BRITISH STANDARD

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Ventilation for buildings — Symbols, terminology and graphical symbols

The European Standard EN 12792:2003 has the status of a British Standard

ICS 01.040.91; 01.075; 91.140.30

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 12792:2003. It supersedes PD 6611:1997 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RHE/2, Air distribution and air diffusion, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English version

Ventilation for buildings - Symbols, terminology and graphical symbols

Ventilation des bâtiments - Symbole, terminologie et symboles graphiques

Lüftung von Gebäuden - Symbole, Terminologie und graphische Symbole

This European Standard was approved by CEN on 12 December 2002.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Foreword

This document (EN 12792:2003) has been prepared by Technical Committee CEN/TC 156 "Ventilation for Buildings", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2004, and conflicting national standards shall be withdrawn at the latest by February 2004.

This document supersedes CR 12792:1997.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

One of the goals of TC156 is to realize European Standards that use the same symbols and terminology. For this purpose WG1 of TC156 had the task to provide a standard for symbols and terminology to be used by all other working groups of TC156. This standard for symbols and terminology was generated by the different working groups themselves, and WG1 was responsible for the co-ordination between the working groups and standardization of the symbols and terminology within TC156, which then became compulsory for other WG's to use in their standards. The symbols and terminology in this English standard are numbered and it is intended that these numbers correspond to the German and French translation of the standard, so that the different definitions for the same symbol or term can be checked in English, French and German.

1 Scope

This European Standard comprises the symbols and terminology included in the European standards covering 'Ventilation for buildings' produced by CEN/ TC156.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references the subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 779 *Particulate air filters for general ventilation - Determination of the filtration performance*.

EN ISO 5135 *Acoustics – Determination of sound power levels of noise from air terminal devices, high/low velocity/pressure assemblies, dampers and valves by measurement in a reverberation room (ISO 5135:1984).*

ISO 5801 *Industrial fans – Performance testing using standardized airways*.

ISO 13349 *Industrial fans – Vocabulary and definitions of categories*.

3 Terms and definitions

For the purposes of this European Standard the terms and definitions given in EN 779, EN ISO 5135, ISO 5801 and ISO 13349 and the terms and definitions given in Table 1 apply.

Table 1 – Terms and definitions

Term	Definition	Number
absolute humidity	mass of water vapour present per unit mass of dry air	**1**
absolute total pressure (stagnation pressure)	algebraic sum of the total static pressure and velocity pressure at any particular point in a fluid	**2**
accessibility **(as applied to equipment)**	equipment is accessible when close approach is not prevented by locked doors, elevation or other effective means	**3**
accessories of distribution	see components of air distribution	**4**
acoustic environment	characteristics of a room that determine the qualities of sound therein, relative to hearing	**5**
acoustic and/or thermal insulation	treatment of the internal or external walls of the ducts so as to reduce the transmission of acoustic energy along the length and through the duct and/or the thermal energy across the walls	**6**
actuator	device, electrically, pneumatically or hydraulically operated, which acts as a motor to change the position of movable devices such as valves or dampers	**7**
adjustable flow rate air diffuser	air diffuser which incorporates a device by means of which the air flow rate can be varied without affecting the direction or directions of the air delivered to the treated space (see also air diffuser)	**8**
adjustable grille	see grille	**9**
adjustable pattern air diffuser	air diffuser which incorporates an integral device by means of which the direction or directions of the air delivered to the treated space can be varied (see also air diffuser)	**10**
air conditioning	form of air treatment in which temperature, humidity, ventilation and air cleanliness are all controlled, if any of these features (excluding ventilation) is not controlled the system is termed as partial air conditioning	**11**
air conditioning installation	combination of all components required to provide air conditioning	**12**
air diffuser	air terminal device usually installed in the ceiling and generally of circular, square or rectangular form and composed of divergent deflecting means and sometimes combined with vanes, perforated plates, flat plates, etc. (see also air terminal device)	**13**
air diffusion	distribution of the air in a space, called the treated space, in a manner to satisfy certain specified conditions such as air change rate, pressure, cleanliness, temperature, humidity, air velocity and noise level, in a specified zone within this treated space which is called the occupied zone. It is usually achieved by means of air terminal devices, which form the common boundaries between the treated space and the air distribution system	**14**
air diffusing ceiling	modular air terminal device designed to diffuse air to the treated space from a pressurized plenum through holes or slots in the ceiling surface or the supporting framework (see also air terminal device)	**15**

