mission of **R**adiation

lézer = pontosság, minőség, gyorsaság

mérnöki(bb) szemmel:

INNOVATÍV és FLEXIBILIS szerszám

## Mindennapos eszközeink



Nd:YAG, 1064nm, imp. 250W  
Gillette



Nd:YAG, cw, 85W  
Oras Oy

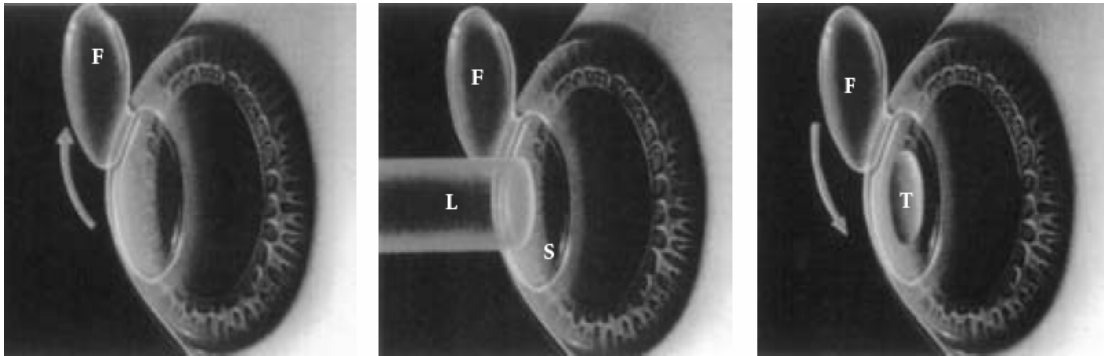


CO<sub>2</sub>, 10.6μm, imp (N<sub>2</sub>)  
Nelko Oy

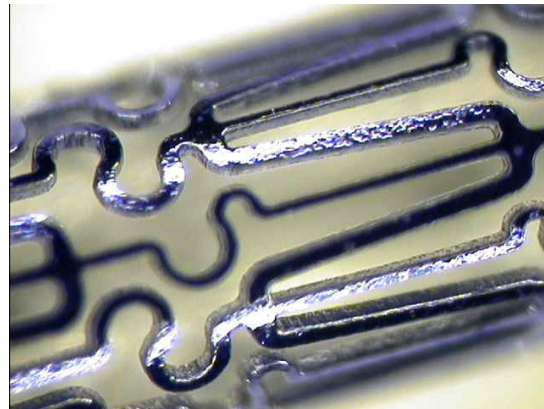
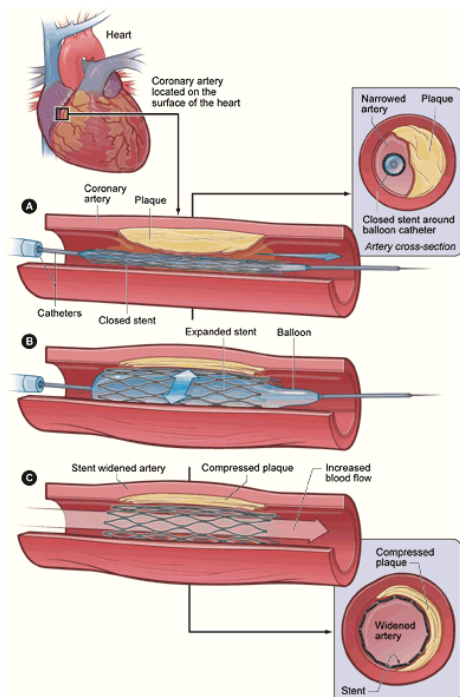
# Egészségmegőrzés, orvostud.

- 1) precíziós orvosi segédeszközök előállítása (katéterek, stent)
- 2) ránctalanítás, szőrtelenítés, tetoválás eltávolítása
- 3) szemsebészet, urológia, idegsebészet, fogászat (minimálisan invazív!)

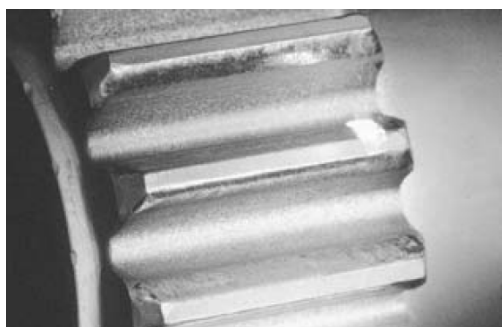
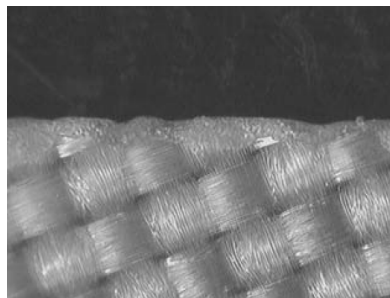
LASIK= Laser in-situ keratomileusis



