

## MICROSTORM™ Laser series

The Q-Switch concept has been known for many years. However, Q-Switched CO<sub>2</sub>-lasers were never commercially successful due to limited power. We now have the solution with our new MICROSTORM™ - a Q-switched short pulse high power CO<sub>2</sub> laser.

### New dimensions

The product shows absolutely new dimensions of pulse peak power, pulse width and pulse frequency. All parameters can be tuned in a wide range so that the laser process can be adapted optimally to the application. Furthermore, the devices will be available for all possible wavelengths of the CO<sub>2</sub> laser.

### High quality material processing

MICROSTORM™ combines special characteristics of short pulse lasers with the wavelength of the CO<sub>2</sub> laser by keeping the extraordinary beam characteristics typical for

FEHA lasers. The high average power of up to 350W insures high processing speed and productivity at high quality.

### Enter new trails

Users will unlock totally new ways of processing materials or find faster and more efficient solutions for existing applications. New opportunities will open up especially for the processing of critical materials like several kinds of glass, GFRP, CFRP and special ceramics. Up to now these applications were reserved only for pulse lasers of shorter wavelength.

### Highlights

- **High process quality due to a combination of wavelength, short pulse and high beam quality.**
- **High productivity due to the high average power.**
- **High efficiency resulting in a low cost of ownership.**
- **High flexibility; laser parameters can be optimized for each application.**
- **Innovation. Breaks the way for new applications across industries.**

*Tilt your expectations*



# Can you imagine the possibilities?



## MICROSTORM™ characteristics

- Typical pulses have half-power width of approximately 250 nsec
- Maximum pulse peak power of up to 50 kW
- The laser is available in various versions with an average power up to 350 W
- A pulse repetition rate from cw up to 150 kHz is possible
- All CO<sub>2</sub> wavelengths available on request
- High flexibility in pulse shape and pulse energy

Maximum average output power	( W )	350
Maximum pulse power	( kW )	50
Pulse energy up to	( mJ )	1000
Half-power pulse width	( nsec )	< 300
Beam diameter	( mm )	14
Pulse repetition rate from cw up to	( kHz )	150
Wave length	( μm )	10.6
M <sup>2</sup> Beam parameter product		< 1.3
Polarization		linear
Power consumption approx.	( kW )	8

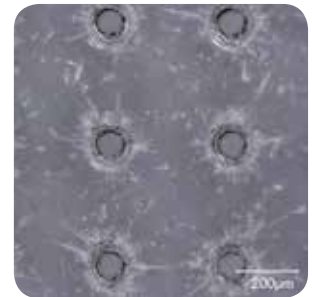
This results in significant quality and productivity improvements in the processing of materials already treated by CO<sub>2</sub> lasers today, such as quartz and borosilicate glass, ceramics, paper, cardboard and foils. It also allows innovative new applications for materials such as soda lime glass, glass or carbon fibre reinforced polymer (GFRP, CFRP) and laminated foils of different polymers.

## Application examples

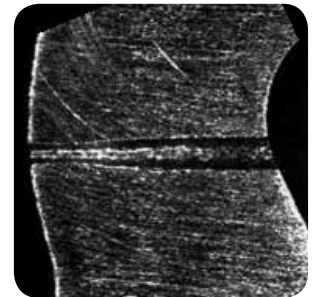
- Perforation / hole drilling in polymers (like PC), metal, glass, ceramics, composites, paper
- Cutting of glass, ceramics, composites, polymers
- Ablation of laminate layers
- Multipurpose material treatment of composites
- Your application...?

## FEHA LaserTec GmbH

FEHA is a worldwide niche supplier in CO<sub>2</sub> laser and optics within high volume markets and high-tech solutions. Besides the MICROSTORM™ laser series, FEHA also offers single mode CO<sub>2</sub> lasers (HYPERICO<sub>2</sub>) with high beam quality and stability and high quality beam guiding components.



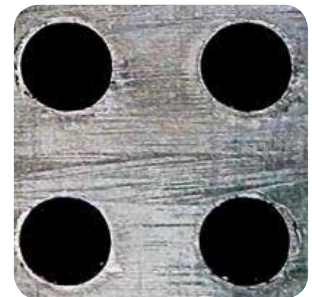
*Perforation of PC-foil*



*Laser drilling of diesel nozzles*



*Cold soda lime glass cutting*



*Laser drilling of GFRP composite*

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