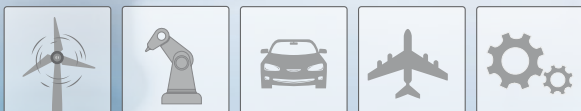




More Precision

Eltrotec // Industrial Endoscopes





- Ø 0.5 mm to 2.5 mm
- Lengths: 500 mm to 15,000 mm
- Aperture angle up to 100°
- High quality quartz fibers
- Pliable - high break resistance provides robustness
- External focus ring for diopter adjustment
- Custom adaption possible

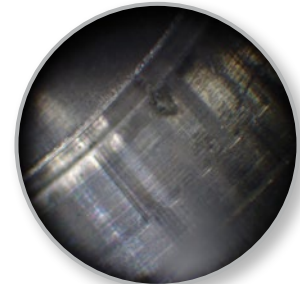
Eltrotec Flex MTFS fiber-optical endoscopes are extremely small, flexible and serve as valuable tools and inspection devices in many areas of quality assurance. Despite their extremely small outer diameter, the flexible micro endoscopes are high-quality instruments with good image sharpness, true color reproduction and a resolution of up to 30,000 pixels, suitable for the inspection of miniature components and channels in microelectronics, precision engineering and research.

Objects are illuminated by an external light source from our accessory range. The endoscopes can optionally be connected to a camera system.

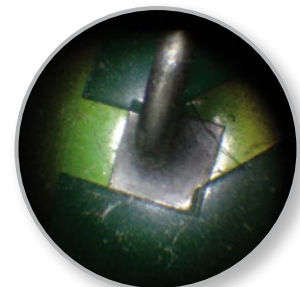
Operating conditions:

- Temperature in air:
 - Endoscope probe: -20 °C to +60 °C
 - Complete endoscope: -20 °C to +50 °C
- Pressure resistance in air: up to 5 bar
- Resistance to liquids:
 - The endoscope probe may be immersed in the following liquids for a short time: water, saline solution (5 %), kerosene, gasoline, diesel, 70 % alcohol
- Humidity: up to 95 % at 40° (non-condensing)

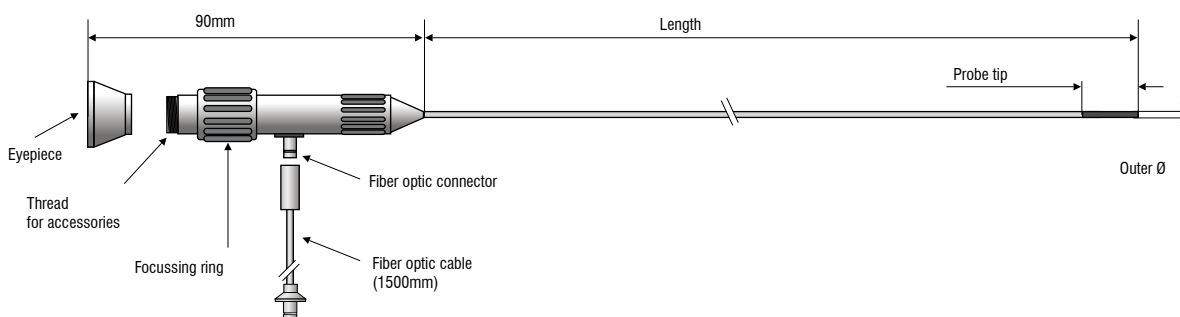
Application examples:



Chatter marks



Inspecting soldered joints



| Model MTFs | 050 | 075 | 100 | 150 | 200 | 250 |
|--------------------------|---|-------------|---------------|---------------|------------|-------------|
| Outer-Ø | 0.5 mm | 0.75 mm | 1.0 mm | 1.5 mm | 2.0 mm | 2.5 mm |
| Length | 0.5 / 1.0 / 1.5 / 2.0 m | | | | 2/3/4/5 m | 2/5/10/15 m |
| Resolution | 4000 pixels | 6000 pixels | 10,000 pixels | 30,000 pixels | | |
| Direction of view | direct view 0° | | | | | |
| Aperture angle approx. | 70° | | | 60° | 70° | |
| Focal range | 3 to 50 mm | | | | 10 mm to ∞ | |
| Diopter compensation | adjustable | | | | | |
| Min. bending radius | 10 mm | 15 mm | 30 mm | 50 mm | 60 mm | 80 mm |
| Rigid part max. | 5 mm | 5 mm | 6 mm | 7 mm | 10 mm | 12 mm |
| Illumination | separate or permanently connected fiber optics with a length of 1500 mm for external light source | | | | | |
| Camera and TV connection | eyepiece equipped for the attachment of a corresponding adapter | | | | | |
| Temperature resistance | up to 60 °C | | | | | |

| Outer-Ø mm | Length mm | Direction of view | Article no. |
|------------|-----------|-------------------|-------------|
| 0.5 | 500 | 0° | 20560930 |
| 0.5 | 1000 | 0° | 20561733 |
| 0.5 | 1500 | 0° | 20561734 |
| 0.5 | 2000 | 0° | 20561880 |
| 0.75 | 500 | 0° | 20561004 |
| 0.75 | 1000 | 0° | 20560321 |
| 0.75 | 1500 | 0° | 20561732 |
| 0.75 | 2000 | 0° | 20560939 |
| 1.0 | 500 | 0° | 20560854 |
| 1.0 | 1000 | 0° | 20560322 |
| 1.0 | 1500 | 0° | 20561731 |
| 1.0 | 2000 | 0° | 20560895 |
| 1.5 | 500 | 0° | 20561000 |
| 1.5 | 1000 | 0° | 20561589 |
| 1.5 | 1500 | 0° | 20561584 |
| 1.5 | 2000 | 0° | 20560896 |
| 2.0 | 500 | 0° | 20561985 |
| 2.0 | 1000 | 0° | 20561986 |
| 2.0 | 1500 | 0° | 20561987 |
| 2.0 | 2000 | 0° | 20561988 |
| 2.0 | 3000 | 0° | 20561989 |
| 2.0 | 4000 | 0° | 20561990 |
| 2.0 | 5000 | 0° | 20561827 |
| 2.5 | 500 | 0° | 20560336 |
| 2.5 | 1000 | 0° | 20561983 |
| 2.5 | 1500 | 0° | 20561984 |
| 2.5 | 2000 | 0° | 20561689 |
| 2.5 | 5000 | 0° | 20561826 |
| 2.5 | 10,000 | 0° | 20561981 |
| 2.5 | 15,000 | 0° | 20561982 |

Endoscopes with external Ø up to 2.0 mm with permanently connected fiber optics

| Accessories: | Article no. |
|--|-------------|
| Fiber optic cable for MTFs (1500 mm, Ø 2 mm fiber cross section) | 20560670 |
| Mirror head, d=1.4 mm, direction of view 90° | 20560897 |
| Mirror head, d=1.9 mm, direction of view 90° | 20560898 |
| Mirror head, d=2.4 mm, direction of view 90° | 20561413 |

Sensors and Systems from Micro-Epsilon



Sensors and systems for displacement, distance and position



Sensors and measurement devices for non-contact temperature measurement



Measuring and inspection systems for metal strips, plastics and rubber



Optical micrometers and fiber optics, measuring and test amplifiers



Color recognition sensors, LED analyzers and inline color spectrometers



Industrial endoscopes, light sources