Term	Definition	Number
air distribution	transportation of a specified air flow to or from the treated space generally by means of ducts. Along the ducts devices for the purpose of treating the air (e.g. cleaning, heating, cooling, humidifying or dehumidifying, etc.) and known as air treatment devices may be inserted	**16**
air duct	generally the envelope of a space in which the air is carried. The assembly of the ducts of an installation and the other elements of distribution inserted into these ducts constitute the distribution network (or ductwork system) NOTE It is usual to give different names (trunks, stub ducts, spurs) to certain parts of the distribution network. Correspondingly precise definitions are difficult to establish.	**17**
air extraction cooker hood	cooker hood which discharges the collected air to the outside of the building. (see also cooker hood)	**18**
air flow	movement of air usually within boundaries (such as ducts)	**19**
air flow rate	mass or volume flow of air passing a given plane divided by the time	**20**
air flow rate controller	component used to control the air flow rate by modifying the resistance (see also damper (or valve))	**21**
air handling unit	factory made encased assembly consisting of sections containing a fan or fans and other necessary equipment to perform one or more of the following functions: circulation, filtration, heating, cooling, heat recovery, humidifying, dehumidifying and mixing of air	**22**
air heating and cooling coils	heat exchangers by means of which heat is transferred from a heat transfer medium to air (heating coil) or the other way round (cooling coil)	**23**
air humidity	**absolute air humidity** mass of water vapour present per unit mass of dry air **relative air humidity** in humid air, the ratio expressed as a percentage of the water vapour's actual pressure to the saturated vapour pressure at the same dry bulb temperature	**24**
air leakage	unwanted air flow paths in the installation (coded grey)	**25**
air leakage factor	air tightness expressed as the air leakage rate per unit envelope area	**26**
air leakage rate	air leakage of a component or components subjected to air pressure	**27**
air pollutant	any material in the atmosphere that affects persons and their environment (pollutant includes materials such as liquids, solids, aerosols, gases and odours)	**28**
air pollution	result of the presence of air pollutants in the atmosphere	**29**
air recirculating cooker hood	cooker hood containing filters to remove contaminants after which the treated air is recirculated to the room (see also cooker hood)	**30**

Term	Definition	Number
Air Terminal Device (ATD)	component of a ventilation installation which is designed with the purpose of achieving the predetermined movement of air into or from a treated space. They can be divided into the following categories: **automatically controlled** devices having moving parts which interact with a change in local conditions, such as temperature, humidity, CO_2 concentration, pressure difference, air flow rate, etc. **fixed** devices without any adjustable parts **manually adjustable** devices having adjustable parts which can be manually adjusted (see also components of air diffusion)	**31**
Air Terminal Unit (ATU)	equipment for air distribution purposes which fulfils either manually or automatically one or more of the following functions: - controls the velocity or pressure and/or temperature of the air; - controls the air flow rate; - mixes primary streams of different temperatures or humidities; - mixes within the device primary air with air from the treated space (see also components of air distribution)	**32**
Air Terminal Unit assembly	assembly made from an appropriate selection of the following component parts to achieve the functions mentioned in 'Air Terminal Unit': - Casing; - Mixing section; - Flow rate control devices; - Manual damper or valve. ATU assemblies may also incorporate heat exchangers, fans, nozzles, air filters, air terminal devices and/or means of sound attenuation	**33**
Air Terminal Unit with integral air terminal device	**discharge control type** assembly within which a device controls the air flow rate discharged to the treated space through an integral air terminal device **entry air control type** assembly within which a device controls the air flow rate entering the unit	**34**
air tightness class A, B, C and D (of a duct)	measure of the tightness of a ductwork system, defined at the upper limit of the air leakage factor f (see also leakage)	**35**
air transfer device	air terminal device designed to allow the transfer of air from one space/room to another space/room (see also Air terminal device)	**36**
air treatment	process by which the state of the air is modified with respect to various properties such as temperature, moisture content, dust content, bacterial count, gas and vapour contents	**37**
air turning vane	element inserted into components of ductwork, such as bends in duct to minimize the pressure loss of the air flowing through that component (see also flow equalisers)	**38**
air type	designation of the air moving through a ventilation, air conditioning or air treatment installation as a function of its location relative to the installation, e.g. outdoor air, exhaust air, extract air, etc.	**39**
air velocity	rate of motion of air in a given direction measured as distance per unit time	**40**
airing	natural ventilation by window opening	**41**

Term	Definition	Number
A_k-value (effective area of an air terminal device)	quotient resulting from measured air flow rate and measured air velocity as determined in a specified manner with a specified instrument	**42**
anemometer	device used for measuring air velocities	**43**
angle of a transformation piece	largest angle between two opposite sides of a transformation piece	**44**
aspect ratio (of a rectangular air terminal device)	ratio of the larger side to the smaller side of the rectangular core area (also see core area of an air terminal device).	**45**
assisted cowl	cowl fitted with an auxiliary device, such as a fan and using another energy source than wind to compensate for lack of pressure difference.	**46**
automatically controlled air terminal devices	see air terminal device	**47**
average efficiency of a filter	weighted average of the efficiencies for the different specified dust loading levels (expressed in %)	**48**
axial flow fan	see fan types	**49**
baffle	component used for partial blanking of the air flow through an air terminal device. It generally consists of a plate or series of plates	**50**
balanced ventilation	ventilation installation where the supply air flow and the exhaust air flow rates comply with the design values	**51**
balancing	process of adjusting the flow rates in each circuit of an installation to comply with the design values	**52**
bend or elbow	duct fitting which affects a change in the direction of a flow (see also duct fitting)	**53**
bifurcated fan	see fan types	**54**
blow-through unit	air handling unit with a section or sections downstream of the supply air fan	**55**
branch	duct fitting which subdivides the flow from one or more ducts into two or more ducts, or conversely which unites the flow from two or more ducts into one duct (T-pieces, Y-pieces, cross-pieces, etc.). It can or can not include diverting elements (see also duct fitting)	**56**
bulging, caving of a duct or enclosure(s)	largest deformation of the sides of a duct or enclosure when subjected to a negative (caving) or positive (bulging) pressure. It is given as the measured difference in distance between a reference plane and the maximum point of deflection when subjected to a negative or positive pressure	**57**
butt connection	interface between two pieces of metal that are to be joined together by welding	**58**
butterfly damper or valve	see damper and valve	**59**
bypass factor	ratio of the diverted flow to the sum of main flow and the diverted flow	**60**
bypass leakage	unwanted passing of untreated air into the treated air between the components within a casing such as filters or coils within a section	**61**
Calibration	all the operations for the purpose of determining the value of the errors of a measuring instrument	**62**
Casing	enclosure normally housing other components and generally made of metal lined where necessary with material for thermal insulation and/or acoustic attenuation. Inlet and outlet orifice(s) are provided	**63**
casing of an air handling unit	enclosure of the unit, within which the components are mounted	**64**

