

## Gas welding equipment — Air-aspirated hand blowpipes — Specifications and tests

*Équipement de soudage aux gaz — Chalumeaux manuels aéro-gaz à air aspiré — Spécifications et essais*

ITeH STANDARD PREVIEW

FDIS stage

ISO 9012

<https://standards.iteh.ai/catalog/standards/sist/7988f4e0-cdb0-4d83-998e-8ec623aa7eff/iso-9012>

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: + 41 22 749 01 11  
~~Email~~**E-mail:** [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

## iTeh STANDARD PREVIEW (standards.iteh.ai)

ISO 9012

<https://standards.iteh.ai/catalog/standards/sist/7988f4e0-cdb0-4d83-998e-8ec623aa7eff/iso-9012>

## Contents

Foreword .....	iv
1 Scope .....	1
2 Normative references.....	1
3 Terms and definitions .....	1
4 Main types of aspiration.....	3
5 Apparatus.....	6
6 Requirements .....	8
6.1 General .....	8
6.2 Materials.....	8
6.3 Valves.....	8
6.4 Shank.....	8
6.5 Hose connection .....	8
6.6 Gas tightness .....	9
6.7 Gas-flow rate .....	9
6.8 Safety against sustained backfiring and blowing-off of the flame.....	9
6.9 Flame adjustment.....	9
6.10 Stability in air currents.....	9
6.11 Ignition .....	9
7 Tests .....	9
7.1 General .....	9
7.2 General checks .....	10
7.3 Operational tests .....	10
7.4 Shank-overheating tests.....	10
7.5 Gas tightness .....	10
7.6 Valve endurance test .....	10
7.7 Checking gas-flow rates.....	10
7.8 Safety against sustained backfire and blowing-off of the flame .....	10
7.9 Stability in air currents.....	11
7.10 Verification of the device against inadvertent operation.....	11
8 Marking .....	11
8.1 General .....	11
8.2 Marking of the shank.....	11
8.3 Marking of the attachment.....	11
9 Code letters identifying the gas(es) used.....	11
10 Instructions for use .....	12
Bibliography .....	13

## Bibliography

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 8, *Equipment for gas welding, cutting and allied processes*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 9012:2008), which has been technically revised.

The main changes are as follows:

- ~~entries 3.4~~~~3.4~~ and ~~3.5~~~~3.5~~ added;
- ~~in Clause 4~~~~Clause 4~~, the ~~“types of aspiration”~~ in ~~Figures 2~~~~Figures 2~~ to ~~4~~~~4~~ rearranged and ~~Table 1~~~~Table 1~~ revised;
- ~~in 5.1.3~~~~5.1.4~~, text revised and NOTES 1 and 2 added;
- ~~in 6.5~~~~6.5~~, ISO/TR 28821 referred to instead of the withdrawn ISO 3253;
- ~~in 6.6~~~~6.6~~, NOTES 1 and 2 added because there are cases where airtightness cannot be obtained even if the adjustment of air inlet (item 12) is set to the closed position;
- ~~in 6.9~~~~6.9~~, ~~mandatory~~ requirements added;

- in ~~7.1~~<sup>7.1</sup>, the accuracy of gas pressure and flow rate measuring equipment from ~~7.7~~<sup>7.7</sup> added;
- in ~~7.6~~<sup>7.6</sup>, the number of cycles for the life cycle test changed from 5 000 cycles to 1 500 cycles;
- in the Bibliography, ISO/TR 28821 referred to instead of the withdrawn ISO 3253.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html). Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

ISO 9012

<https://standards.iteh.ai/catalog/standards/sist/7988f4e0-cdb0-4d83-998e-8ec623aa7eff/iso-9012>



# Gas welding equipment — Air-aspirated hand blowpipes — Specifications and tests

## 1 Scope

This document specifies requirements and test methods for air-aspirated hand blowpipes.

This document applies to blowpipes for brazing, soldering, heating, fusion and other allied thermal processes, which use a fuel gas and aspirated air (injector-type blowpipes) and are intended for manual use.