## Orvostudomány 2



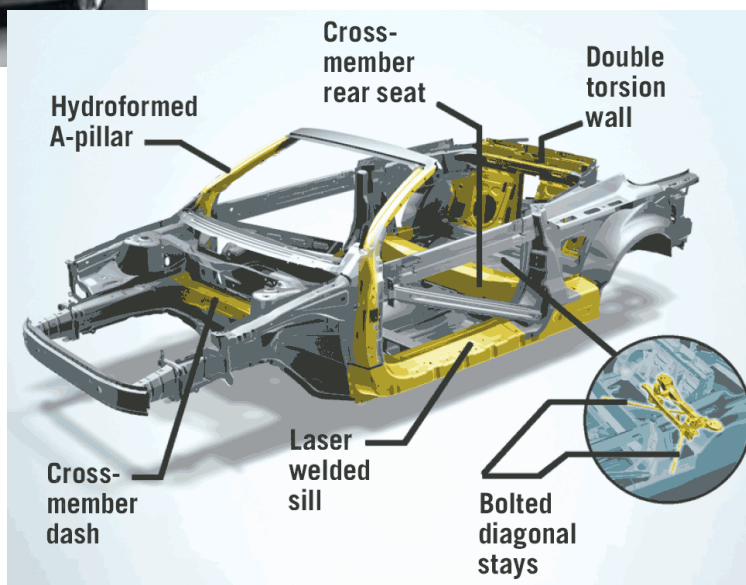
# Gyártósorokban



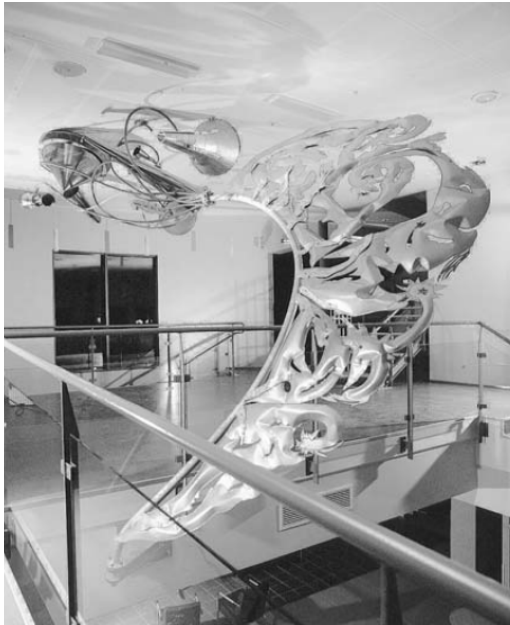
## Volvo C70



10.7m lézeres heggesztés  
és 0.2m lézer forrasztás



# Még a művészetekben is!



Reijo Hukkanen: Tähtivyö (Csillagöv)



## Goldfinger, 1964

Bond wakes up on the table in the middle of the room. A laser gun is aimed just behind Bond's head. Beyond him, stairs lead up to a control room. Goldfinger walks down the stairs, wearing a gold dinner jacket, a shirt with gold buttons and a black bow-tie. He approaches the table.

**Goldfinger:** *Oh, that interesting car of yours!*

**Goldfinger:** *I have a new toy, but considerably more practical.*

Bond glances up.....

**Goldfinger:** *You are looking at an industrial laser which emits an extraordinary light, not to be found in nature. It can project a spot on the moon - or, at closer range, cut through solid metal. I will show you.*

Goldfinger turns and snaps his fingers at the control room. The barrel of the laser gun moves down Bond's torso. He raises himself onto his elbows and looks at it. The barrel of the laser gun comes to rest, aiming between Bond's legs. Suddenly the laser light goes on, gleaming red.

Bond looks down at it. The laser beam starts cutting the outer edge of the tabletop, which is gold-coloured.

**Goldfinger:** (pointing to the table-top) *This is gold, Mister Bond. All my life I've been in love with its color, its brilliance, its divine heaviness.*

Bond looks up at Goldfinger then down at his legs. The laser beam keeps cutting through the table-top, moving toward Bond's crotch.

**Goldfinger:** *I welcome any enterprise which will increase my stock, which is considerable..*

**Bond:** *I think you've made your point, Goldfinger. Thank you for the demonstration.*

**Goldfinger:** *Read your next cheesy Pirates Lair Newsletter carefully, Mister Bond. It may be your last.*

**Goldfinger:** *The purpose of our two previous encounters is now very clear to me. I do not intend to be distracted by another. Goodnight, Mister Bond.*

Goldfinger turns away. The laser beam keeps cutting upwards toward his crotch. Bond lies on the table as Goldfinger starts walking up the steps to the control booth.

**Bond:** *Do you expect me to talk?*

**Goldfinger:** *No, Mister Bond. I expect you to die!*

