## Endoscopy

### Endoscopy for technical inspections, such as engine blocks, or machines, with an adjustable digital camera ring

Endoscopes offer new perspectives of the inside of machines and installations. They are the ideal tool for inspection and maintenance in the industrial sector, in workshops, or for private use, such as in research or university laboratories. Insert the flexible cable into a space close to the area you wish to view and in this way you will be able to see what is happening inside. Thanks to its flexible cable, its light weight and its quality optical components, you will clearly see problem points and be able to assess the situation without the cost of having to dismantle the machine. The water resistant tube and lens allow for inspection of submerged components without any problem.

- ABS enclosure (waterproof)
- Powerful halogen lamp illuminates dark locations for clear viewing
- The PCE-E 122 and the PCE-E 240 flexible cable maintains its fixed position until readjusted
- The PCE-E 45 and PCE-E 130 cable reach deep into tubes, walls, drains, etc.
- Integrated focus ring
- A digital camera can be connected using an optional adapter
- Not to be used for medical purposes

### Technical specifications

#### Endoscope model

<table>
<thead>
<tr>
<th>Endoscope model</th>
<th>PCE-E 45</th>
<th>PCE-E 122</th>
<th>PCE-E 130</th>
<th>PCE-E 240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of flexible cable (mm)</td>
<td>450</td>
<td>1220</td>
<td>1220</td>
<td>2400</td>
</tr>
<tr>
<td>Diameter (mm)</td>
<td>4.0</td>
<td>8.0</td>
<td>6.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Diameter with mirror of 45° (mm)</td>
<td>4.6</td>
<td>8.6</td>
<td>6.6</td>
<td>8.6</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10 to +50 °C</td>
<td>-10 to +50 °C</td>
<td>-10 to +50 °C</td>
<td>-10 to +50 °C</td>
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<tr>
<td>Total length (mm)</td>
<td>595</td>
<td>1365</td>
<td>1365</td>
<td>2545</td>
</tr>
<tr>
<td>Field / angle of vision (°)</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Minimum view distance (mm)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Light source</td>
<td>halogen bulb</td>
<td>halogen bulb</td>
<td>halogen bulb</td>
<td>halogen bulb</td>
</tr>
<tr>
<td>Power</td>
<td>3 batteries AA</td>
<td>3 batteries AA</td>
<td>3 batteries AA</td>
<td>2 batteries AA</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>340</td>
<td>450</td>
<td>450</td>
<td>800</td>
</tr>
</tbody>
</table>

### Contents

PCE-E xxx endoscope (one of our models), carrying case and operator’s manual

#### Model no.  Description

- PCE-E 45  Endoscope (450 x 4.0 mm)
- PCE-E 122  Endoscope (1220 x 8.0 mm)
- PCE-E 130  Endoscope (1220 x 6.0 mm)
- PCE-E 240  Endoscope (2400 x 8.0 mm)

### Optional accessories

- PM-VA-1  Digital camera adapter
- ES-ER-E45  45° mirror for the PCE-E 45 endoscope
- ES-ER-E122  45° mirror for the PCE-E 122 endoscope
- ES-ER-E130  45° mirror for the PCE-E 130 endoscope
- ES-ER-E240  45° mirror for the PCE-E 240 endoscope

#### Endoscope with USB port to allow for images to be displayed on computer monitors

The endoscope has a similar structure to the PCE-E 122. Of course, the PCE-VE 110 has no screen to view the image unless it’s connected to a computer. It lets you see the interior, in spaces, tubes, etc. comfortably from your computer. With the help of the software, you can save images (.jpg) and take videos (.avi). This is advantageous if you require graphical documents for presentations. The USB cable is 180 cm long.

- USB connection and software to view images on a computer (images can only be viewed in this way)
- ABS enclosure resistant to water
- High bright LED
- The endoscope cable maintains a curved shape (until it is put into another form)
- Not suitable for medical use

### Technical specifications

- Length of flexible cable (mm) | 930 |
- Diameter (mm) | 10.5 |
- Resolution | 704 x 576 interpolated pixels |
- Operating temperature | -10 to +50 °C |
- Total length (mm) | 1090 |
- Field / angle of vision (°) | 40 |
- Minimum view distance (mm) | 2 |
- Light source | LED |
- Power | via USB |
- Weight (g) | 450 |

### Contents

PCE-VE 110 endoscope, software, 1.8 m USB cable, carrying case and user’s manual

#### Model No.  Description

- PCE-VE 110  Endoscope with software

### Optional accessories

- ES-45-VE110  45° mirror
- MAG-VE110  Magnet (to stick on end of the endoscope)

### Applications

- Endoscope with the digital camera adapted
- Digital camera photography
**PCE-V220**

Endoscope powered by rechargeable batteries and with a 5.6” display and 20 m retractable cable

The PCE-V220 endoscope / videoscope offers new perspectives of the interior of machines and instalations, through openings, such as ventilation shafts, chimneys, drainage systems, etc. This endoscope is the perfect tool for inspection and maintenance in any professional sector or type of workshop. Optical analysis has never been easier with an endoscope / videoscope. This innovative series offers access to professional video inspection. You can inspect areas of interest with diameters of 30 to 150 mm, for up to 2 hours without using a power adaptor. The solid sensor head contains a camera, is resistant to water and has a diameter of only 26 mm and can be passed through a curve of a tube that has only 40 mm diameter. The endoscope’s retractable cable has length marking to assist in precisely locating the area of damage. The TFT can be removed from the case to allow for easy viewing in places of limit space and has a 26 mm sensor head containing camera.

