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Indian Standard

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भाग 2 स्वास्थ्य और सुरक्षा

(पहला पुनरीक्षण)

Welding and Allied Processes — Vocabulary
Part 2 Health and Safety

(First Revision)

ICS 13.100, 01.040.25, 25.160.10

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

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NATIONAL FOREWORD

This Indian Standard (Part 2) (First Revision) which is identical to ISO 25901-2 : 2022 'Welding and allied processes — Vocabulary — Part 2: Health and Safety' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Welding General and its Applications Sectional Committee and approval of the Metallurgical Engineering Division Council.

This standard was first published in 1957. In order to ensure harmonization of the vocabulary used in the field of welding on an international level, the committee decided to revise this standard to bring it in line with ISO standards by splitting in four parts as the requirements of IS 812 : 1957 are covered in multiple ISO standards. This revision of this standard has been brought out to align it with the latest version of ISO 25901-2 : 2022 under dual numbering system.

This Indian Standard is published in four parts. The other parts in this series are:

Part 1 General terms

Part 3 Welding processes

Part 4 Arc welding

The text of ISO standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical with those used in Indian Standard. Attention is especially drawn to the following:

a) Wherever the words `International Standard' appear referring to this standard, it should be read as `Indian Standard'; and

b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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Indian Standard

WELDING AND ALLIED PROCESSES — VOCABULARY

PART 2 HEALTH AND SAFETY

(First Revision)

1 Scope

This document contains terms and definitions applicable to health and safety in welding and allied processes. It is intended to be referenced in other documents dealing with this subject.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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 General terms

3.1.1
exposure
subjection to radiation, particulates or *chemical agents* (3.1.2) that could have harmful effects

[SOURCE: ISO 29464:2017, 3.6.4, definition modified.]

3.1.2
chemical agent
chemical element or compound, on its own or admixed as it occurs in the natural state or as produced, used or released, including release as waste, by any work activity, whether or not produced intentionally and whether or not placed on the market

3.1.3
work pattern
sequence of activities carried out by the worker during the period under consideration

3.1.4
precautionary label
informative marking placed by the manufacturer on a product, calling attention to significant hazards and their consequences to persons or property, indicating how such hazards can be avoided and listing any other sources of information

3.1.5
arc eye
irritation of the eye caused by *exposure* (3.1.1) to *arc radiation* (3.1.6)

3.1.6
arc radiation
non-ionizing radiation emitted from an arc and composed of visible, ultraviolet and infrared rays

[SOURCE: IIW VI-1133-2015]

3.1.7
safety voltage
<welding> maximum voltage at which welding or any other allied process involving no-load voltage will be permitted in a highly conductive or confined space

[SOURCE: IIW VI-1133-2015, modified — Domain added and definition revised.]

3.1.8
welding fume
airborne particles generated during welding
Note 1 to entry: The diameter of the airborne particles is typically smaller than 1 μm.

3.1.9
gas
<welding fume> thermal degradation substance generated when welding and sampled in the gaseous phase

3.1.10
fume class
category of *welding fumes* (3.1.8) classified according to their effect on health

[SOURCE: IIW VI-1133-2015]

3.1.11
emission rate
<welding fume> mass of the particles emitted by the *welding fume* (3.1.8) source measured against time
Note 1 to entry: Emission rate is expressed in milligrams per second.

3.1.12
key component of a welding fume
component of a *welding fume* (3.1.8) having the greatest occupational hygienic significance
Note 1 to entry: It is the component whose *limit value* (3.3.1) is exceeded at the lowest welding fume concentration.

3.1.13
principal component of a welding fume
component of a *welding fume* (3.1.8) which is of occupational hygienic significance

3.1.14
total airborne particles

all particles surrounded by air in a given volume of air

Note 1 to entry: Because all measuring instruments are size-selective to some extent, it is often impossible to measure the total airborne particle concentration.

3.1.15
breathing zone

<welding> space around the nose and mouth from which a worker's breath is taken

Note 1 to entry: The breathing zone is illustrated in Figure 1. Technically, it corresponds to a hemisphere (generally accepted to be 30 cm in radius) extending in front of the human face, centred on the mid-point of a line joining the ears. The base of the hemisphere is a plane through this line, the top of the head and the larynx. This technical description is not applicable when respiratory protective equipment is used or the *welder's helmet* (3.5.8) is lowered.

Note 2 to entry: See *operator's breathing zone* (3.1.16).

