

■ 트럼프 코리아 신제품 소개

■ 2001년 10월 25~26일

■ TRUMPF KOREA

■ 정 대 환 (Email: daehwan.chung@trumpf.co.kr)

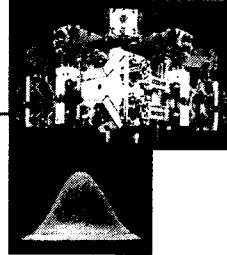
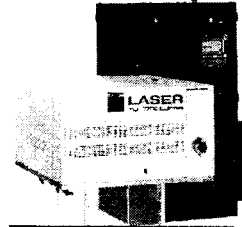
■ New CO<sub>2</sub> Laser & Nd:YAG Laser

- |   |  |
|---|--|
| ■ New CO <sub>2</sub> Laser(HQ series)  | ▶▶ Excellent Beam Quality, high Power              |
| ■ Adaptive CO <sub>2</sub> Laser        | ▶▶ 9.3 μm, Plastic Process                         |
| ■ CO <sub>2</sub> Remote Welding System | ▶▶ CO <sub>2</sub> Laser Scanner Welding Principle |
| ■ CO <sub>2</sub> Laser Process System  | ▶▶ TLC 1005, TLC 6005                              |
| ■ Nd:YAG Diode Pumping Laser            | ▶▶ HLD 1003D,,,                                    |
| ■ Nd:YAG Drilling Laser                 | ▶▶ HL 101P, HL 201P                                |
| ■ Nd:YAG Mold Repairing Laser           | ▶▶ PowerWeld                                       |
| ■ Nd:YAG Remote Welding Optic           | ▶▶ PFO(Programmable Focusing Optic)                |
| ■ Nd:YAG Marking Laser                  | ▶▶ VectorMarkcompact1,2,3,4,5,6                    |
| ■ Nd:YAG Disk Laser                     |  |

**TRUMPF**

## TRUMPF Koea The Product Range: TLF HQ Lasers

| Type              | Max.<br>power output [W] | Beam Quality<br>$M^2$ |
|-------------------|--------------------------|-----------------------|
| TLF 1200 turbo HQ | 1200                     | $M^2 \leq 1,25$       |
| TLF 1800 turbo HQ | 1800                     | $M^2 \leq 1,25$       |
| TLF 2200 turbo HQ | 2200                     | $M^2 < 1,4$           |
| TLF 2700 turbo HQ | 2700                     | $M^2 < 1,4$           |
| TLF 3000 turbo HQ | 3000                     | $M^2 < 1,1$           |
| TLF 3500 turbo HQ | 3500                     | $M^2 < 1,25$          |
| TLF 5000 turbo HQ | 5000                     | $M^2 < 2$             |
| TLF 8000 turbo HQ | 8000                     | $M^2 < 3$             |



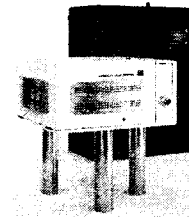
Mold repair

HAAS-LASER - Werkzeugschweißen - 01 07 2000, 8 3

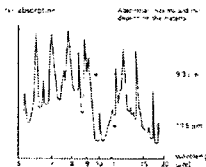
**TRUMPF**

## TRUMPF Korea The Product Range: TLF $\lambda$ Lasers

| Type               | Max.<br>power output [W] | Beam<br>Quality $M^2$ | Wave length<br>$\mu\text{m}$ |
|--------------------|--------------------------|-----------------------|------------------------------|
| TLF 1200 $\lambda$ | 1200                     | $M^2 \leq 2,0$        | 9,3                          |
| TLF 1800 $\lambda$ | 1800                     | $M^2 \leq 1,82$       | 9,3                          |
| TLF 2400 $\lambda$ | 2400                     | $M^2 < 1,82$          | 9,3                          |
| TLF 3000 $\lambda$ | 3000                     | $M^2 < 1,82$          | 9,3                          |



Typical absorption spectrum of a plastic material

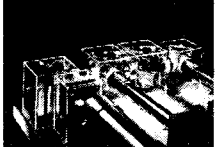


Mold repair

HAAS-LASER - Werkzeugschweißen - 01 07 2000, 8 4

**TRUMPF**

### Pulsed solid-state lasers up to 500 W



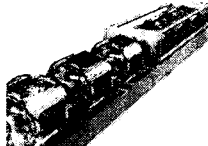
| Type     | Max. power output [W] | Laser power at the workpiece [W] | Beam quality [mm · mrad] |
|----------|-----------------------|----------------------------------|--------------------------|
| HL 42 P  | 50                    | 40                               | 10                       |
| HL 54 P  | 65                    | 50                               | 16                       |
| HL 62 P  | 75                    | 60                               | 10                       |
| HL 124 P | 150                   | 120                              | 16                       |
| HL 204 P | 250                   | 200                              | 16                       |
| HL 304 P | 350                   | 300                              | 16                       |
| HL 506 P | 650                   | 500                              | 25                       |