Term	Definition	Number
caving	see bulging	**65**
centrifugal fan	see fan types	**66**
Chiller	heat exchangers in which heat is transferred from the air to a colder medium (see also heat exchanger)	**67**
circulating fan	see fan functions	**68**
clean room	specially constructed, enclosed area environmentally controlled with respect to airborne particulates, temperature, humidity, air pressure, air pressure flow patterns, air motion, vibration, viable organisms and lighting	**69**
clearance (for ductwork connection)	actual dimensional difference between the lower limit of size of a female connector of a duct and the upper limit of size of a male connector	**70**
Cleat	**sheet metal** strip of sheet formed by roll-forming into a profile that is used to secure the sheet metal rolled jointing flanges added to rectangular ducts **steel** short section of rolled steel angle used to connect two intersecting steel members	**71**
clo-unit	unit of measurement of the insulation or thermal resistance of clothing	**72**
Collar	piece of metal that is added to shaped sheet metal components (e.g. tapers, transitions) to provide parallel ends to facilitate jointing with adjacent components	**73**
combined section of an air handling unit	section within which two or more functions are combined	**74**
comfort condition	environmental condition in a space such that the majority of the occupants should, on a statistical basis, be comfortable	**75**
Component	smallest functional element of an installation.	**76**
component of an air handling unit	smallest functional element of an air handling unit	**77**
components of air diffusion	in air diffusion there are three main categories of components: **Air Terminal Devices (ATD's)** components of the installation which are designed for the purpose of achieving the predetermined movement of air into or from the treated space (e.g. grilles, diffusers, etc.) (Also see Air terminal device) **complementary accessories to air terminal devices** components of the installation which are used in conjunction with, and in some cases form an integral part of, the air terminal device for the purpose of achieving the predetermined profile or rate of flow into, or from, the air terminal device (e.g. air flow controllers, dampers, flow equalisers, baffles, etc.) **fixing accessories for air terminal devices** components of the installation which assist the fitting and fixing into place and/or maintenance of the air terminal devices and their complementary accessories (e.g. plaster frames, snap in fasteners, etc.)	**78**

Term	Definition	Number
components of air distribution	in air distribution there are three main categories of components: **Elements of distribution** components for the purpose of ensuring a correct distribution of the air. (Also see Air duct, Ductwork components, Damper and valve, etc.) **Air Terminal Units (ATU's)** equipment inserted into or added to the ends of ducts for the purpose of controlling one or more of various parameters such as velocity, pressure, flow rate and temperature. (See also Air Terminal Unit) **Accessories of distribution** components ensuring the fitting and fixing in place of the elements of distribution and their inspection and maintenance. (See also Duct connection component, Door and Inspection panel, etc.)	**79**
component of ventilation or air conditioning	single functional element forming a part of a ventilation or an air conditioning installation	**80**
connector	device employed to join two components of the same dimension together e.g. - pipes; - ducts; - threaded rod	**81**
contra rotating fan	see fan types	**82**
control device (air terminal unit)	device which can be used to control other components within the air terminal unit such as a fan, heat exchanger, etc.	**83**
control system	Arrangement of elements interconnected and interacting in such a way as to maintain or influence in a prescribed manner specified conditions.	**84**
cooker hood **(range hood)**	device intended to collect contaminated air from above a cooking appliance and either discharge it into the room or remove it from the room, it may or may not incorporate one or more of the following components: - filters; - fan; - fire damper; - non return flow damper; (see also Range hood)	**85**
cooler	see chiller	**86**
cooling	removal of sensible and/or latent heat	**87**
cooling coil	heat exchanger that extracts heat from the air stream by means of a heat transfer medium	**88**
cooling load	amount of cooling per unit time required by the space being controlled	**89**
core area of an air terminal device	area of an air terminal device located within a convex closed surface of minimum area, inside of which are all openings of the air terminal device through which the air can pass	**90**
core area of a sand trap louvre	product of minimum height (h) and minimum width (b) of the front opening of a sand trap louvre assembly with the louvre blades removed (see also core area of an air terminal device)	**91**
cowl	air terminal device intended to be installed above a natural ventilation exhaust duct with the aim, by creating negative pressure and depending on wind speed, of avoiding reverse flow and increasing flow rate. It may or may not include moving parts	**92**