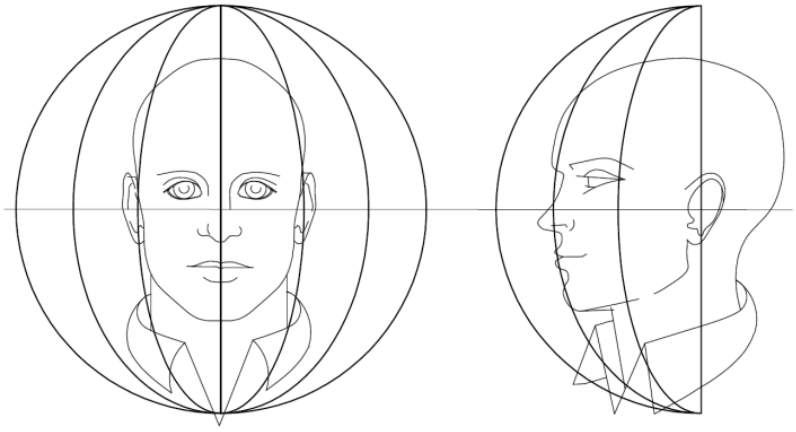


Figure 1 — Schematic layout of the breathing zone

3.1.16
operator's breathing zone

<welding> restricted *breathing zone* (3.1.15) behind any face protection equipment, when worn

Note 1 to entry: It is very important to sample as near as possible to the operator's nose and mouth when measuring *exposure* (3.1.1) to *welding fume* (3.1.8) because of the very steep concentration gradients occurring in the immediate vicinity of the plume. It is therefore essential to sample behind a *face shield* (3.5.4), when one is worn, since it is the air in this region that is inhaled.

3.1.17
shop primer

<welding> material applied to an unpainted metal surface for protective purposes, which does not have to be removed prior to welding and does not prevent the making of an acceptable weld

Note 1 to entry: Shop primers are typically applied with a thickness of between 15 µm and 30 µm.

3.1.18
thin organic coating

<welding> material applied as a very thin film to an unpainted metal surface for protective purposes, which does not have to be removed prior to welding and does not prevent the making of an acceptable weld

Note 1 to entry: Thin organic coatings are typically applied with a thickness of between 1 µm and 3 µm.

3.1.19
weld-through adhesive

polymer applied prior to welding to a primed or unpainted metal surface for the purpose of bonding, which does not prevent the making of an acceptable weld

3.1.20
weld-through sealant

mastic or other gap-filling material applied prior to welding to an unpainted metal surface for non-pressure sealing purposes, which does not prevent the making of an acceptable weld

3.1.21
weld-through oil

material composed of aliphatic and aromatic hydrocarbons applied for protective purposes and/or lubrication during pressing operations, which does not prevent the making of an acceptable weld

Note 1 to entry: The aromatic hydrocarbon content of weld-through oils is typically less than 10%.

3.1.22
weld-through wax

material composed of esterified fatty acids applied for protective purposes and/or lubrication during pressing operations, which does not prevent the making of an acceptable weld

3.2 Terms related to sampling

3.2.1
air sample

product of the process of *air sampling* (3.2.2)

Note 1 to entry: An air sample is frequently considered to include the *collection substrate(s)* (3.2.20) as well as the collected biological and/or *chemical agents* (3.1.2). Sometimes it is considered to be the fractional part of a larger volume of air.

3.2.2
air sampling

process consisting of the collection, withdrawal or isolation of a fractional part of a larger volume of air

Note 1 to entry: Air sampling can include the simultaneous isolation of selected components.

3.2.3
air sampler
sampler
device for separating chemical and/or biological agents from the surrounding air
Note 1 to entry: Air samplers are generally designed for a particular purpose, for example for sampling *gases* (3.1.9), vapours or airborne particles.

3.2.4
aerosol sampler
airborne particle sampler
airborne particulate sampler
device used to collect airborne particles
Note 1 to entry: The collection of airborne particles can be either active or passive.

3.2.5
inhalable sampler
aerosol sampler (3.2.4) that is used to collect the *inhalable fraction* (3.2.6)

3.2.6
inhalable fraction
mass fraction of *total airborne particles* (3.1.14), which is inhaled through the nose and mouth
Note 1 to entry: The inhalable fraction depends on the speed and direction of the air movement, on the rate of breathing and on other factors.

