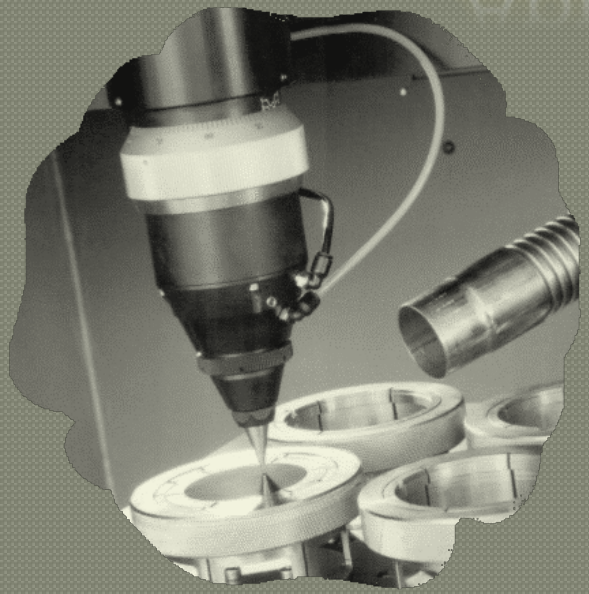
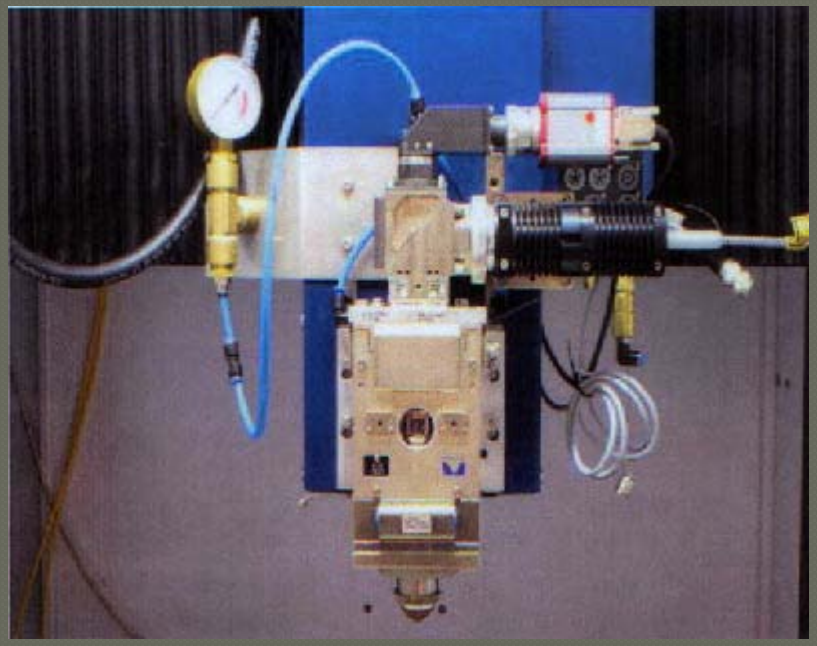
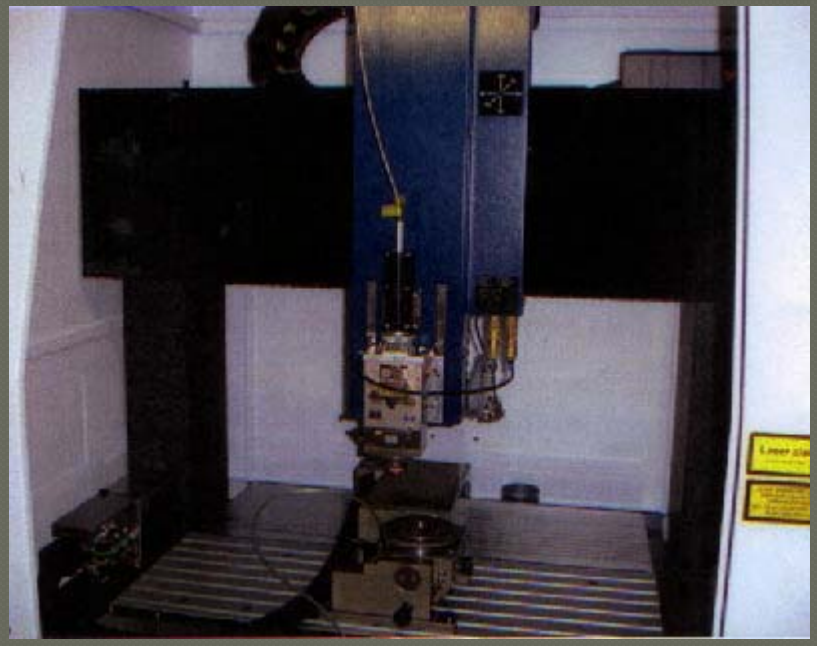
Laser Cutting

