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BSI Standards Publication

Laboratory installations — Capture devices with articulated extract arm

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National foreword

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Installation de laboratoire - Dispositif de capture avec bras articulé d'extraction

Laboreinrichtungen - Absaugvorrichtungen mit beweglichem Arm

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Foreword

This document (CEN/TR 16589:2013) has been prepared by Technical Committee CEN/TC 332 “Laboratory equipment”, the secretariat of which is held by DIN.

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

1 Scope

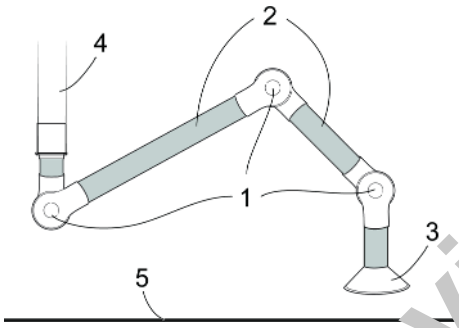
This Technical Report gives guidance regarding the selection, specification, installation and use of capture devices with articulated extract arm (abbreviated: AEAs) in laboratories. The informative material provided includes the general concept of AEAs, the variety of sub-types available, system installation issues, performance metrics and operational factors such as use, maintenance and training.

2 General description

Increasingly, capture devices with extract arm (known by a variety of names, e.g. “elephant trunks”, “snorkels”, “flexible exhausts” etc.) have been installed in laboratories mainly for the purpose of evacuating contaminants at source. They are used in low-hazard situations such as reduction of heat emitted by lab devices or capture of emissions, e.g. from HPLC equipment or in similar applications.

The capture performance of AEAs is largely dependent of the (spatial) relationship between the source of the gas, fume, vapour or dust requiring capture and the inlet hood (capture device) of an AEA. Capture devices with extract arms are for that reason only useful for example for very small pollution sources or when the pollution source is too large to reasonably be enclosed and has distinct points where the pollution might occur like a HPLC. There are today no available universal, readily-applied and normalised test methodologies for AEA's, although smoke is useful in visualising flows. For this reason care shall be taken in the selection, installation, and, critically, in-use arrangement of AEAs (as described in Clause 6). Some information can be found in VDI 2262 Part 4 (see Bibliography, [1]).

AEAs are available in a number of formats, a selection of which is illustrated in the diagrams that follow.



Key

1 spherical joints

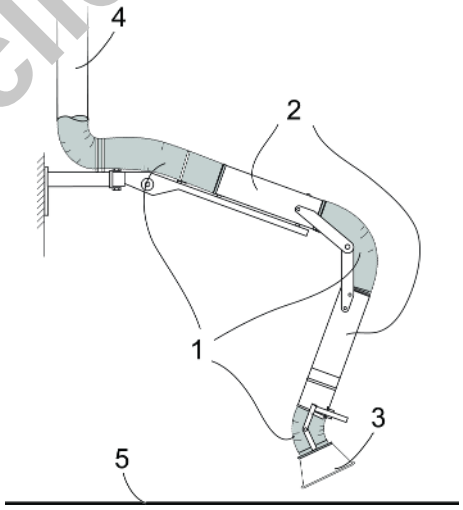
2 rigid ductwork

3 inlet hood

4 exhaust

5 bench top

Figure 1 — Rigid ducts with spherical joints exhausting at high level



Key

1 joints from flexible ductwork

2 rigid ductwork

3 inlet hood

4 exhaust

5 bench top

Figure 2 — Rigid ducts with flexible joints exhausting at high level