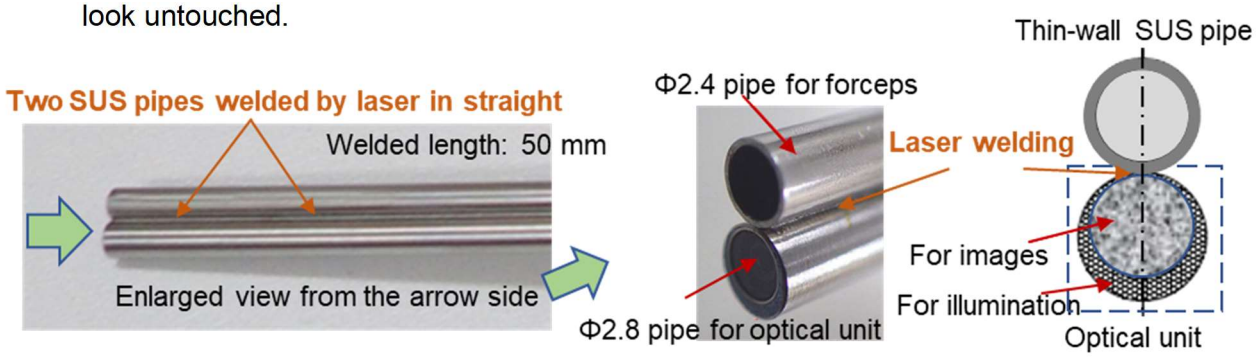
Laser Welding Technique for Microfabrication

1. Client's requirement

The pipe into which a forceps is inserted has to be welded with a pipe parallelly placed on for an optical unit.

2. Technically challenging points

1. The pipe for an optical unit houses the optical fibers for image transfer and illumination. The welding heat could cause a distortion on the fibers resulting in some effects on the images.
2. The jointed zone by welding should be undistinguished, if possible, to keep the pipes look untouched.

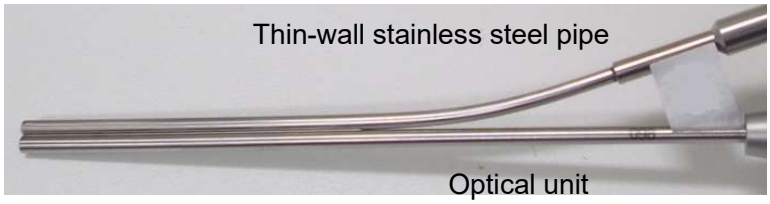


3. Solution for the requirement

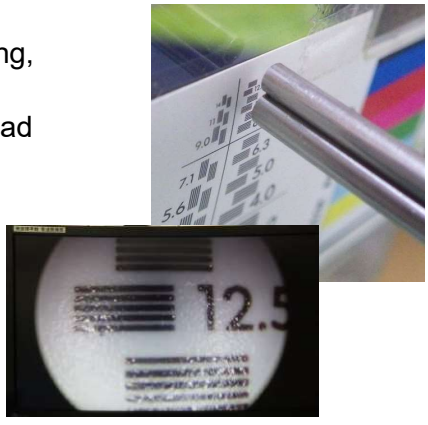
1. The welding parameters were optimized for preventing the fibers from damaged with welding heat which would penetrate into the pipe wall deep.
2. Welding was conducted so carefully that the welding bead having smooth appearance and linearity was generated.

4. Evaluation by the client

1. A clean and smooth surface was formed through welding, resulting in an excellent product.
2. No distortions were found in the images, which could had happened if no prevention measures taken.



Final product



No damages to the fiber are found.

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