3.2.7
respirable sampler
aerosol sampler (3.2.4) used to collect the *respirable fraction* (3.2.8)

3.2.8
respirable fraction
mass fraction of inhaled particles penetrating to the unciliated airways

3.2.9
personal sample
product of the process of *personal sampling* (3.2.10)

3.2.10
personal sampling
process of *air sampling* (3.2.2) carried out using a *personal sampler* (3.2.11)

3.2.11
personal sampler
personal sampling device
air sampler (3.2.3), attached to a person, collecting *gases* (3.1.9), vapours or airborne particles in the *breathing zone* (3.1.15) to determine *exposure* (3.1.1) to biological and/or *chemical agents* (3.1.2)

3.2.12
diffusive sampler
passive sampler

device which is capable of taking samples of *gases* (3.1.9) or vapours from the atmosphere at a rate controlled by a physical process such as gaseous diffusion through a static air layer or permeation through a membrane, but which does not involve the active movement of air through the sampler

3.2.13
diffusion tube
diffusive tube
tube-type diffusive sampler

diffusive sampler (3.2.12) across which the *gas* (3.1.9) or vapour passes by diffusion to the sorbent

Note 1 to entry: The cross-sectional area is small in relation to the internal air gap.

3.2.14
diffusive badge
badge-type diffusive sampler
passive badge

diffusive sampler (3.2.12) in which the *gas* (3.1.9) or vapour passes to the sorbent by permeation through a thin solid membrane or diffusion across a porous membrane

Note 1 to entry: The cross-sectional area is large in relation to the internal air gap.

3.2.15
diffusive detector tube
diffusive indicator tube
diffusive colorimetric tube

diffusion tube (3.2.13), similar in construction to a *pumped detector tube* (3.2.16)

Note 1 to entry: The length of the stain produced provides a measure of the *exposure* (3.1.1) dose of a specified *chemical agent* (3.1.2) in air, stated in ppm/h.

3.2.16
pumped detector tube
pumped indicator tube
pumped colorimetric tube

glass tube containing chemical reagents in which a colour change can be produced when a sample of the atmosphere is drawn through it

Note 1 to entry: The length of the stain produced provides a measure of the concentration of a specified *chemical agent* (3.1.2) in air.

3.2.17
pumped sorbent tube

tube, usually made of metal or glass, containing an active sorbent or reagent-impregnated support, through which sampled atmosphere is passed at a rate controlled by an *air sampling* (3.2.2) pump

3.2.18
short-term detector tube

detector tube providing a means of obtaining a rapid measurement (typically in less than 15 min) of the concentration of a specified *chemical agent* (3.1.2) in air

3.2.19
long-term detector tube

detector tube providing a means of obtaining a measurement of the *time-weighted average concentration* (3.3.10) of a specified *chemical agent* (3.1.2) in air

3.2.20
collection substrate
collection medium

medium on which airborne biological and/or *chemical agents* (3.1.2) are collected for subsequent analysis

EXAMPLES Filters, polyurethane foams, sampling cassettes.

3.2.21
collected sample

airborne particles collected on the *collection substrate* (3.2.20) for subsequent analysis

Note 1 to entry: Sample deposits in other parts of the sampler, such as inner walls, are only included in the collected sample where the method description includes specific instructions for the recovery of such deposits.

3.2.22
isokinetic sampler

device for collecting aerosol samples at the same velocity as the air being sampled

3.3 Terms related to measurements

3.3.1
limit value

reference figure for the concentration of a biological or *chemical agent* (3.1.2) in air

3.3.2
occupational exposure limit
OEL

limit of *time-weighted average concentration* (3.3.10) of a *chemical agent* (3.1.2) in the air within the *breathing zone* (3.1.15) of a worker in relation to a specified *reference period* (3.3.3)

Note 1 to entry: *Limit values* (3.3.1) are mostly set for reference periods of 8 h but can also be set for shorter periods or concentration excursions. Limit values for *gases* (3.1.9) and vapours are stated in milligrams per cubic metre for a temperature of 20 °C and a pressure of 101,3 kPa. Limit values for airborne particles as well as mixtures of particles and vapours are given in milligrams per cubic metre or multiples of that unit for actual environmental conditions (temperature, pressure) at the workplace. Limit values of fibres are given in number of fibres per cubic metre or number of fibres per cubic centimetre for actual environmental conditions (temperature, pressure) at the workplace.

3.3.3
reference period

<occupational health> specified period of time for which the *occupational exposure limit* (3.3.2) value of a biological or *chemical agent* (3.1.2) applies

Note 1 to entry: The reference period is usually 8 h for long-term measurements and 15 min for short-term measurements.