- 26 mm sensor head containing camera
- Camera is water proof
- Clearly illuminated LED
- Light sensitivity: 0.5 lux
- 5.6“ TFT display (14.22 cm)
- 20 m retractable cable
- 2 Rechargeable batteries (2 hours)
- Batteries included

**Technical specifications**

**Camera**

- Camera head: color
- Type: 1/3” COLOR CMOS
- Light sensitivity: 0.5 lux
- Lens: f = 2.5 mm, F = 2.0
- Angle of perception: 120°
- Illumination: 12 white LEDs
- Ingress protection: IP68, water resistant up to 3 bar
- Dimensions (camera head): Ø 26 x 38 mm

**Monitor**

- Dimensions (Monitor): 165 x 127 x 38 mm
- TFT display: 5.6” (14.22 cm)
- Output: FBAS (Chinch)

**Other specifications**

- Dimensions of retractable cable: Ø 6 mm x 20 m
- Power: 2 rechargeable batteries 12V / 1.2 Ah
- Carrying case: 510 x 430 x 170 mm
- Total weight: 7 kg

**Contents**

- TFT colour monitor, 2 m extension cable, 20 m retractable cable, miniature camera head, 2 rechargeable batteries, charger, carrying case and user’s manual

**Model No.** | **Description**
---|---
PCE-V220 | V220 endoscope with colour camera

**Optional accessories**

- PCE-V3827 Slide ring for the camera head, increases movement around curve
- PCE-V3847 Slide ring for the camera head, increases movement round curves while protecting the lense
- PCE-V3857 740g weighted guide, guarantees a better vertical descent
- PCE-V3854 Centring star, this can help centre the camera in pipes and has a diameter of 200 mm
- PCE-V3853 Centring star, extension version with distance ring
- PCE-V3649 Battery charger will recharge to batteries in only 30 minutes

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**PCE-TDE 150**

Flexible color video borescope with a 3.5” display, 1.5 m retractable cable and rechargeable battery

The high-quality flexible color video borescope is supplied as a complete, fully portable system specially designed for search professionals to use in areas that are difficult to access such as inside tube, tanks and behind concealed panels. The endoscope has diameter 6 mm, length 1.5 meter, oil/waterproof, illuminated crush-resistant Endoflex vertebrae core, and tough polymer outer with stainless covered tip bending section. The endoscope has 2-way remote end tip with 120° left / right articulation. A full color video camera ship is connected to the tip, and the image can be viewed on the color LCD monitor supplied.

- Flexible cable length 1500 mm
- Diameter of only 6 mm
- Operates with rechargeable battery
- The flexible cable allows access to tight spaces
- 2-way remote end tip with 120 ° left / right articulation
- 3.5” color display
- Waterproof
- Video out

**Technical specifications**

**Length of flexible cable** | 1500 mm
---|---
**Diameter** | 6 mm
**Angle of view** | 55°
**Bending ways** | 2 ways (120° / 120°)
**Protection** | waterproof
**Light** | LED
**Operating temperature** | 0 to +60 °C
**Display** | 3.5” color LCD
**White balance** | auto or manual
**Function** | Video output
**Power** | Li-ion rechargeable battery
**Weight** | 450 g

**Contents**

- PCE-TDE 150 endoscope with LCD display, insert tube, light source, rechargeable battery, charger and user’s manual

**Model No.** | **Description**
---|---
PCE-TDE | Endoscope
The endoscope has been designed for use in laboratories and in testing the production of components. You can operate this system accurately and rapidly with your gloves on. This video endoscope combines a high resolution CMOS image with an integrated 3.5” TFT Display and a strong LED lighting. It can be connected to a Computer via the USB cable for image and video captures. The borescope is equipped with a high capacity battery. It can work and record for 4 hours continuously after being charged for 2 hours.

- Quick snap and video recording
- The flexible cable allows access to tight spaces
- Flexible cable length 1,000 mm, 2,000 mm or 10,000 mm
- Diameter of only 5.5 mm
- Clearly illuminated LED
- 512 MB memory card included

Note: Not suitable for medical use

### Serie PCE-VE

**Videoendoscopes with internal display, memory, software and 1 m or 2 m cable**

The endoscope has been designed for use in laboratories and in testing the production of components. You can operate this system accurately and rapidly with your gloves on. This video endoscope combines a high resolution CMOS image with an integrated 3.5” TFT Display and a strong LED lighting. It can be connected to a Computer via the USB cable for image and video captures. The borescope is equipped with a high capacity battery. It can work and record for 4 hours continuously after being charged for 2 hours.