Mold repair HL LASER - Werkzeugmaschinen 012 2200 118

**TRUMPF**

### Diode Laser Power and Beam Quality

New scaling of Diode Nd YAG lasers

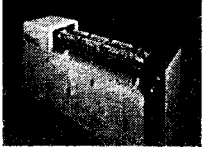


| Beam quality [mm · mrad] | number of rods | number of rods pumped | Max. laser power [W] | Laser power at workpiece [W] |
|--------------------------|----------------|-----------------------|----------------------|------------------------------|
| 10                       | 2              | 3                     | 1400                 | 1000                         |
| 12                       | 4              | 6                     | 2800                 | 2000                         |
| 16                       | 4              | 6                     | 3200                 | 2400                         |
| 16                       | 6              | 9                     | 4800                 | 3600                         |
| 25                       | 6              | 9                     | 5000                 | 4500                         |

Mold repair HL LASER - Werkzeugmaschinen 012 2200 118

**TRUMPF**

### Cw solid-state lasers up to 4000 W




| Type      | Pump chamber Number | Max. power output [W] | Laser power at the workpiece [W] | Beam quality [mm · mrad] |
|-----------|---------------------|-----------------------|----------------------------------|--------------------------|
| HL 120 D  | 1                   | 500                   | 350                              | 12                       |
| HL 120 D  | 1                   | 700                   | 500                              | 25                       |
| HL 103 D  | 2                   | 1000                  | 700                              | 12                       |
| HL 1008 D | 2                   | 1400                  | 1000                             | 20                       |
| HL 1023 D | 3                   | 1400                  | 1000                             | 12                       |
| HL 1204 D | 4                   | 2000                  | 1400                             | 16                       |
| HL 2206 D | 4                   | 2700                  | 2000                             | 20                       |
| HL 3205 D | 6                   | 4200                  | 3000                             | 20                       |
| HL 4000 D | 8                   | 5100                  | 4000                             | 20                       |

Mold repair HL LASER - Werkzeugmaschinen 012 2200 118

**TRUMPF**

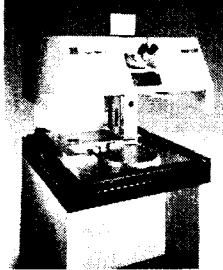
### Drilling Laser(HL 101P, HL 201P)



- 도랑형 레이저
- Nd YAG LASER
- 정밀 가공, 절단용도
- 초점지름 : 최소 50 μm
- 최대 . 25mm 연강 드릴 가능
- Cooling Hole, Lubrication Hole 등 전공작업에 적합

Mold repair HL LASER - Werkzeugmaschinen 012 2200 118

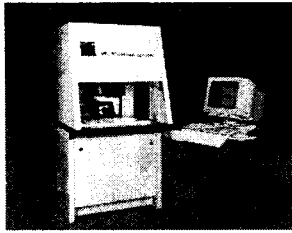
**TRUMPF** **Mold repairing Nd:YAG Laser**



- 고정보수 용접기
- Power - 40~200 W
- Nd:YAG Pulse Laser
- 파스, 마모된 금형의 수리장도, 공구 제작
- Spot 용접용으로 사용할 수 있는 재료
- Manual, Joystick, NC Control 선택 가능

Mold repair HAAS-LASER - Vertriebsstellen 010 2200 110

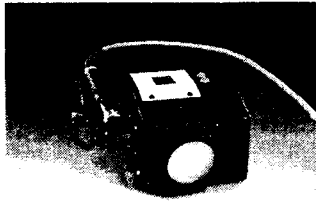
**TRUMPF** **Marking Laser (1064 nm, 532 nm, 355 nm)**



- 아크레이저
- Standing Alone type
- 다양한 파장대의 아크레이저 개발
- 금속, 플라스틱, 반도체 웨이퍼등 다양한 재질에 마킹가능
- Barcode, Serial Number Drawing, Image 등 작업가능
- 공장자동화 시스템과 연동

Mold repair HAAS-LASER - Vertriebsstellen 010 2200 110

**TRUMPF** **PFO (Programmable Focusing Optic)**



- 용접용 헤드
- Scanner 방식 도입으로 용접시 헤드의 움직임 없이 레이저 광원 전달로 용접
- Pulse와 CW방식에 적용
- 용접 형상의 사전 프로그래밍
- Vision System와 연동

Mold repair HAAS-LASER - Vertriebsstellen 010 2200 110