3.3.4
single component welding fume limit value

limit value (3.3.1) calculated for a single component which, if not exceeded, ensures that the component does not have a concentration above its limit value

3.3.5
key component welding fume limit value

limit value (3.3.1) which, if not exceeded, ensures that no component of the *welding fume* (3.1.8) has a concentration above its limit value

3.3.6
additive limit value

<occupational health> *limit value* (3.3.1) which, in the absence of specific knowledge of the combined health effects of a mixture of *chemical agents* (3.1.2), is calculated on the basis that the health effects of the various components are at least additive

Note 1 to entry: For complex substances that are mixtures of chemical agents, such as *welding fume* (3.1.8), individual substances can have specific, independent health effects or synergistic, additive or antagonistic health effects.

3.3.7
maximum allowable concentration
MAC value

<occupational health> maximum concentration of an atmospheric contaminant in the form of *gas* (3.1.9), vapour or dust at the workplace that will not adversely affect the health of operators for a long period of time

Note 1 to entry: The period considered is usually 8 h a day and up to 45 h per week.

[SOURCE: IIW VI-1133-2015, modified — Domain added and part of the definition moved to Note 1 to entry.]

3.3.8
maximum value of concentration

<occupational health> value of concentration which should normally never be exceeded, even for a short period of time

[SOURCE: IIW VI-1133-2015, modified — Term revised and domain added.]

3.3.9
time-weighted average
TWA

<occupational health> quantitative average determined from the measurement of a sample, which has been taken over a known time interval, multiplied by the desired time interval expression and divided by the total time over which the sample was obtained

Note 1 to entry: For occupational exposure, a working shift of 8 h is commonly used as the averaging time. Values are typically expressed as a concentration of a contaminant in air or decibels, in the case of noise exposure.

3.3.10
time-weighted average concentration
TWA concentration

<occupational health> concentration of a *chemical agent* (3.1.2) in the atmosphere, averaged over a *reference period* (3.3.3)

3.3.11
screening measurements of time-weighted average concentration

<occupational health> measurements performed to obtain basic information on the *exposure* (3.1.1) level

Note 1 to entry: The measurements are used to decide whether an exposure problem exists and, if so, to further investigate it.

Note 2 to entry: Screening measurements of time-weighted average concentration can also be used to determine if exposure is well below or well above the *limit value* (3.3.1).

3.3.12
screening measurements of variation of concentration in time and/or space

<occupational health> measurements performed to provide information on the likely pattern of concentration of *chemical agents* (3.1.2)

Note 1 to entry: Screening measurements of variation of concentration in time and/or space can be used to identify locations and periods of elevated *exposure* (3.1.1) and to set the duration and frequency of sampling for measurements for comparison with *limit values* (3.3.1). Emission sources can be located and the effectiveness of ventilation or other technical measures can be estimated.

3.3.13
bias

difference between the expectation of a test result or measurement result and a true value

Note 1 to entry: Bias is the total systematic error contrasted with the random error. There can be one or more systematic error components contributing to the bias. A larger systematic difference from the true value is reflected by a larger bias value.

Note 2 to entry: The bias of a measuring instrument is normally estimated by averaging the error of indication over an appropriate number of repeated measurements. The error of indication is the indication of a measuring instrument minus a true value of the corresponding input quantity.

Note 3 to entry: In practice, the accepted reference value is substituted for the true value.

3.3.14
interferent

<air sampling> component of the *air sample* (3.2.1), excluding the constituent(s) to be measured, affecting the instrument reading

3.3.15
welding fume source

origin of *welding fume* (3.1.8) used to perform separation efficiency tests

3.4 Terms related to equipment

3.4.1
fume extractor

<welding> device designed to extract the fume generated during welding or allied processes

[SOURCE: IIW VI-1133-2015, modified — Domain added and a cross-reference deleted.]

3.4.2
welding fume separation equipment

air filtration equipment used to separate particles generated by welding and allied processes from workplace atmosphere

Note 1 to entry: Some separation equipment is designed to also remove *gases* (3.1.9).

3.4.3
capture device

<welding> equipment for capturing *welding fume* (3.1.8) at source

3.4.4
suction equipment

unit with air mover, with or without a filter

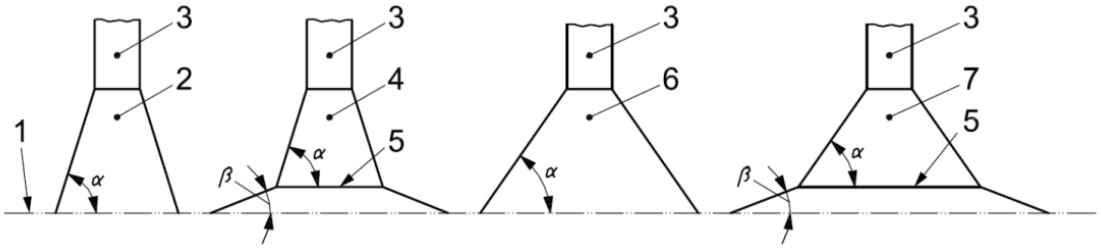
3.4.5
local exhaust ventilation
LEV

use of extraction to remove contaminated air at or near to its source

3.4.6
entry plane

<welding fume capture device> outermost area of a *capture device* (3.4.3)

Note 1 to entry: The entry plane is illustrated in Figure 2 as key reference 1.