Applications Lab Report



Experimental Set Up

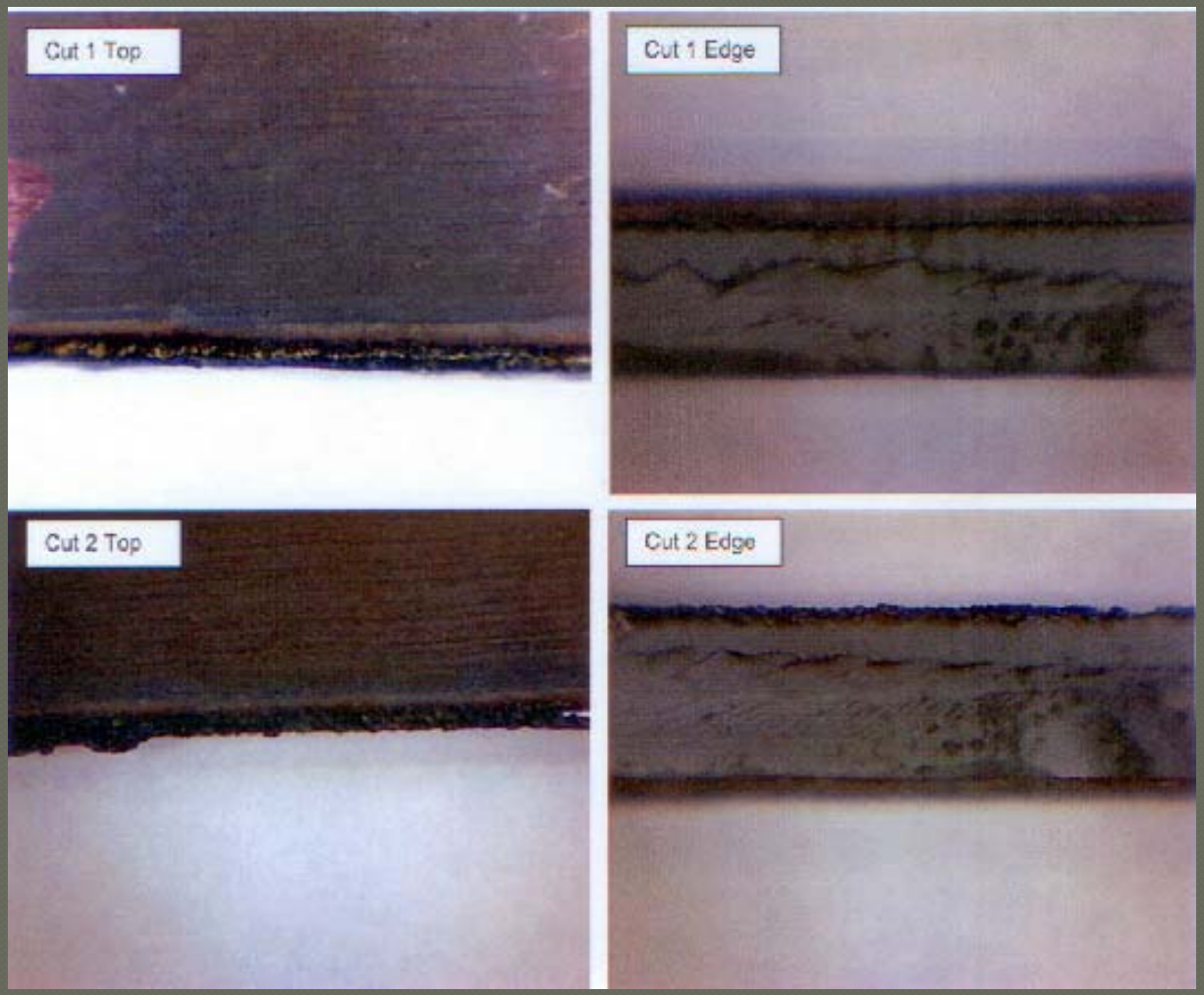




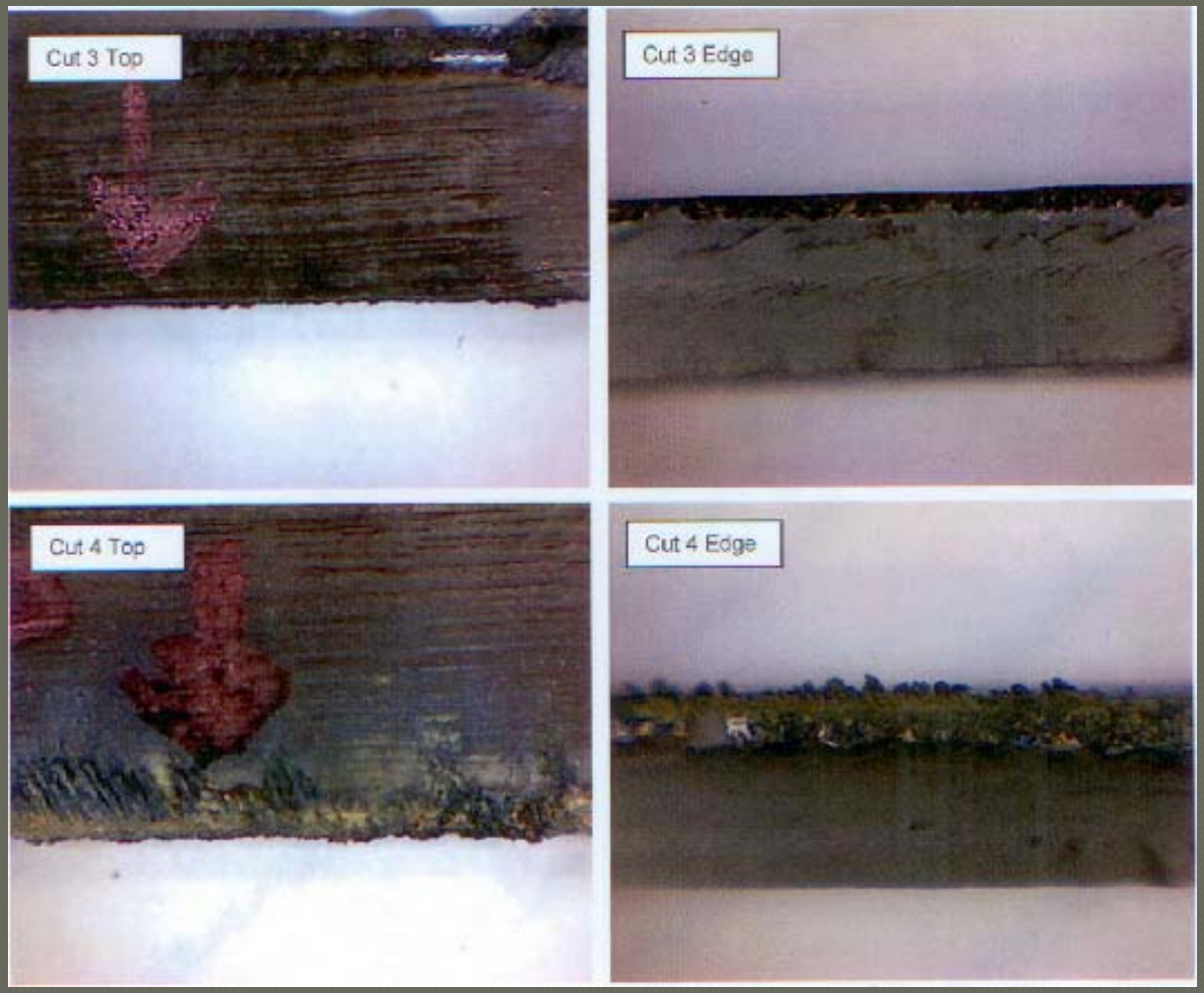
Experimental Trials

Trial	FOCUS LENS	SPOT SIZE	FOCUS POSITION	SPOT