Term	Definition	Number
cross-sectional area of a duct	for ducts with circular cross-section the cross-sectional area (A_c) is based on the internal diameter (*d)*, unless otherwise specified. For ducts with rectangular cross-section the cross-sectional area (A_c) is based on the product of the internal height and internal breadth, unless otherwise specified	**93**
cross ventilation	natural ventilation in which the air flow mainly results from wind pressure effects on the building facades and where stack effects in the building are of less importance	**94**
damper (or valve)	element inserted into an air distribution system or element of an air distribution system permitting modification of the air resistance of the system, and consequently changing the air flow rate (dampers), or shutting off the air flow completely (valves), or controlling the air flow rate and in addition providing shut-off of the air flow (control valves) Examples of dampers (which can also be found as valves or control valves) are: **single leaf damper** - Having the flap centrally mounted or at one end (sometimes one or a combination of this damper is used as diverting element) **butterfly damper** - Having two flaps in 'V' arrangement **multiple leaf damper** - Having a number of shutters in opposed blade or parallel arrangement **iris damper** - Having sectorised blades **hit and miss damper** - Having two or more slotted slides in parallel arrangement and adjustable against each other **slide damper** - Having a sliding part, which is perpendicular to the direction of the air flow	**95**
damper control (of a fan)	see fan control methods	**96**
damper section	section of equipment including a damper or valve	**97**
deflection of a duct	largest deformation of a duct when subjected to a load. It is given as the measured difference in distance between a plane through the points of support and a plane through the lowest point of the duct after a load has been applied	**98**
deflection of a joint	largest deformation of a joint when subjected to a positive or negative pressure. It is given as the measured difference in distance between a reference plane outside the joint to the joint with and without pressure	**99**
defrosting heat ratio	ratio between the energy transferred into the supply air and the maximum recoverable energy in exhaust air, excluding the energy input for defrosting	**100**
dehumidification	reduction of water vapour from air	**101**
design pressure difference of an air handling unit	difference between the total gauge pressure at the outlet of the air handling unit and the total gauge pressure at the inlet	**102**
deviation	difference between the set point and the value of the controlled variable at any instant	**103**
dewpoint (temperature)	see temperature	**104**
diffusion of air	see air diffusion	**105**
direct fired air heater	heat generator where the heat from combustion is emitted directly to the air to be treated	**106**
discharge loss coefficient of a louvre	actual discharge air flow rate, divided by the theoretical discharge air flow rate at a given pressure difference across a louvre	**107**

Term	Definition	Number
displacement air diffusion	air diffusion where the mixing of supply air and room air external to the air terminal device is intended to be at a minimum (see also air diffusion and air terminal devices)	**108**
distance to the v m·s^{-1} isovel (for displacement air diffusion)	maximum horizontal distance (L_V) from the centre of an air terminal device to the rectangle circumscribing the specified isovel and independent of the distance from the floor (see isovel)	**109**
diverting element	element to divert the flow of air from one duct to another	**110**
door and inspection panel	accessories intended to permit access into ducts, they are positioned in proximity to all those internal parts which require inspection and/or maintenance such as fire dampers	**111**
drain cock	see drain plug or cock	**112**
drain plug or cock	removable plug or key operated draw-off cock intended to permit the removal of incoming liquids or condensates	**113**
draught	unwanted local cooling of a body caused by movement of air and is related to temperature	**114**
draught risk rating	percentage of people predicted to be dissatisfied due to draught	**115**
drop (of an air jet in mixing air diffusion)	vertical distance (h_V) between the lowest horizontal plane tangent to a specified isovel and the centre of the core of an air jet	**116**
dual duct unit	air terminal unit assembly having two ducted air inlets and means of automatically adjusting the predetermined ratio of mixing of two air flows at different conditions and for regulating the air flow rate to the required value	**117**
duct board	rigid board composed of insulation material with one or both sides faced with a finishing material. The outer facing is normally a vapour barrier and can also be used as an air barrier	**118**
duct connection component	means intended to facilitate the joining of two components of ductwork. Typical examples are: - Collars; - Flanges; - Connectors; - Cleats; - Slip joints	**119**
duct fitting	components of ductwork incorporating one or several of the following changes relative to: - the length of the duct; - the orientation of the duct; - the shape of the straight length of the duct; - the area of the cross-section of the duct. Examples of duct fittings are: - Bend or elbow; - Transformation; - Branch. NOTE Apart from rigid components of ducting there are flexible sleeves which reduce the propagation of mechanical and/or acoustic vibrations between two components or ease the assembly of the installation.	**120**
duct sealing	means taken either to ensure the airtight sealing of the air distribution system or to minimize leakage there from NOTE Various techniques can be used according to the type of joint used to achieve this objective such as welds, mastic seals and pre-fabricated joints.	**121**
duct support spacing	distance between or frequency of supports along the length of a duct route	**122**