- Quick snap and video recording
- The flexible cable allows access to tight spaces
- Flexible cable length 1,000 mm, 2,000 mm or 10,000 mm
- Diameter of only 5.5 mm
- Clearly illuminated LED
- 512 MB memory card included

Note: Not suitable for medical use

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### Technical specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>PCE-VE 320</th>
<th>PCE-VE 330</th>
<th>PCE-VE 340</th>
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</thead>
<tbody>
<tr>
<td>Length of flexible cable</td>
<td>1,000 mm</td>
<td>2,000 mm</td>
<td>10,000 mm</td>
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<tr>
<td>Diameter</td>
<td>5.5 mm</td>
<td>5.5 mm</td>
<td>5.5 mm</td>
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<tr>
<td>Radial curve</td>
<td>90 mm</td>
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<td>Sensor</td>
<td>CMOS</td>
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<tr>
<td>Resolution</td>
<td>320 x 240 / 640 x 480</td>
<td>320 x 240 / 640 x 480</td>
<td>320 x 240 / 640 x 480</td>
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<tr>
<td>Field / angle of vision</td>
<td>67 °</td>
<td>67 °</td>
<td>67 °</td>
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<tr>
<td>Optimum view distance</td>
<td>15 to 100 mm</td>
<td>15 to 100 mm</td>
<td>15 to 100 mm</td>
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<tr>
<td>Light</td>
<td>4 x LED</td>
<td>4 x LED</td>
<td>4 x LED</td>
</tr>
<tr>
<td>Display</td>
<td>3.5” TFT</td>
<td>3.5” TFT</td>
<td>3.5” TFT</td>
</tr>
<tr>
<td>Interface</td>
<td>USB</td>
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<td>USB</td>
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<tr>
<td>Memory</td>
<td>512 MB SD card</td>
<td>512 MB SD card</td>
<td>512 MB SD card</td>
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<td>Video output</td>
<td>NTSC and PAL</td>
<td>NTSC and PAL</td>
<td>NTSC and PAL</td>
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<td>Operating temperature</td>
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<td>-10 to +50 °C</td>
<td>-10 to +50 °C</td>
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<tr>
<td>Power</td>
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<tr>
<td>Weight</td>
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<td>450 g</td>
<td>450 g</td>
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</table>

### Contents

- PCE-VE 320, PCE-VE 330 or PCE-VE 340 videoendoscope, SD card (512 MB), software, USB cable, carrying case and user’s manual

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### PCE-CLE 150

**Cold light endoscope with flexible optics and powered by mains adaptor**

The cold light endoscope has been designed for use in laboratories and in testing the production of components. The endoscope comes with a cold light bulb and a flexible optic cable, which allows for a field of vision of up to 80 °. The endoscope cable is equipped with markings, allowing the user to determine the depth of penetration making it easier to locate the observed area. The brightness of the field of vision can be adjusted with an external dial. This endoscope also comes with a handle to move the end point up, down, left and right allowing the field of vision to be amplified to 80 °.

- Flexible cable length 1000 mm
- Diameter of only 8 mm
- High optics thanks to its 10,000 optic fibres
- Adjustable flexible optics thanks to its handle
- Cold light potency of 100 W
- The flexible cable allows access to tight spaces
- The external dial allows the user to adjust the brightness in the field of vision
- Connection cable between the endoscope and the light source is 1.5 m

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### Technical specifications

<table>
<thead>
<tr>
<th>Flexible cable length</th>
<th>1000 mm</th>
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<tbody>
<tr>
<td>Diameter</td>
<td>8 mm</td>
</tr>
<tr>
<td>Radial curve / flexible point</td>
<td>120 ° (up, down, left and right)</td>
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<tr>
<td>Field of vision</td>
<td>80 °</td>
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<tr>
<td>Handle length</td>
<td>85 mm</td>
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<tr>
<td>Total length</td>
<td>1350 mm</td>
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<tr>
<td>Distance of optimum visibility</td>
<td>3 to 100 mm</td>
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<tr>
<td>Light production</td>
<td>cold light</td>
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<tr>
<td>Capacity</td>
<td>100 W</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10 to +40 °C</td>
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<tr>
<td>Power</td>
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<tr>
<td>Weight</td>
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</table>

### Contents

- PCE-CLE 150 endoscope, cold light source with regulator, mains cable, 1.5m connecting cable, replacement cold light bulb, 2 replacement fuses, carrying case and user’s manual

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### Optional accessories

- ES-45-VE300 45° mirror (to stick on end of the endoscope)
- PCE-VE-SC1 1 m spare cable with optic
- PCE-VE-SC2 2 m spare cable with optic
- PCE-VE-SC18 10 m spare cable with optic

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Examples for partners of calibration services