

## REPORT: Thin Mo cutting by Laser-MicroJet®

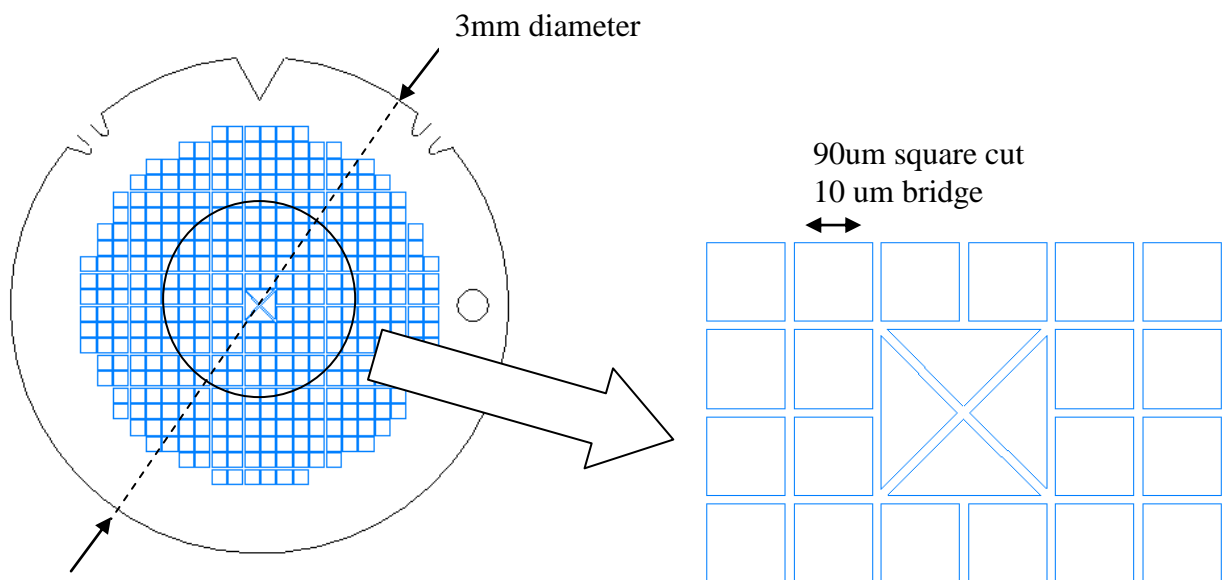
For Anonymous

By Masaki Takano, Synova Japan

### TASK

The Laser-MicroJet® technology has been tested for Thin Mo cut.

### Cutting Pattern



### SAMPLE DESCRIPTION AND PREPARATION



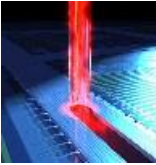
<b>SAMPLE 1</b>	Material	Mo
	Dimension	100x50 mm
	Thickness	50 μm
	Quantity	1 pcs

Release of application report			
Project Leader		Responsible Application Group	
Name:	Masaki Takano	Name:	D <sup>r</sup> Benjamin Carron
Date:	2012.03.07	Date:	2012.03.14
Visum:		Visum:	

## PROCESS: INSTRUMENT & TEST PARAMETERS

For these experiments, the LDS300M equipped with a green laser has been used as the machine configuration in our lab.

In the table below, the optimized processing parameters used in the experiments are summarized:

	<b>SYSTEM</b>	Machine type	LDS300M
	<b>MICROJET<sup>®</sup> PARAMETER</b>	Nozzle diameter MicroJet <sup>®</sup> diameter Water pressure Assist gas	40 $\mu m$ 33.2 $\mu m$ 400 <i>bar</i> He
	<b>LASER PARAMETER</b>	Laser type	L101G
		Wavelength	532 <i>nm</i>
		Pulse frequency	8 <i>kHz</i>
		Average power	8.2 <i>W</i>
	<b>CUTTING PARAMETER</b>	Cutting speed	0.5 <i>mm/s</i>
		Number of passes	1
		Fixture	See below

Fixture

#1 without sample

1mm thick ness steal with some holes



#2 with sample

We taped the sample and cut on the holes.



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## RESULTS

Before cutting

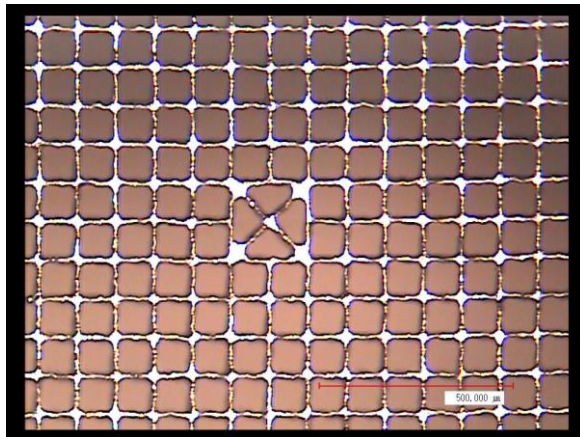


**PICTURE:** Digital camera image of the sample before processing (top view)

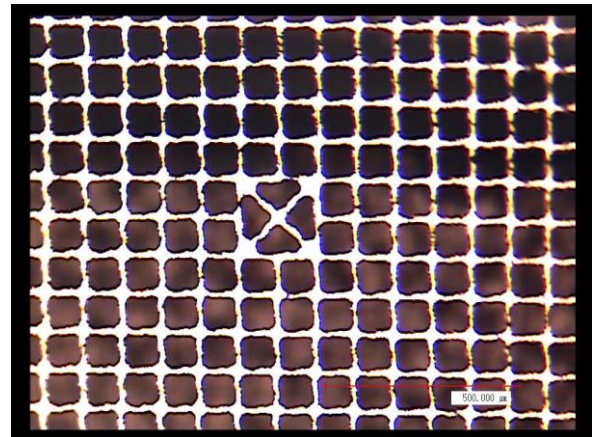
After cutting



**PICTURE:** Digital camera image of the sample after processing (top view)



**PICTURE:** Microscope image of the sample after processing (bright field illumination; top view)



**PICTURE:** Microscope image of the sample after processing (bright field illumination; back view)

We cleaned the sample with ultrasonic bath for 5min.

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The table below summarized Anonymous expectations and our results

	What are your priorities? (please put a cross)	Quantified expectations or improvements
<ul style="list-style-type: none"><li>Burr-free:</li></ul>	2	Small burr on back side
<ul style="list-style-type: none"><li>Other:</li></ul>	Don't break the bridge	No breaking

CONCLUSION

The Mo sample was investigated on SYNOVA LDS300 machine. This machine is based on the MicroJet® technology and combines the advantages the high energy pulsed laser with a hair-thin water jet.

We mounted the sample on the hole in the metal plate with tape to avoid bending.

- Burrs: Very small burrs on the back side.
- Breaking: We couldn't observe any breaking the 10um width bridge

We thank you for your interest in our technology and we hope our results meet your requirements. Our sales will contact you soon to obtain a feedback about the analysis of these results and to discuss with you the further steps.