Term	Definition	Number
duct support	means used to suspend or support ductwork within a building structure	**123**
duct transformation	see duct fitting	**124**
ducted fan	see fan functions	**125**
ductwork components	in practice to facilitate manufacturing, storage, transportation and installation, ducts are made of components, which are intended to be joined together at the time of installation. These components are of various types. (see also straight duct component and duct fitting)	**126**
dwelling	building or part of a building where people normally live, sleep, cook and eat	**127**
dwelling leakage	overall leakage of the dwelling, characterized by the air flow rate at a given pressure difference across the envelope of the dwelling (see also air infiltration)	**128**
dynamic pressure	pressure equivalent of fluid velocity at any particular point	**129**
effective area	see equivalent area	**130**
effective area of an air terminal device	net area aerodynamically derived by means of the A_k-value of an air terminal device utilized by the air stream in passing through the air terminal device	**131**
effective length of a duct	dimension by which a straight duct contributes to the length of an air distribution installation	**132**
effective length of a fitting	dimension by which a duct fitting contributes to the length of an air distribution installation	**133**
element of distribution	see components of air distribution	**134**
entry loss coefficient of a louvre	actual entry air flow rate, divided by the theoretical entry air flow rate at a given pressure	**135**
equivalent area or effective area	area of a sharp edged circular orifice which would pass the same air flow rate and the same applied pressure difference as the product or device being tested	**136**
equivalent diameter of a straight rectangular parallel duct	equivalent diameter d_e for a straight rectangular duct is that diameter of a circular duct which will cause the same pressure drop at equal air flow and equal friction coefficient	**137**
exfiltration	uncontrolled passage of air from a space through leakage paths in the shell of that space (coded grey)	**138**
exhaust air	air flow discharged to the atmosphere (coded brown)	**139**
exhaust installation	unitary package consisting of all components necessary to complete the exhaust installation of a single dwelling	**140**
exhaust ventilation installation package	ventilation installation package intended for exhaust purposes (see also ventilation installation package)	**141**
external fan pressure difference	difference between the total gauge pressure at the outlet of a unit and the total gauge pressure at the inlet	**142**
external work	energy spent in overcoming external mechanical forces on the body. External work can also be expressed as a fraction of metabolic energy production, where the fraction value defines the mechanical efficiency. For most activities external work can be neglected	**143**

Term	Definition	Number
externally mounted air transfer device	device designed to allow the passage of air through the building envelope with the minimum ingress of rain, snow, foreign bodies etc. They can or can not include air flow rate control devices (see also air transfer device)	**144**
extract air	air flow leaving a treated space (coded yellow)	**145**
extract air terminal device	air terminal device through which air leaves a treated space	**146**
extract temperature differential	algebraic difference between the extract air temperature and the mean measured air temperature of the occupied zone	**147**
fan	rotary bladed machine which receives mechanical energy and utilizes it by means of one or more impellers fitted with blades to maintain a continuous flow of air or other gas passing through it and whose work per unit mass does not normally exceed 25 kJ/kg. The term fan is taken to mean the fan as supplied without any addition to the inlet or outlet, except where such an addition is specified. (See ISO 5801)	**148**
fan assisted balanced ventilation	ventilation which employs powered air movement components in both the supply and exhaust air sides in order to achieve a design flow rate/pressure ratio	**149**
fan assisted exhaust ventilation	ventilation which employs powered air movement components in the exhaust air side only	**150**
fan assisted induction terminal unit	air terminal unit of the following types: **constant flow rate type** (also referred to as series type) assembly within which the primary air flow rate is modulated and mixed with air induced from the surrounding atmosphere, secondary air, by means of a continuously operating integral fan in order to provide a relatively constant flow rate of air to the treated space **variable flow rate type** (also referred to as parallel type) assembly within which the primary air flow rate is modulated and mixed with air induced from the surrounding atmosphere, secondary air, by means of a non-continuously running fan, but which is operated in order to provide a variable flow rate to the treated space in response to thermal loads	**151**
fan assisted induction terminal unit with constant flow rate	see fan assisted induction terminal unit	**152**
fan assisted induction terminal unit with variable flow rate	see fan assisted induction terminal unit	**153**
fan assisted supply air ventilation	ventilation which employs powered air movement components in the supply air side only	**154**

Term	Definition	Number
fan control methods	**variable speed control** speed can be varied either continuously or in steps by a variable speed motor, slipping coupling, gearbox or other means **damper control** fan performance is controlled by means of a damper, either on the inlet or on the outlet, creating a variable additional system resistance **vane control** vanes mounted at the fan inlet, which can be adjusted in order to change the fan performance by controlling the swirl at the fan inlet **variable blade pitch control** (normally only for axial-flow fans) the blade angle of the impeller can be varied whilst the impeller is rotating, all blades being simultaneously varied by one operation (i) adjustable pitch if the blade angle of the impeller can be altered only when the impeller is stationary, this method of control is termed 'adjustable pitch' (ii) fixed pitch when the blade angle cannot be changed, it is said that the fan has a 'fixed pitch'	**155**
fan dynamic pressure	average dynamic pressure at the fan outlet, calculated from the mass flow, the average gas density at the outlet and fan outlet area	**156**
fan functions	**ducted fan** fan for moving air within a duct (see also fan installation types) **partition fan** fan used for moving air from one free space to another (see also fan installation types) **jet fan** fan for producing a jet of air in a space (see also fan installation) **circulating fan** fan used for moving air within a space (see also ISO 13349 and fan installation types)	**157**
fan inlet	opening usually circular or rectangular through which the air first enters the fan casing	**158**
fan installation types	Type (A), free inlet, free outlet; Type (B), free inlet, ducted outlet; Type (C), ducted inlet, free outlet; Type (D), ducted inlet, ducted outlet (see also ISO 13349 and fan functions)	**159**
fan outlet	opening usually circular or rectangular through which the air finally leaves the fan casing	**160**
fan pressure	difference between stagnation pressure at the fan outlet and the stagnation pressure at the fan inlet	**161**
fan section	section in which one or more fans are installed	**162**

