

The PipeEndoscope Award the Chairman's Award of JSPMI Prizes

1. Mr. Roughness

FUTA-Q's **PipeEndoscope**, a non-destructive roughness inspector, has awarded the chairman's award of JSPMI (Japan Society for the Promotion of Machine Industry) Prizes which are granted to organizations and persons recognized as contributing to the progress and growth of the machine industry their superior R&D and commercialization efforts.

2. Development history

1. Back ground

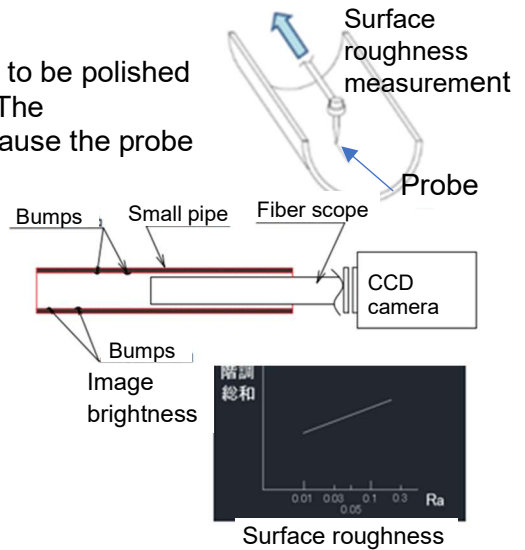
The inner surface of a medical-use small pipe needs to be polished because it would affect the measurement accuracy. The measurement has been a destructive inspection because the probe cannot be inserted into the small pipe.

2. Discovery

During the inner surface inspection of small pipes, an inspector happened to find the brightness of captured images ranging from bright side to darker side.

3. Development

Based on a hypothesize that the reflected lights vary according to the inner surface roughness, we found the correlation between the surface roughness and the image brightness.

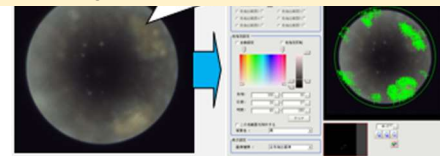


3. New technologies under development

1. Recognition technology of the cause of a contamination, such as oil or foreign matters, using a color image and AI technology.
2. Appearance inspection technology for small pipes of **0.5 mm to 20 mm ID**.
3. Inspection technology using a fiber scope for ultra-small pipes with **smaller than 0.5 mm ID**.
4. Marking, recognition, and storing technologies of an ID number on a small pipe.
5. Automatic inserting technology of a fiber scope into a small pip.
6. Automatic cleaning technology for the inner surface of a small pipe.



Acquiring the color information of oil contents



4. From the designer

Three years ago, I started this development project with a strong conviction that this is a good opportunity for my own growth. With the introduction of the image processing technology into this, we have finally succeeded in the development. The award gives me great pleasure, and I will go forward to develop better instruments.



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