Key
1 entry plane (cross-sectional area for capture devices without flange)
2 nozzle
3 duct
4 nozzle with flange
5 cross-sectional area of a flanged capture device ($\beta \geq 30°$)
6 hood
7 hood with flange
α angle between entry plane and nozzle or hood
β angle between entry plane and flange

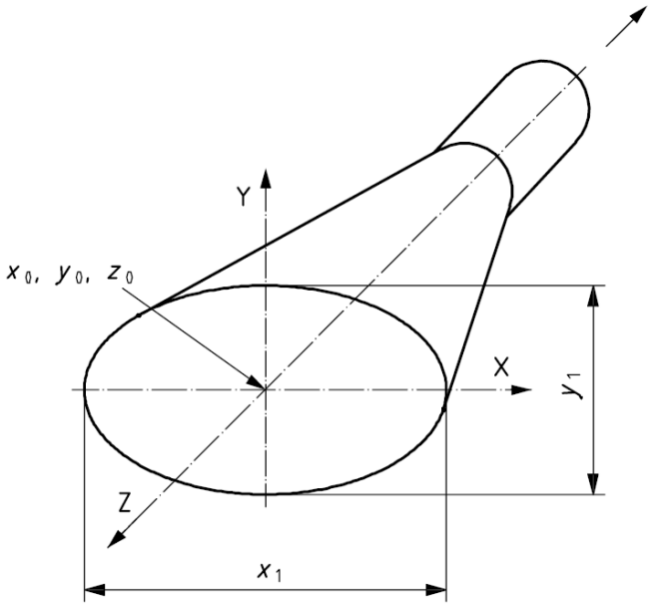
Figure 2 — Entry plane and cross-sectional area of different designs of capture device

3.4.7
aspect ratio

<welding fume capture device> ratio of the lengths, x and y, in the *entry plane* (3.4.6), with $x_1 \geq y_1$

Note 1 to entry: The aspect ratio is 1 for a circular device and greater than 1 for other shapes.

Note 2 to entry: The aspect ratio is illustrated in Figure 3.



Key

x_0, y_0, z_0	centre point of the entry plane and origin for the measurement point coordinates
x_1	length of the entry plane of the capture device in the X-direction ($x_1 \geq y_1$)
y_1	length of the entry plane of the capture device in the Y-direction ($x_1 \geq y_1$)

Figure 3 — Schematic layout for a capture device

3.4.8
suction field
capture zone

<welding fume capture device> volume around a *capture device* (3.4.3) in which the air velocity required to capture *welding fume* (3.1.8) is exceeded

3.4.9
measurement plane

<welding fume capture device> plane, parallel to the *entry plane* (3.4.6), in which measurements of air velocity are made

3.4.10
cross-sectional area

<welding fume capture device> area of the opening of a *capture device* (3.4.3) in the *entry plane* (3.4.6) for a *nozzle* (3.4.11) or *hood* (3.4.12) without a *flange* (3.4.15) or area of a capture device in the plane in which the flange is attached, excluding the area of any obstructions in the entry plane (for a nozzle or hood with a flange)

Note 1 to entry: The cross-sectional area of a flanged capture device is illustrated in Figure 2 as key reference 5.

3.4.11
nozzle
capture nozzle

<welding fume capture device> *capture device* (3.4.3) with an angle, α, smaller than 60° between the side of the device and the *entry plane* (3.4.6)

Note 1 to entry: The nozzle is illustrated in Figure 2 as key reference 2.