Term	Definition	Number
fan static pressure	fan pressure minus the fan dynamic pressure	**163**
fan unit	casing incorporating a fan and provided with spigots	**164**
fan work per unit mass	increase in mechanical energy per unit mass of fluid passing through the fan	**165**
fan types	there are five main types of a fan are defined according the fluid path within the impeller **centrifugal fan** fan in which the air enters the impeller with a substantially axial direction and leaves it in a direction substantially parallel to a radial plane. The impeller is defined as 'backward curved' or 'inclined', 'radial' or forward curved' depending on whether the outward direction of the blade at the periphery is backward, radial or forward, relative to the direction of the rotation **axial flow fan** fan in which the air enters and leaves the impeller axial to the fan **contra rotating fan** axial flow fan which has two impellers arranged in series and rotating in opposite direction **reversible axial flow fan** axial flow fan which is specially designed to rotate in either direction **propeller fan** fan having an impeller with a small number of broad blades of uniform material, thickness and designed to operate in an orifice **plate mounted axial flow fan** axial fan mounted in an orifice or spigot **bifurcated fan** fan where the direct drive motor is separated from the air stream	**166**
female connector	short circular sleeve used to join two duct components. The male ends of the components are inserted into each end of the female connectors	**167**
filter	device for removing particulate material from a fluid or gas	**168**
filter section	section including a filter or filters and associated framework	**169**
filtration	removal of particulate material from a fluid or gas	**170**
final pressure drop of a filter	maximum operating pressure of a filter as recommended by the manufacturer at rated air flow	**171**
fine filter	filter classified in the classes F5 to F9 according to EN 779	**172**
fire damper	see fire and smoke damper	**173**
fire and smoke damper	device inserted between two fire separation compartments of an air distribution and diffusion system and intended to prevent the propagation of fire and smoke. The device is normally open and closes automatically under predetermined conditions	**174**
fixed air terminal device	see air terminal device	**175**
fixed directional grille	see grille	**176**
fixed non-directional grille	see grille	**177**

Term	Definition	Number
fixing accessory for an air terminal device	**plaster frame** separate mounting frame for an air terminal device designed to be incorporated into a plastered surface **secret (or concealed) fixing** accessory by which an air terminal device can be secured to an opening without the outward appearance of screws or other fixing devices **'snap in' fastener** accessory used with an air terminal device as a fixing arrangement designed for the easy removal of the air terminal device for maintenance or cleaning. It can also be used to make the air terminal device compatible with a ceiling suspension system (see also component of air diffusion)	**178**
flange	means of enhancing the strength of a duct and to facilitate the joining of one component to another. It may also be provided on components or ducts that may require removal for servicing or maintenance	**179**
flash chamber	a separating tank in a refrigerating system placed between the expansion device and evaporator to separate and bypass any flash gas formed due to pressure reduction	**180**
flexible duct	duct which can be manually longitudinally compressed or decompressed and flexed without permanently damaging the cross section area	**181**
floor temperature dissatisfaction risk	percentage of people predicted to be dissatisfied due to the temperature of the floor	**182**
flow	continuous motion of a fluid in pipes, ducts, channels or through openings	**183**
flow equaliser	component intended to even out the velocity and/or to decrease the relative magnitude of the fluctuations characteristic of the air flow and/or to reduce the magnitude of a possible swirl of the air flow Examples of flow equalisers are: - air turning vanes inserted in special duct components to decrease the fluctuations characteristic of the air flow and to reduce the non-uniformity of the velocity profile; - straightening elements in cross or honeycomb form inserted to eliminate a possible swirl of the air flow; - perforated plates, screens or other devices inserted to even out the velocity profile by increasing the pressure loss.	**184**

