

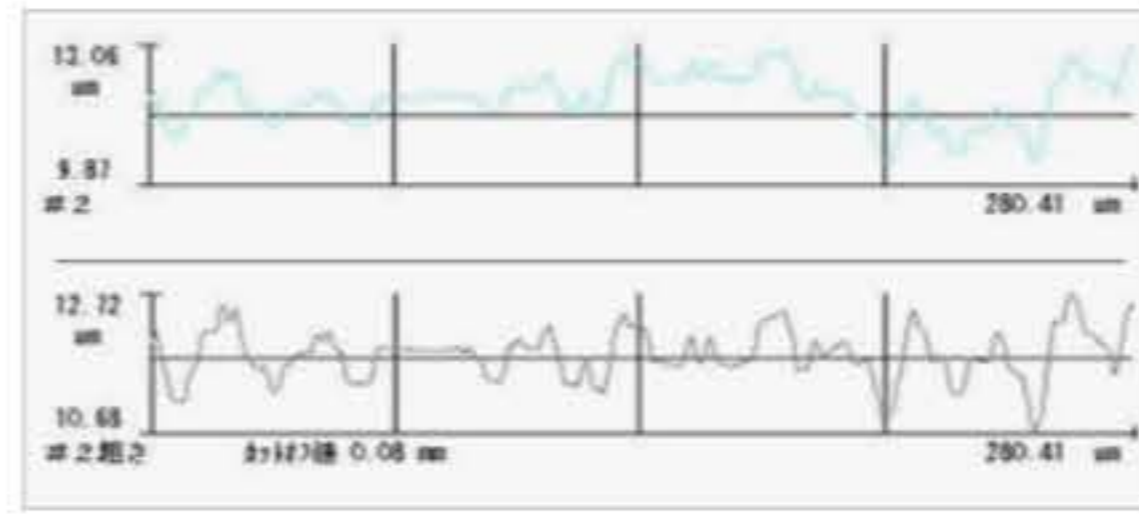
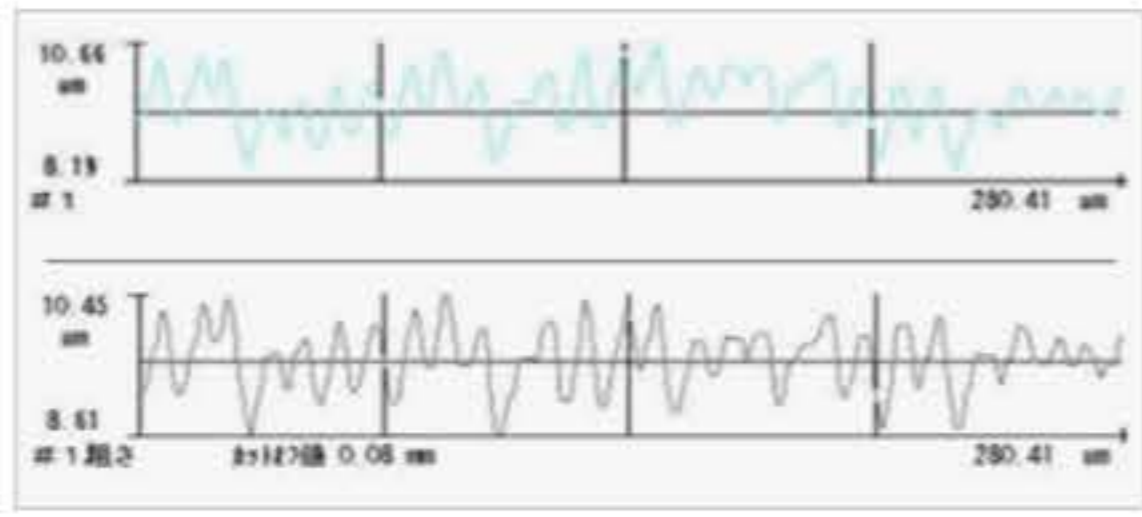
# Laser Cutting Proccs

Line roughness (1994 JIS)



The surface of YAG Laser Cutter

|                    |                   |
|--------------------|-------------------|
| Date               | 2008/12/4         |
| Time               | 15:37:39          |
| Magnification Rate | ×50               |
| Measuring Settings | Color super depth |
| Distance           | 14.19μm           |
| Pitch              | 0.5μm             |
| Optical zoom       | ×1.0              |