This document is applicable to:

- —air-aspirated hand blowpipes which are fed with a fuel gas in the gaseous phase, at a controlled pressure by a regulator, through a gas supply hose;
- —air-aspirated hand blowpipes which are fed with a liquefied fuel gas in the gaseous phase at the container pressure, through a gas supply hose;
- —so-called liquid-phase blowpipes which are fed with a fuel gas in the liquid phase, and where thermal evaporation takes place within the blowpipe.

It does not apply to blowpipes in which the fuel gas leaves the injector in the liquid phase, or to so-called “cartridge” blowpipes where the gas supply is fixed directly onto the blowpipe and possibly constitutes the shank.

NOTE Figures 1 to 4 are given for guidance only, to facilitate the explanation of the terms. They do not specify the construction details, which are left to the discretion of the manufacturer.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 9090, *Gas tightness of equipment for gas welding and allied processes*

ISO 9539, *Gas welding equipment — Materials for equipment used in gas welding, cutting and allied processes*

ISO 10225, *Gas welding equipment — Marking for equipment used for gas welding, cutting and allied processes*

## 3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

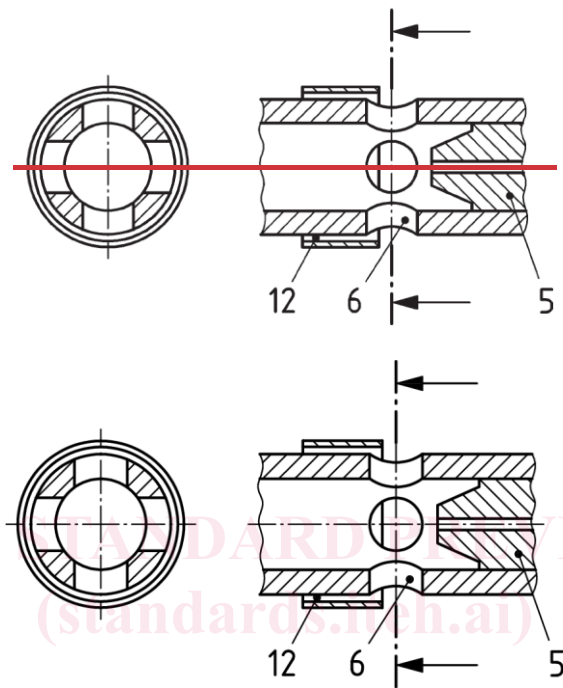
- —ISO Online browsing platform: available at <https://www.iso.org/obp>
- —IEC Electropedia: available at <https://www.electropedia.org/>

3.1

**air-aspirated hand blowpipe**

blowpipe in which the fuel gas leaves the injector in the gaseous phase, being subsequently mixed in the mixing zone with a sufficient quantity of air, aspirated from the ambient atmosphere, to produce a technically usable flame

Note 1 to entry: See [Figure 1](#) [Figure 1](#).



NOTE See [Table 1](#) [Table 1](#) for the key to [Figure 1](#) [Figure 1](#).

**Figure 1 — Schematic drawing of the mixing zone**

3.2

**sustained backfire**

penetration of the flame into the blowpipe, with continued burning upstream of the part intended for this purpose, i.e. within:

- the blowpipe nozzle, behind the grid or flame-supporting devices;
- the tube;
- the blowpipe shank

3.3

**blowing-off of the flame**

detachment of the flame from the blowpipe nozzle, possibly causing the flame to be extinguished

3.4

**maximum flow rate**

flow rate of fuel gas of the blowpipe, which was obtained by fully opening the valve at the maximum inlet pressure given by the manufacturer

