



# More Precision

**ELTROTEC** // Industrial Endoscopes





- Ø 0.5mm to 2.5mm
- Lengths: 500mm to 15,000mm
- 70° Field of view
- Extremely small and versatile
- High quality quartz fibres
- Pliable - high break resistance provides robustness
- External focus ring for dioptre adjustment

#### Description:

Eltrotec Flex MTFS are miniature, flexible, fibre-optical endoscopes which 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 a resolution of up to 30,000 image points suitable for the inspection of miniature components and channels in the fields of microelectronics, precision mechanics and research.

The object is illuminated using an external light source from our range of accessories. The endoscopes can optionally be connected to a camera system.

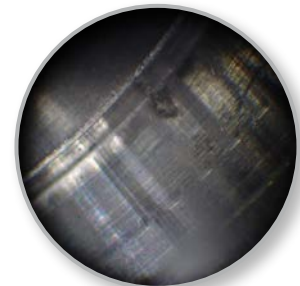
#### Features:

- Flexible due to special design using quartz glass fibres
- 90° mirror head with a  $\phi$  from 1.0mm
- Perfect image sharpness
- True-colour image reproduction
- Special adaptations possible

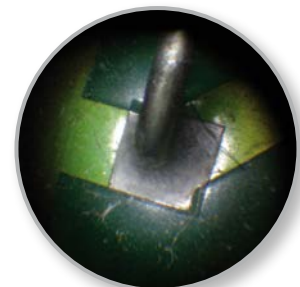
#### Operating conditions:

- 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 can be immersed in the following liquids for short periods:  
water, saline solution (5%), kerosene, petrol, diesel, 70% alcohol
- Humidity: up to 95% at 40°  
(no condensation)

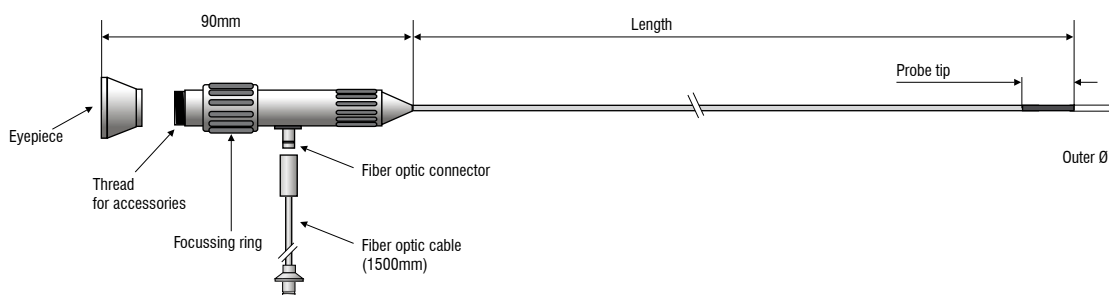
#### Application examples:



Chatter marks



Inspecting soldered joints



Model MTFS	050	075	100	150	200	250
Outer-Ø	0.5mm	0.75mm	1.0mm	1.5mm	2.0mm	2.5mm
Length	0.5 / 1.0 / 1.5 / 2.0m				2/3/4/5m	2/5/10/15 m
Resolution	4000 image points	6000 image points	10,000 image points	30,000 image points		
Direction of view	Direct view 0°					
Field of view approx.	70°			60°	70°	
Focal range	3 to 50mm			10mm to ∞		
Dioptr compensation	adjustable focussing					
Min. bend radius	10mm	15mm	30mm	50mm	60mm	80mm
Rigid part max.	5mm	5mm	6mm	7mm	10mm	12mm
Illumination	separate or permanently connected optical fibre with a length of 1500mm for external light source					
Camera and TV connection	eyepiece equipped for the attachment of a corresponding adapter					
Temperature stability	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 2.0mm with permanently connected optical fibre

Accessories:	Article no.
Fibre optic cable for MTFS (1,500mm, Ø 2mm fibre cross section)	20560670
Mirror head, d=1.4mm, viewing direction 90°	20560897
Mirror head, d=1.9mm, viewing direction 90°	20560898
Mirror head, d=2.4mm, viewing direction 90°	20561413

#### Accessories:

Fibre optic cables, TV cameras, video processors and light sources

## High performance sensors made by Micro-Epsilon



Sensors and systems for displacement and position



Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Optical micrometers, fibre optic sensors and fibre optics



Colour recognition sensors, LED analyzers and colour online spectrometer



Measurement and inspection systems