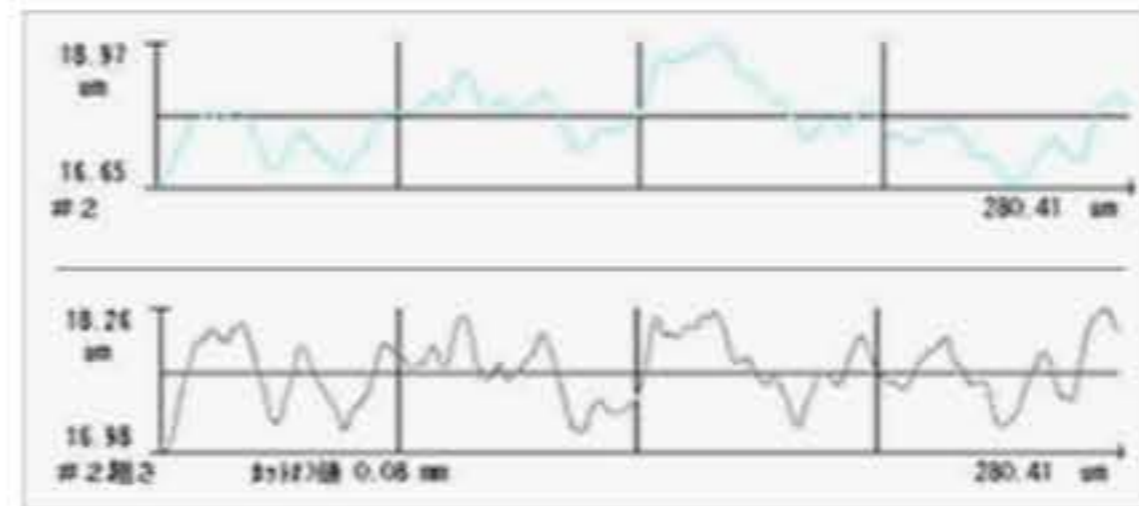
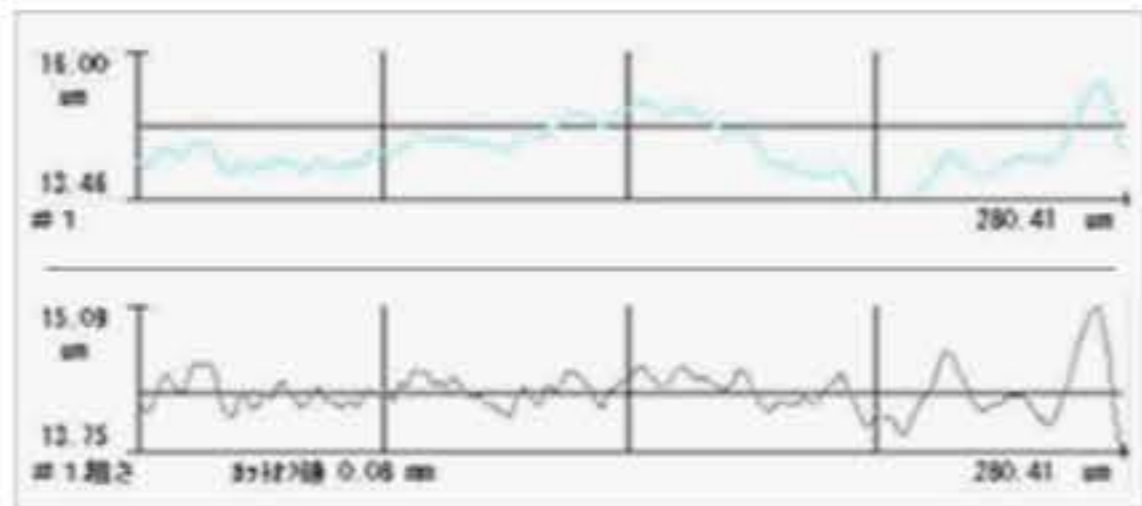
| Ra     | Ry     | Rz     | Sm      | Ra     | Ry     | Rz     | Sm      |
|--------|--------|--------|---------|--------|--------|--------|---------|
| 0.31μm | 1.84μm | 1.66μm | 11.47μm | 0.28μm | 2.04μm | 1.47μm | 22.61μm |

## Laser Cutting + Electropolishing

The surface of electropolished laser cutted product.

|                    |                    |
|--------------------|--------------------|
| Date               | 2008/12/4          |
| Time               | 14:50:30           |
| Magnification Rate | ×50                |
| Measuring Settings | Color super depths |
| Distance           | 27.85μm            |
| Pitch              | 0.01μm             |
| Optical zoom       | ×1.0               |

Line roughness (1994 JIS)



| Ra     | Ry     | Rz     | Sm      | Ra     | Ry     | Rz     | Sm      |
|--------|--------|--------|---------|--------|--------|--------|---------|
| 0.14μm | 1.34μm | 0.65μm | 25.88μm | 0.23μm | 1.28μm | 0.97μm | 28.96μm |

## Results of measurement (Re: other Corp. published data)

Unit : μm

| nakayamariken  | Measurement Point      | Laser Cutting Process |      |      |       | Laser Cutting + Electropolishing |      |      |       |
|----------------|------------------------|-----------------------|------|------|-------|----------------------------------|------|------|-------|
|                |                        | Ra                    | Ry   | Rz   | Sm    | Ra                               | Ry   | Rz   | Sm    |
|                | (1)                    | 0.31                  | 1.84 | 1.66 | 11.50 | 0.14                             | 1.34 | 0.65 | 25.90 |
|                | (2)                    | 0.28                  | 2.04 | 1.47 | 22.60 | 0.23                             | 1.28 | 0.97 | 29.00 |
|                | AV                     | 0.30                  | 1.94 | 1.57 | 17.00 | 0.19                             | 1.31 | 0.81 | 27.40 |
| company P Type | Measurement Point      | Ra                    | Ry   | Rz   | Sm    |                                  |      |      |       |
|                | MAX                    | 0.44                  | -    | 4.44 | -     |                                  |      |      |       |
|                | MIN                    | 0.27                  | -    | 1.74 | -     |                                  |      |      |       |
|                | AV                     | 0.35                  | -    | 2.86 | -     |                                  |      |      |       |
| company S      | Measurement Point      | Ra                    | Ry   | Rz   | Sm    |                                  |      |      |       |
|                | generally              | 0.88                  | 7.2  | 3.88 | -     |                                  |      |      |       |
|                | Electrolytic Polishing | 0.57                  | 3.5  | 1.39 | -     |                                  |      |      |       |