Term	Definition	Number
flow rate control device	device having the purpose of maintaining a flow rate across it at a required constant value when the pressure differential between high and low pressure sides vary within the limits for which the equipment is designed There are different types of flow rate control devices such as: **mechanical constant flow rate controller** self actuating and deriving its energy from the air stream to maintain the constant flow rate function **mechanical variable flow rate controller** self actuating and deriving its energy from the air stream to maintain the constant flow rate function and having facilities for resetting the required value depending on an external signal **pneumatic, electric etc. flow rate controller** deriving the energy for maintaining the constant flow rate function from an external source. It can be either of the constant or variable type **system powered flow rate controller** deriving its energy from the dynamic pressure in the air stream to maintain its constant flow rate function and can be either a constant or variable type	**185**
flow rate controller	see flow rate control device	**186**
flow rate pressure characteristic	relationship between the flow rate through a device and the pressure difference across it	**187**
free area	sum of the cross-sectional areas of all unobstructed openings measured in the plane of maximum restriction and at right angles to the flow through the opening	**188**
free area of an air terminal device	sum of the smallest areas of the cross-section of all openings of the air terminal device	**189**
free area ratio	ratio of the free area to the core area of an air terminal device	**190**
free area velocity	air flow rate divided by the free area of an air terminal device. This may be either primary or exhaust air flow rate	**191**
fully adjustable air diffuser	air diffuser which incorporates two independent integral devices, each of them achieving one of the following purposes: a) to vary the direction or directions of the air delivered to the treated space without alteration of the air flow rate; b) to vary the primary air flow rate without alteration of the direction or directions of the air delivered to the treated space. (see also air diffuser)	**192**
functional check	observation of the operation of a system or devices, against a specification without resorting to specific measurements	**193**
functional measurement	measurement of the performance of a system or device against specification	**194**
grease absorption efficiency	ratio by weight of the quantity of grease retained by a grease filter against a reference quantity	**195**

Term	Definition	Number
grille	air terminal device with multiple passages for air **adjustable grille** grille intended to vary the direction or directions of the air delivered to the treated space. It consists of one or more series of adjustable parallel ribs **fixed directional grille** grille intended to diffuse the air in one or more fixed directions. It consists of one or more series of fixed parallel ribs **fixed non-directional grille** Grille not intended to change the direction of air. It can consist of parallel laminae, ribs, perforated metal, grid, wired grid, etc.	**196**
handing over the installation	advancement of an installation from the stage of static completion to full working order to specified requirements	**197**
heat exchanger	device to transfer heat from one medium to another	**198**
heat recovery	heat utilized from a heating system, which would otherwise be wasted	**199**
heat recovery section	section in which heat and possibly moisture is transferred from one air stream to another, either directly or by using an intermediary heat transfer medium	**200**
heat removal luminaire	combined luminaire and air terminal device which, by exhausting the air, either reduces the heat gain transmitted to the treated space and/or recovers some of the heat generated by the luminaire	**201**
heating	transfer of heat from one body or medium to another	**202**
heating coil	heat exchanger which adds heat to the air stream by means of a heat transfer medium	**203**
heating load	heating rate required to replace heat loss from the space being controlled	**204**
height of the v $m.s^{-1}$ isovel (for displacement air diffusion)	maximum vertical distance from the floor (or reference plane) to the specified isovel	**205**
HEPA-filter	High Efficiency Particulate Air filter, classes H10 to H14, according to EN 779	**206**
hit and miss damper or valve	see damper and valve	**207**
humidification	addition of water vapour to an air stream or space	**208**
humidification efficiency	ratio between the mass of water evaporated by the humidifier and the theoretical mass needed to achieve saturation at a given temperature	**209**
humidifier section	section in which water vapour is added to the air	**210**
humidifier section of an air handling unit	section in which the water vapour is added to the air	**211**
humidity	water vapour within a given space	**212**
hybrid ventilation	ventilation where natural ventilation may be at least in a certain period supported or replaced by mechanical ventilation	**213**
hydraulic diameter	diameter of a circular duct which will cause the same pressure drop at equal air velocity and equal friction coefficient than the considered (rectangular) duct	**214**
hygrometer	device that enables the value of the humidity of a sample of air or other media to be determined	**215**
impeller tip diameter (of a fan)	impeller tip diameter is defined as the maximum diameter measured over the tips of the blades of the impeller	**216**

Term	Definition	Number
indoor air	air in the treated room or zone (coded grey)	**217**
indoor air quality	attributes of the respirable atmosphere (climate) inside a building including gaseous composition, humidity, temperature and contaminants	**218**
induced air	secondary air induced by the primary air	**219**
induced air temperature	see temperature	**220**
induction rate (of an Air Terminal Device)	ratio of the internally induced air flow rate and the primary air flow rate of an air terminal device	**221**
induction supply air terminal device	air terminal device in which the primary air from the duct induces an air flow from the treated space (secondary air) in such a way that a high rate of mixing between the air from these two sources takes place within the device. Such a device does not include any means of air treatment	**222**
induction terminal unit (excluding fan-powered terminal unit)	air terminal unit assembly which by virtue of the configuration of the primary air inlet(s) within the unit can induce secondary air from the surrounding atmosphere before being discharged to the treated space. The flow rate of the primary air may or may not be variable. The inlet aperture(s) for the secondary air may be fixed or adjustable by means of manual remote control. The assembly may be fitted with a heat exchanger at either the secondary air or primary air inlet(s)	**223**
infiltration	uncontrolled passage of air into a space through leakage paths in the shell of that space (coded green)	**224**
insertion length	see overlap length	**225**
insertion loss of a weather louvre	difference in simulated rain penetration between a test specimen and a calibration plate at the same test conditions	**226**
inspection panel	see door and inspection panel	**227**
insulation of clothing	resistance of sensible heat transfer provided by clothing ensemble. It is described as the intrinsic insulation between the skin and the surface of the clothing, excluding the resistance provided by the layer of air surrounding the clothed body	**228**
internal air leakage rate	air leakage rate in between two air streams within a section	**229**
internal heating load	heat generated within the building envelope by sources other than those associated with the installation	**230**
internally induced air flow rate (air terminal device)	volume of air in unit time induced into the primary air flow inside the air terminal device	**231**
internally mounted air transfer device	device designed to allow the passage of air between two internal spaces (see also Air Transfer Device)	**232**
iris damper and valve	see damper and valve	**233**
isovel	boundary line of points of equal mean velocity	**234**
jet fan	see fan functions	**235**
leakage of an installation	in-flow or out-flow through cracks in a specific part of a ventilation or air conditioning installation, due to pressure differences	**236**