3.4.12
hood

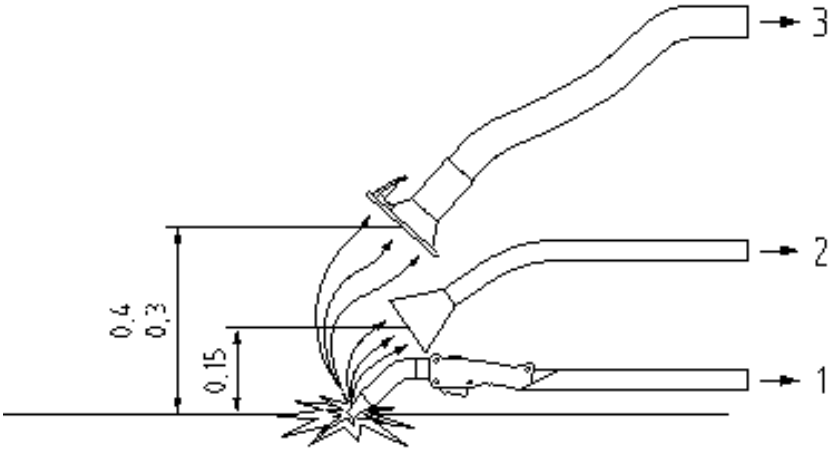
<welding fume capture device> *capture device* (3.4.3) with an angle, α, greater than or equal to 60° between the side of the device and the *entry plane* (3.4.6)

Note 1 to entry: The hood is illustrated in Figure 2 as key reference 6.

3.4.13
captor hood
captor nozzle

<welding fume capture device> equipment, movable or static, used for capturing *welding fume* (3.1.8) when connected to an extraction source

Note 1 to entry: For an overview of the different extraction devices, see Figure 4.



Dimensions in metres

Key
1 on-torch extraction, 50 m^3/h to 100 m^3/h, 5 kPa to 18 kPa
2 high vacuum extraction, 100 m^3/h to 150 m^3/h, 5 kPa to 10 kPa
3 low vacuum extraction, 700 m^3/h to 1500 m^3/h, 800 Pa to 2 000 Pa

Figure 4 — Overview of extraction devices and common air volume flow rates and pressure

3.4.14
receiving hood
receptor hood
canopy

<welding fume capture device> equipment, movable or static, normally positioned above a hot process, where the contaminated air is propelled into it by process-induced air movement

3.4.15
flange

<welding fume capture device> surface extending outwards from, and almost parallel to ($\beta < 30°$), the *entry plane* (3.4.6) of a *capture device* (3.4.3), providing a barrier to unwanted air flow from behind

Note 1 to entry: A *nozzle* (3.4.11) with flange and a *hood* (3.4.12) with flange are illustrated in Figure 2 as key references 4 and 7, respectively.

3.4.16
separation efficiency by mass

<welding fume>ratio of the mass of particles retained by *welding fume separation equipment* (3.4.2) to the mass of particles entering the equipment during a given period

3.4.17
minimum air volume flow rate

<welding fume> air volume flow rate required for effective capture of *welding fume* (3.1.8)

Note 1 to entry: The minimum air volume flow rate depends on the type and the geometric dimensions of the *capture device* (3.4.3) and the test positions selected to demonstrate the extent of the *suction field* (3.4.8).

3.4.18
free-standing unit

<welding fume> *welding fume separation equipment* (3.4.2) with an integrated fan

3.4.19
modular system

<welding fume> *welding fume separation equipment* (3.4.2) with a scalable filter system including single or multiple filter elements, usually connected to a single fan

3.4.20
downdraught ventilation table

<welding fume> table on which the working surface consists of a grille through which air and fume is extracted, so that no fume rises towards the operator (welder)

[SOURCE: IIW VI-1133-2015, modified — Cross-reference deleted.]

3.4.21
on-torch extraction device
on-gun extraction device

equipment, integrated or attached on a welding torch, used for capturing *welding fume* (3.1.8)

Note 1 to entry: Due to the state of the art, on-torch extraction devices for TIG welding are not covered by this definition.

Note 2 to entry: For an overview of the different extraction devices, see Figure 4.

3.4.22
air ejector

<welding fume> device in which extraction of fume from the welding area is achieved by compressed air using the Venturi principle

[SOURCE: IIW VI-1133-2015, modified — Domain added.]

3.4.23
filter protector
DEPRECATED: spark arrester

<welding fume capture device> device normally positioned at the intake of the welding fume separation equipment (3.4.2), to minimize the possibility of the damaging impact of sparks or large particles on filter media

EXAMPLES Cyclones, spin separators, baffles, sieves.

Note 1 to entry: Filter media can also be protected against sparks and large particles by the internal design of the welding fume separation equipment.

Note 2 to entry: A filter protector can also be designed to protect against flame damage.

