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Optics and photonics — Medical endoscopes and endotherapy devices —

Part 6: Vocabulary

Optique et photonique — Endoscopes médicaux et dispositifs d'endothérapie —

Partie 6: Vocabulaire

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Foreword

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ISO 8600-6 was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 5, *Microscopes and endoscopes*.

ISO 8600 consists of the following parts, under the general title *Optics and photonics — Medical endoscopes and endotherapy devices*:

— *Part 1: General requirements*

— *Part 2: Particular requirements for rigid bronchoscopes*

— *Part 3: Determination of field of view and direction of view of endoscopes with optics*

— *Part 4: Determination of maximum width of insertion portion*

— *Part 5: Determination of optical resolution of rigid endoscopes with optics*

— *Part 6: Vocabulary*

Optics and photonics — Medical endoscopes and endotherapy devices —

Part 6: Vocabulary

Scope

This part of ISO 8600 defines terms for endoscopes and endotherapy devices commonly used in the endoscopic area.

1 Types of endoscopes

1.1
endoscope
medical instrument having viewing means, with or without optics, introduced into a body cavity through a natural or surgically-created body opening for examination, diagnosis or therapy

NOTE 1 Endoscopes may be of rigid or flexible type; all types may have different image pick-up systems (e.g. via lenses or ultrasonic sensors) and different image-transmitting systems (e.g. optical, via lenses or fibre bundles, or electrical).

NOTE 2 IEC 60601-2-18 deals with electrical safety aspects of endoscopic systems and therefore the endoscope is regarded as an applied part of medical electrical equipment introduced into a patient. In IEC 60601-2-18:1996, the endoscope is defined as the “applied part of medical electrical equipment introduced into a patient to provide an internal view or image for examination, diagnosis and/or therapy”.

1.2
fiberscope
endoscope (1.1) in which the image is transmitted via a fibre bundle

1.3
rigid endoscope [endotherapy device]
endoscope (1.1) [**endotherapy device** (4.1)] whose insertion portion is intended to be unyielding to natural or surgically-created body cavities or instrument channels

1.4
flexible endoscope [endotherapy device]
endoscope (1.1) [**endotherapy device** (4.1)] whose insertion portion is intended to conform to natural or surgically-created body cavities or instrument channels

1.5
video endoscope
endoscope (1.1) in which the image is transmitted by a solid state imaging device

1.6
ultrasonic endoscope
ultrasound endoscope
endoscope (1.1) with an electro-acoustical image pick-up system

1.7
telescope
rigid optical device for endoscopic imaging

1.8
rigid bronchoscope
open straight tube-type **rigid endoscope** (1.3) fitted with a means of illumination through the distal end and intended to be introduced into the tracheobronchial airway, having an internal lumen sufficiently large to permit free respiration of the patient

[ISO 8600-2:2002]

1.9
rigid ventilation bronchoscope
rigid bronchoscope (1.8) fitted with a removable end-cap at the proximal end of the open straight tube and having an internal lumen sufficiently large to permit ventilation of the patient through an integral ventilation connector

[ISO 8600-2:2002]

1.10
rigid jet-ventilation bronchoscope
rigid bronchoscope (1.8) provided with a jet-injector

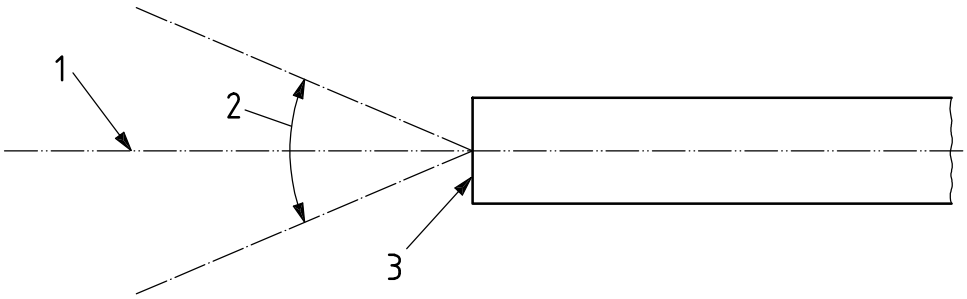
[ISO 8600-2:2002]

2 Optical specifications

2.1
field of view
size of the object field viewed through an optical **endoscope** (1.1), expressed as the vertex angle (in degrees) of the cone whose vertex is at the distal window surface of the endoscope

See Figure 1.

NOTE The field of view is not appropriate when the endoscope is intended to be in contact with the object.