SIZE ON SURFACE	PROCESS SPEED	POWER	GAS TYPE	GAS FLOW
#	(mm)	(µm)	-3.0	(µm)	(mm/min)	(W)	-	(bar)
1	200	85.6	-3.0	100.4	500	400	Oxygen	2.0
2	200	85.6	-3.0	100.4	500	400	Oxygen	6.0
3	200	85.6	-3.0	100.4	500	400	Nitrogen	10.0
4	200	85.6	-3.0	100.4	250	400	Oxygen	10.0

Trial Pictures



Trial Pictures



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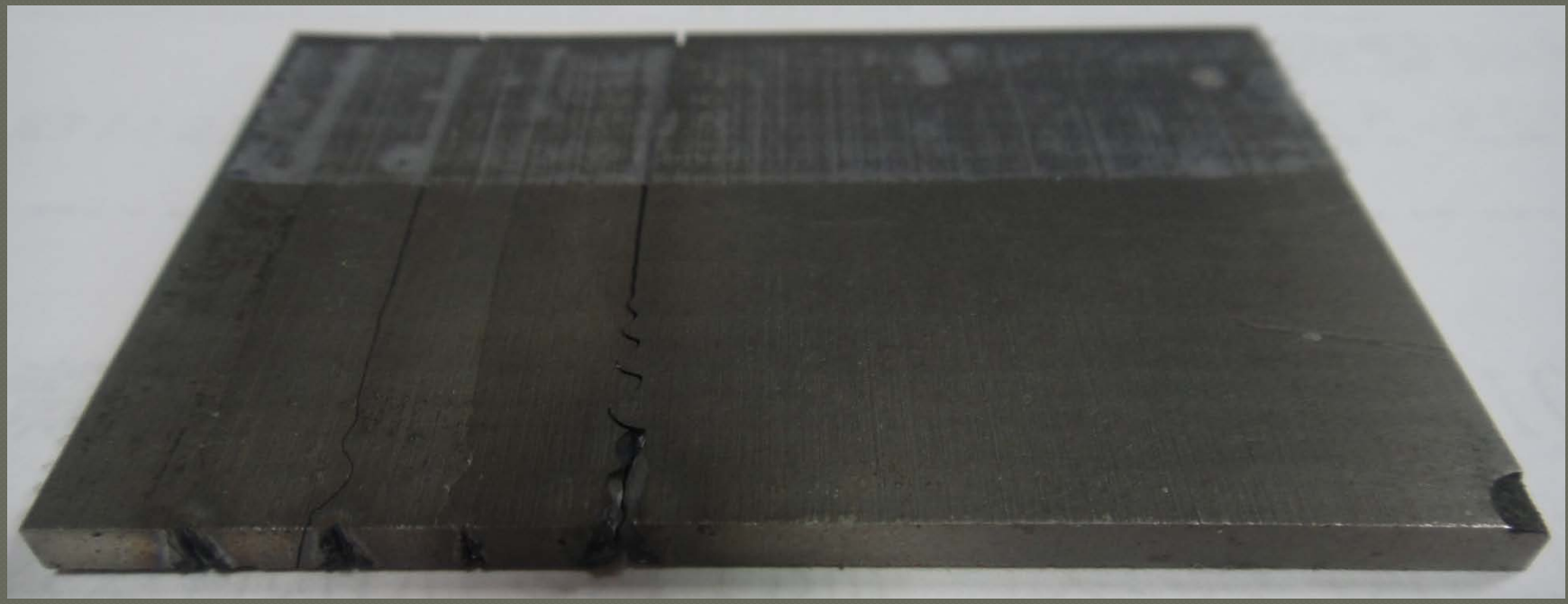