3.4.24
filter cleaning system

<welding fume> system designed to clean the filter of *welding fume separation equipment* (3.4.2) in order to restore the air flow rate through the filter when it is reduced by an accumulation of *welding fume* (3.1.8) particles

3.4.25
on-line filter cleaning system

<welding fume> *filter cleaning system* (3.4.24) operating while *welding fume separation equipment* (3.4.2) is running

Note 1 to entry: The on-line filter cleaning system is initiated either automatically or manually.

3.4.26
off-line filter cleaning system

<welding fume> *filter cleaning system* (3.4.24) operating after the air mover of the filtration equipment is switched off

Note 1 to entry: The off-line filter cleaning system is initiated either automatically or manually.

3.4.27
test chamber

<welding fume> semi-enclosed extraction *enclosure* (3.4.28) in which *welding fume* (3.1.8) capture efficiency testing is performed

3.4.28
enclosure
chamber

<welding fume> fully or partially enclosed space where the process takes place

Note 1 to entry: The enclosure is designed to contain and prevent the escape of hazardous substances into the workshop air.

3.4.29
test chamber sampling duct

duct between the *test chamber* (3.4.27) and an extraction fan in which all the *welding fume* (3.1.8) generated can be collected or sampled isokinetically

3.4.30
bubble flow meter
primary device for measuring *gas* (3.1.9) flow rate, where the time for a bubble of gas, defined by a soap film, to pass through a calibrated volume in a vertical tube is measured

3.4.31
direct reading instrument
direct reading electrical apparatus

apparatus in which the presence of a *gas* (3.1.9) or vapour causes a change that is manifest as an automatically generated electrical signal

Note 1 to entry: When applied to a calibrated indicating or recording meter, this gives a direct measure of the concentration of the relevant gas or vapour.

3.4.32
welding curtain
curtain placed around the workplace to protect the surrounding area against harmful radiation and spatter

[SOURCE: IIW VI-1133-2015, modified — cross-reference deleted.]

3.4.33
safety isolating transformer
transformer with a reinforced insulation between primary and secondary circuits

Note 1 to entry: This type of transformer is used for very low voltage or with a transformer ratio of 1 for avoidance of any electrical contact.

[SOURCE: IIW VI-1133-2015, modified — Part of the definition moved to Note 1 to entry.]

3.5 Terms related to personal protective equipment

3.5.1
protective clothing
<welding> clothing to protect the body from harmful radiation and spatter

[SOURCE: IIW VI-1133-2015, modified — Domain added and definition revised.]

3.5.2
welding protector
equipment providing protection to the wearer against hazards generated by welding and allied processes

3.5.3
face protector
face guard
<welding> *protective clothing* (3.5.1) intended to reduce the risk of injury to the eyes and the face

3.5.4
face shield
welder's face shield
welder's shield

<welding> protective device worn in front of the face to shield it from injury during welding or cutting

Note 1 to entry: It is usually fitted with a *filter plate* (3.5.11) and a *cover plate* (3.5.14).

[SOURCE: IIW VI-1133-2015, modified — Admitted term and domain added; cross-reference deleted; Note 1 to entry revised.]

3.5.5
auto-darkening face shield
auto-darkening eye protector

<welding> *face shield* (3.5.4) with an *auto-darkening plate* (3.5.13)

3.5.6
hand shield
welder's hand shield

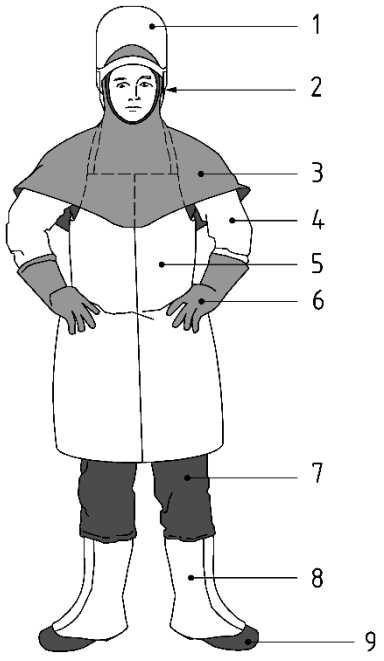
<welding> *face shield* (3.5.4) held in the hand

[SOURCE: IIW VI-1133-2015, modified — Admitted term and domain added, definition revised, cross-reference removed.]

3.5.7
welder's mask

face shield (3.5.4) worn in front of the face, secured in position on the head by a *harness* (3.5.16)

Note 1 to entry: A welder's mask is illustrated in Figure 5 as key reference 1.