3.5

**minimum flow rate**

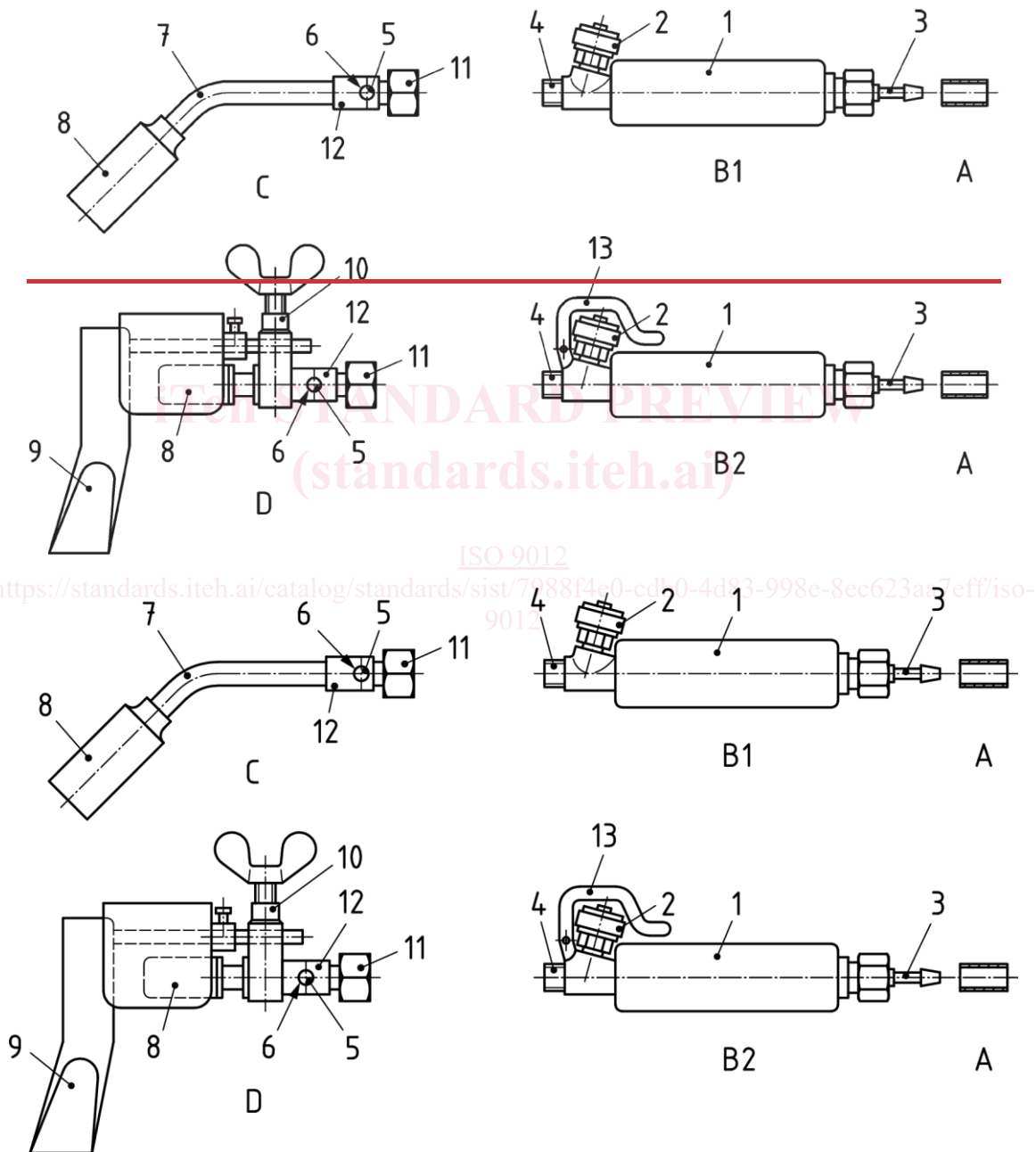
flow rate of the proper fuel gas flow range at the minimum inlet pressure given by the manufacturer



