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**Anaesthetic and respiratory equipment —  
Conical connectors —**

**Part 2:  
Screw-threaded weight-bearing connectors**

*Matériel d'anesthésie et de réanimation respiratoire — Raccords  
coniques —*

*Partie 2: Raccords à vis pouvant supporter un certain poids*



Reference number  
ISO 5356-2:2012(E)

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## Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 5356-2 was prepared by Technical Committee ISO/TC 121, *Anaesthetic and respiratory equipment*, Subcommittee SC 1, *Breathing attachments and anaesthetic machines*.

This third edition cancels and replaces the second edition (ISO 5356-2:2006), which has been revised by rewording the scope and by incorporating minor editorial modifications.

ISO 5356 consists of the following parts, under the general title *Anaesthetic and respiratory equipment — Conical connectors*:

- *Part 1: Cones and sockets*
- *Part 2: Screw-threaded weight-bearing connectors*

## Introduction

Whereas the conical connectors specified in ISO 5356-1 are satisfactory for lightweight breathing attachments, there is also a need for more substantial connectors to support heavy or fragile components. Factors governing the design of these connectors include robustness, simplicity, ease of sterilization and ease of engagement and disengagement by hand. They should also be compatible with connectors meeting the requirements specified in ISO 5356-1 and should, if possible, eliminate the likelihood of inadvertent misconnection, although it has to remain the responsibility of the user to check that any system in which they are used is correctly assembled before use.

Screw-threaded weight-bearing connectors specified in this part of ISO 5356 can be used for attachments within the breathing system and at the common gas outlet.

# Anaesthetic and respiratory equipment — Conical connectors —

## Part 2: Screw-threaded weight-bearing connectors

### 1 Scope

This part of ISO 5356 specifies dimensional requirements for screw-threaded weight-bearing conical connectors intended for use with inhalation anaesthesia apparatus and ventilators. Such connectors are intended for mounting heavy accessories.

This part of ISO 5356 specifies requirements for the following screw-threaded, weight-bearing conical connectors:

- 22 mm connectors;
- 22 mm/15 mm coaxial connectors.

Requirements for the application of screw-threaded, weight-bearing conical connectors are not included in this part of ISO 5356, but are or will be given in the relevant International Standards for specific medical devices and accessories.

NOTE Requirements on cones and sockets are specified in ISO 5356-1.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 5356-1:—<sup>1)</sup>, *Anaesthetic and respiratory equipment — Conical connectors — Part 1: Cones and sockets*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

##### **inhalation anaesthesia apparatus**

equipment intended for dispensing and delivering anaesthetic gases and vapours into a breathing system for delivery to the patient

#### 3.2

##### **breathing attachment**

component(s) intended to make up or complete a breathing system

NOTE Adapted from ISO 4135:2001, definition 4.1.6.

1) To be published (Revision of ISO 5356-1:2004)

**3.3 breathing system**

those gas pathways continuously or intermittently in communication with the patient's respiratory tract during any form of ventilation

NOTE 1 In practice, a breathing system usually extends from

- a) the point of supply of a controlled gas mixture, e.g. the common gas outlet of an anaesthetic machine (in some situations, particularly in lung ventilators, the point of supply may be inside a piece of equipment and should not be confused with a connection port fitted elsewhere, for example on the casing of a ventilator), or
- b) the fresh-gas inlet of a circle system, lung ventilator, T-piece, etc., or
- c) the fresh-gas inlet of a manually operated resuscitator.

NOTE 2 It usually extends to the point at which the gas mixture escapes into the atmosphere or a gas scavenging system, for example from an APL valve, the open end of a T-piece, etc.

NOTE 3 Gas pathways exclusively concerned with gas scavenging systems are not regarded as part of the breathing system.

NOTE 4 Adapted from ISO 4135:2001, definition 4.1.1.

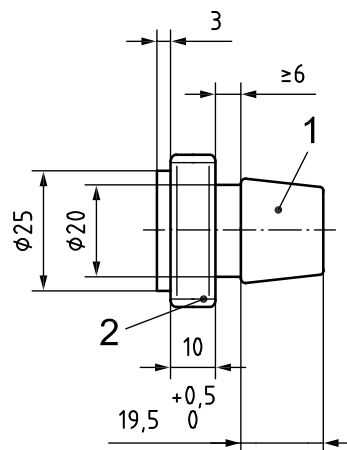
**4 Design**

The dimensions of the components of screw-threaded weight-bearing connectors shall be as shown in Figure 1.

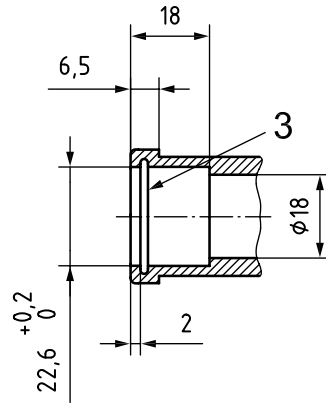
The free axial movement of the union nut on the female component shall be not more than 2 mm in order that, when the connectors are unscrewed, the male and female components shall be forced apart.

All male screw threads shall be M33 × 2, 6g, and all female screw threads shall be M33 × 2, 6H, in accordance with ISO 965-2.

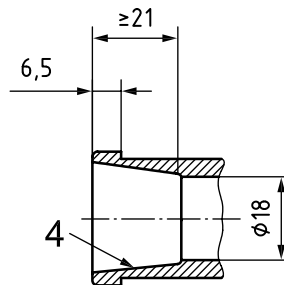
Dimensions in millimetres



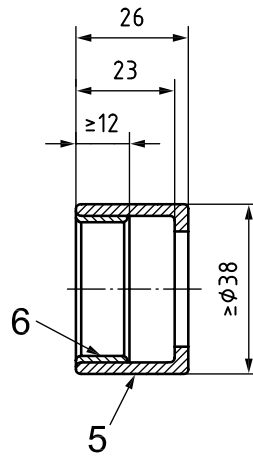
**a) Male component**



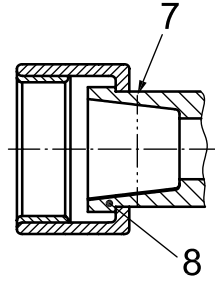
b) Female component — Parallel socket (only essential dimensions shown)<sup>a</sup>



c) Female component — Taper and socket (only essential dimensions shown)<sup>a</sup>



d) Union nut (only essential dimensions shown)<sup>b</sup>



e) Typical female component assembly<sup>b</sup>

**Key**

- 1 male 22 mm cone or 22 mm/15 mm coaxial as specified in ISO 5356-1 [male 22 mm cone as specified in Figure 2 a) of ISO 5356-1:—]
- 2 male screw thread
- 3 O-ring groove [recommended size 24,8 mm diameter × (2,3 + 0,2/0) mm width] to suit an O-ring of recommended size 22,1 mm internal diameter and 1,6 mm cross-section
- 4 22 mm female conical socket as specified in ISO 5356-1
- 5 knurling
- 6 female screw thread
- 7 position of retaining lug, shoulder or circlip
- 8 retaining shoulder

<sup>a</sup> 18 mm diameter intended for use within breathing systems.

<sup>b</sup> The union nut may be retained by a circlip in place of a shoulder.

**Figure 1 — Components for screw-threaded, weight-bearing connectors**



## Bibliography

- [1] ISO 262, *ISO general-purpose metric screw threads — Selected sizes for screws, bolts and nuts*
- [2] ISO 4135:2001, *Anaesthetic and respiratory equipment — Vocabulary*

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