Key

1 welder's mask
2 earing protection
3 welder's hood
4 welder's jacket
5 welder's apron
6 welder's gloves
7 leg protection
8 gaiters
9 safety footwear

Figure 5 — Typical personal protective equipment for a welder

3.5.8
welder's helmet

protective device for the whole head, equipped with a *face shield* (3.5.4), generally mounted on a *harness* (3.5.16)

3.5.9
safety glasses
welder's spectacles

<welding> frame, with lateral protection, holding suitable filters in front of the eyes to give them protection

Note 1 to entry: Safety glasses are usually held in position with sidearms or a *headband* (3.5.17).

3.5.10
welder's goggles

device to protect the eyes from radiation and other risks arising from welding and allied processes

3.5.11

filter plate
filter glass

<welding> optical material protecting the eyes against excessive ultraviolet, infrared and visible radiation

[SOURCE: IIW VI-1133-2015, modified — Admitted term replaced, domain added, cross-reference deleted.]

3.5.12
filter grade
scale number

<welding> number characterizing *filter plates* (3.5.11) in terms of their transmission factor in the different domains

[SOURCE: IIW VI-1133-2015, modified — Domain added, definition revised.]

3.5.13
auto-darkening plate
auto-darkening lens

<welding> *filter plate* (3.5.11) that darkens automatically when arcing is detected

3.5.14
cover plate
cover glass

<welding> clear glass or other transparent material used mainly to protect the *filter plate* (3.5.11) from splashes of glowing particles

3.5.15
protecting plate
protecting glass

<welding> clear glass or other transparent material placed behind the *filter plate* (3.5.11) in order to protect the eyes

Note 1 to entry: Used during, for example, grinding or removal of spatter.

3.5.16
harness

<welding> assembly that provides a means of maintaining a *welder's mask* (3.5.7) or a *welder's helmet* (3.5.8) in position on the head

3.5.17
headband

<welding> device that holds the *welder's goggles* (3.5.10) or *safety glasses* (3.5.9) onto the head

3.5.18
respirator
respiratory protective device
RPD

device to protect individuals from breathing air contaminated with particulate matters, dust, fumes, mists or *gases* (3.1.9)

3.5.19
filtering face shield
dust mask

respirator (3.5.18) with particulate dust filter

3.5.20
welder's apron

protective clothing (3.5.1) for the front part of the body

Note 1 to entry: A welder's apron is illustrated in Figure 5 as key reference 5.

[SOURCE: IIW VI-1133-2015, modified — Definition and note to entry added.]

3.5.21
welder's gloves

protective clothing (3.5.1) for the hands

Note 1 to entry: Welding gloves are illustrated in Figure 5 as key reference 6.

[SOURCE: IIW VI-1133-2015, modified — Term revised, definition and note to entry added.]

3.5.22
leg protection
leggings
<welding> *protective clothing* (3.5.1) for the legs
Note 1 to entry: Leg protection is illustrated in Figure 5 as key reference 7.

[SOURCE: IIW VI-1133-2015, modified — Definition and note to entry added.]

3.5.23
gaiters

<welding> removable covering intended to protect the part of the leg below the knee which can also cover the upper surface of shoes
Note 1 to entry: Gaiters are illustrated in Figure 5 as key reference 8.

[SOURCE: ISO 11611:2015, 3.7, modified — Domain and note to entry added.]

3.5.24
hearing protection

equipment that covers, or is inserted into, the external ear canal to reduce noise levels and prevent entry of particulates
Note 1 to entry: Earing protection is illustrated in Figure 5 as key reference 2.

3.5.25
welder's hood
welder's neck protection

protective clothing (3.5.1) made from flexible material which covers the head and neck and can also cover the shoulders
Note 1 to entry: A welder's hood is illustrated in Figure 5 as key reference 3.

[SOURCE: ISO 11611:2015, 3.10, modified — Terms and definition revised, note to entry added.]

3.5.26
safety footwear
safety shoes

footwear incorporating protective features to protect the wearer from injuries that can arise through accidents
Note 1 to entry: Items of safety footwear are fitted with toecaps designed to give protection against impact when tested at an energy level of at least 200 J and against compression when tested at a compression load of at least 15 kN.

Note 2 to entry: Safety footwear is illustrated in Figure 5 as key reference 9.

[SOURCE: ISO 20345:2021, 3.1, modified — Admitted term added, definition and Note 1 to entry revised, Note 2 to entry added.]

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[3] Under preparation. Stage at the time of publication: ISO/AWI 25901-5:2022.
[4] Under preparation. Stage at the time of publication: ISO/AWI 25901-6:2022.

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