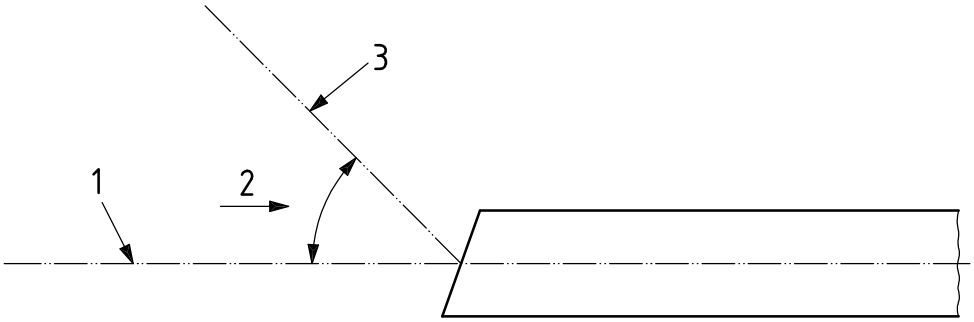


Key
1 central axis of field of view
2 field of view
3 distal window surface of endoscope

Figure 1 — Field of view

2.2
direction of view
location of the centre of the object field relative to the normal axis of the **endoscope** (1.1), expressed as the angle (in degrees) between the normal axis of the endoscope (0°) and the central axis of the **field of view** (2.1)

See Figure 2.



Key
1 endoscope normal axis
2 direction of view
3 central axis of field of view

Figure 2 — Direction of view

2.3
forward-viewing
type of **endoscope** (1.1) having a 0° **direction of view** (2.2)

NOTE The term “end viewing” is used in IEC 60601-2-18.

2.4
forward oblique viewing
fore-oblique
side-viewing with θ° forward view
type of **endoscope** (1.1) having a **direction of view** (2.2) larger than 0° and less than 90°

2.5
side-viewing
type of an **endoscope** (1.1) having a 90° **direction of view** (2.2)

2.6
retro-viewing
backward side-viewing
side-viewing with θ° retro-view
type of **endoscope** (1.1) having a **direction of view** (2.2) larger than 90°

3 Portions of endoscopes

3.1
French
F_r
Charrière
measure of the size of certain circular or non-circular cross-section **endoscopes** (1.1) defined as:

$$F_r = 3u/\pi$$

where u is the perimeter of the cross-section, expressed in millimetres

3.2
distal, adj
any location of that portion of an **endoscope** (1.1) or **endotherapy device** (4.1) which is farther from the user than some referenced point

3.3
proximal, adj
any location of that portion of an **endoscope** (1.1) or **endotherapy device** (4.1) which is closer to user than some referenced point

3.4
instrument channel
portion of an **endoscope** (1.1) or **endotherapy device** (4.1) through which an endoscope or an endotherapy device is intended to pass

3.5
insertion portion
insertion tube
that portion of an **endoscope** (1.1) or **endotherapy device** (4.1) which is intended to be inserted into a natural or surgically-created body opening or which is intended to be inserted into the **instrument channel** (3.4) of an endoscope or endotherapy device

NOTE ISO 8600-1:— only defines “insertion portion”.

3.6
maximum insertion portion width
maximum external width of an **endoscope** (1.1) or **endotherapy device** (4.1) throughout the length of the **insertion portion** (3.5)

3.7
minimum instrument channel width
minimum internal width of an **instrument channel** (3.4)

3.8
working length
maximum length of the **insertion portion** (3.5)

3.9
controllable portion
that part of the **insertion portion** (3.5) of an **endoscope** (1.1) or **endotherapy device** (4.1) whose motion is intended to be remotely controlled by the user

3.10
air/water nozzle
air/water feed nozzle
nozzle
that part of the **distal** (3.2) end for feeding air or water

3.11
angulation range
bending capability
tip deflection
bending range
angle (in degrees) between the normal axis of the **endoscope** (1.1) (0°) and the central axis of the deflected **distal** (3.2) end

3.12
flexible portion
flexible section
that part of the **insertion portion** (3.5) of a **flexible endoscope** (1.4) excluding the **distal** (3.2) end and bending section

3.13
light guide cord
light guide (or umbilical) cable
light guide flexible section
that part of an **endoscope** (1.1) which connects to a light source for transmitting illumination

3.14
eyepiece
that part of an **endoscope** (1.1) located at its **proximal** (3.3) end through which an image can be observed or to which a photographic or video camera can be attached

3.15
end-cap
removable fitting at the **proximal** (3.3) end of a **rigid ventilation bronchoscope** (1.9) to seal its lumen

[ISO 8600-2:2002]

3.16
working element
handle
element which secures an **endotherapy device** (4.1) and connects it to a **sheath** (4.2) which, when operated, moves the device backwards and forwards

3.17
bridge
element which connects a **telescope** (1.7) to a **sheath** (4.2)

3.18
ventilation connector
breathing system connector
integral part of a **rigid ventilation bronchoscope** (1.9) that permits connection to a breathing system of an anaesthetic or breathing machine

[ISO 8600-2:2002]

3.19
jet-injector
narrow-lumen tubular device utilizing compressed gases (often using the Venturi principle) to provide intermittent positive gas pressure to the lungs of a patient

[ISO 8600-2:2002]

3.20
jet ventilation
providing inflation of the lungs by intermittent release of compressed gases by means of a jet-injector within or towards the trachea and/or bronchi of a patient