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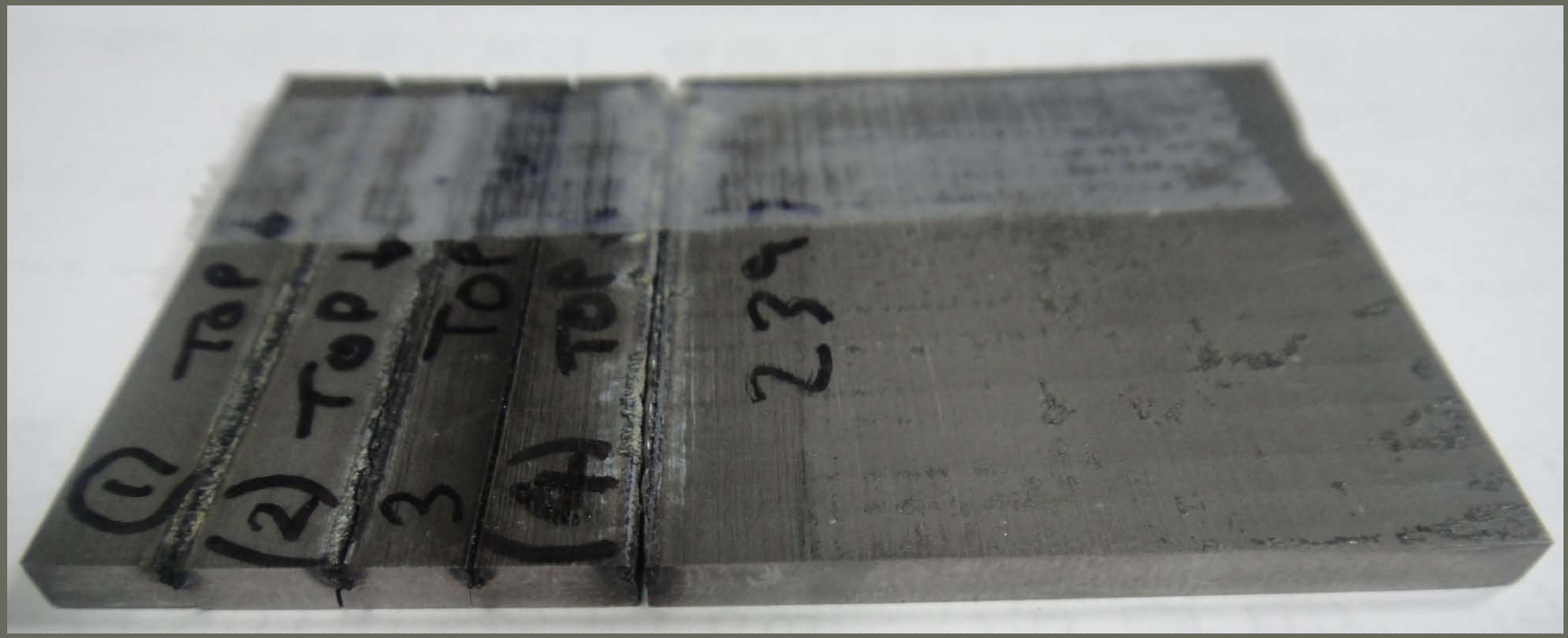

Results

- Initial proofs of principal trials were conducted to determine if it was possible to cut the supplied 2.0mm Tungsten material. The parameters investigated were Cut Speed ,Gas Type and Gas pressure. The trail conditions and pictures of the cuts are shown in Fig 2 and Fig 3 above.

Conclusion

- These initial "proofs of principal" trials have shown that it is not possible good quality cuts in this thickness of Tungsten material. The sample after cutting showed a groove in the top surface, They also had a crack evident in the bottom surface. With slight mechanical force it was possible to separate the cut. As is shown in the pictures above Fig 3,only a small the quality of these samples.

Bewise Inc.

- Spilasers UK Limited Trial