## 4 Main types of aspiration

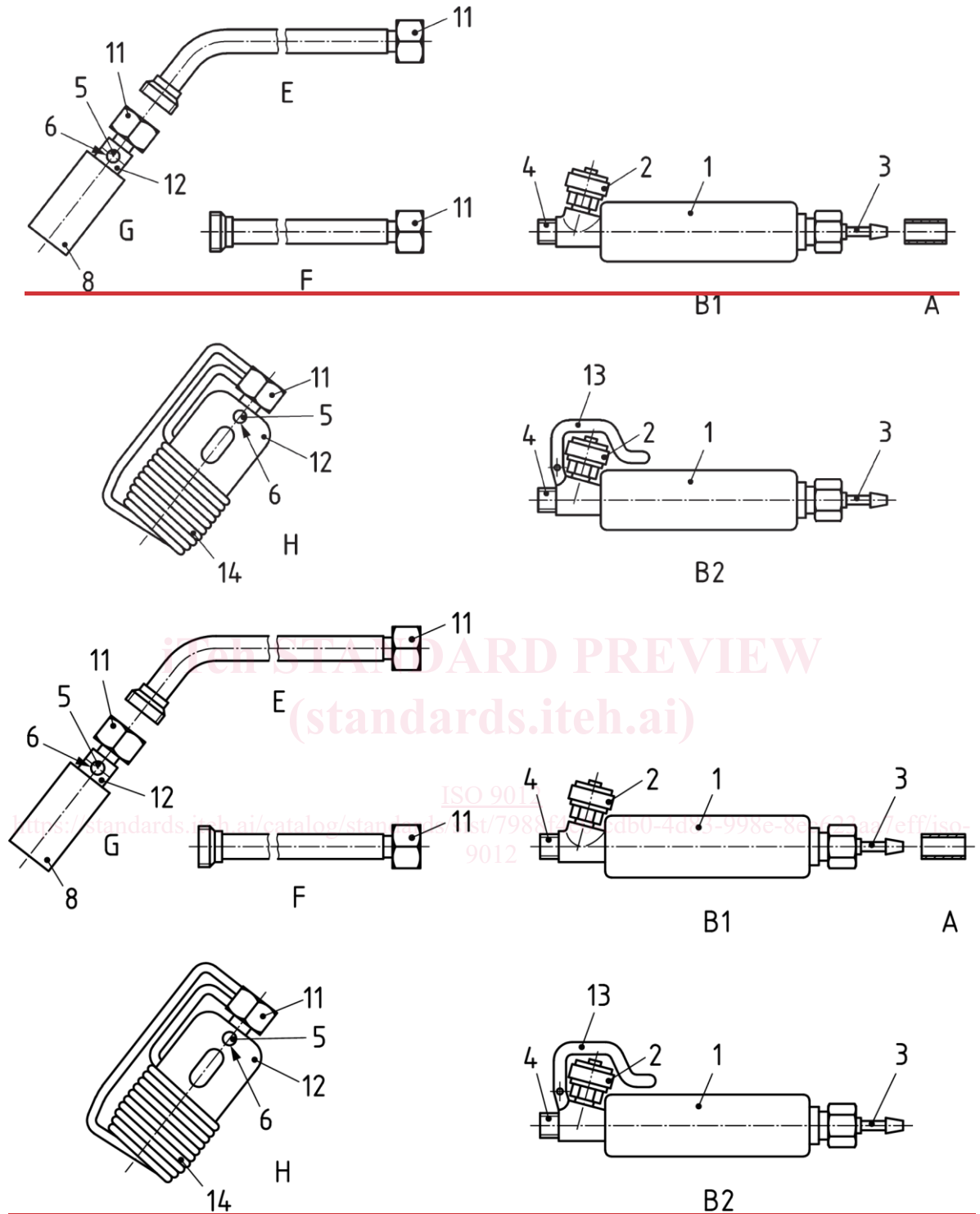
Depending on the location of the mixing zone, a distinction is made between blowpipes with air aspiration in the:

- a) attachment (see Figure 2);
- b) nozzle (see Figure 3);
- c) shank (see Figure 4).



NOTE See Table 1 for the key to Figure 2.

Figure 2 — Examples of blowpipes with air aspiration in the attachment



NOTE See [Table 1](#) for the key to [Figure 3](#).

**Figure 3 — Examples of blowpipes with air aspiration in the nozzle**