Term	Definition	Number
linear air diffuser	air terminal device with single or multiple slots, each of which has an aspect ratio not less than 10:1. Each slot may consist of a number of separate elements. Each slot can or can not have an adjustable member or members to vary the direction or directions of the air or the air flow rate delivered to the treated space	**237**
linear grille	grille with an aspect ratio not less than 10:1 (see also grille)	**238**
local air velocity	velocity at a specific point in an air stream at a specific time	**239**
local mean air velocity	magnitude of the time-averaged vector of velocity at a point of an air stream. The velocity vector (and therefore its three mutually perpendicular components *u v w*) in any point of a turbulent stream is submitted to fluctuations with respect to time. The time-averaged vector of velocity is a vector for which each component is averaged with respect to time	**240**
local measured mean air velocity	measured value of local mean air velocity	**241**
louvre	device, consisting of an assembly of parallel sloping vanes, intended to permit the passage of air, while providing a measure of protection against environmental influences (see also externally mounted air terminal device	**242**
low velocity air terminal device	air terminal device which is designed for thermally controlled ventilation e.g. displacement flow applications (see also air terminal device)	**243**
lower limit (of a duct)	algebraic difference between the minimum limit of size and the corresponding nominal size	**244**
male connector	short circular sleeve used to join two pieces of spiral duct together. The ends of the male connector are inserted into the spiral tube ends	**245**
manometer	device for measuring pressure in a fluid	**246**
manual damper	device which can be used to manually adjust the air flow rate (see also damper and valve)	**247**
manual valve	device which can be used to shut off the air flow by manual operation (see also damper and valve)	**248**
manually adjusted air terminal device	see air terminal device	**249**
mass flow rate	mass of matter which crosses a given surface, divided by time	**250**
mean measured air temperature of the occupied zone	see temperature	**251**
mean radiant temperature	see temperature	**252**
measurement station	element inserted in the ductwork which facilitates the determination of air temperature, air humidity, air flow rate and/or pressure	**253**
mechanical constant flow rate controller	see flow rate control device	**254**
mechanical variable flow rate controller	see flow rate control device	**255**
mechanical ventilation	ventilation with the aid of powered air movement components	**256**
met-unit	metabolic rate of a sedentary person at rest (1 met = 58,2 W/m^2)	**257**
metabolic rate	rate of energy production of the body and which varies with the type of activity	**258**

Term	Definition	Number
mixed air	air which contains two or more streams of air (coded applicable)	**259**
mixing air diffusion	air diffusion where the mixing of supply air and room air is intended (see also damper and valve)	**260**
mixing section of an air handling unit	section where the outdoor air flow and the recirculation air flow are mixed in a controlled way. The section generally consists of one damper per air flow and a mixing chamber	**261**
mixing section of an air terminal unit	section for mixing two air streams at different temperatures or humidities having two inlets with damper or dampers controlling the flow rate of air being discharged into the casing. The dampers may be operated by electric or pneumatic actuators or by direct system pressure actuation. This section may be separated from or part of the casing	**262**
multiple leaf damper or valve	see damper and valve	**263**
natural ventilation	ventilation through leakage paths (infiltration) and openings (ventilation) in the building which relies on pressure differences without the aid of powered air movement components: airing; shaft ventilation; cross ventilation	**264**
negative rated operating pressure	tested maximum negative pressure at which a duct is rated	**265**
nominal length of a flexible duct	is the actual length of a flexible duct after decompression and in an unstressed state	**266**
nominal length of a rigid duct	is the actual length of a rigid duct without fittings or components	**267**
nominal size of an air terminal device	nominal value of dimensions of the prepared opening (duct) into which the air terminal device is to be fitted NOTE For an air diffuser the nominal size is generally defined as the duct size into which the neck of the device will be fitted.	**268**
nominal size of duct and fitting	reference dimension used for designation, calculation and application of duct and fitting	**269**
non return damper	device that allows air to flow only in a predetermined direction	**270**
non reverse flow ability	ability of an air transfer device to prevent the air flow from reversing when the pressure difference p across it is inverted	**271**
nozzle	air terminal device designed to achieve the maximum conversion from static pressure energy to dynamic energy and thus produces a maximum throw due to minimum entrainment	**272**

<table>
<tr><th>Term</th><th>Definition</th><th>Number</th></tr>
<tr><td>occupied zone</td><td>volume of air, which is confined to horizontal and vertical planes. The vertical planes are usually parallel with the walls of the room. Typical definitions for the occupied zone are given in the following table. Except when agreed otherwise the default values shall be applied
NOTE The occupied zone in a room is that space in which persons normally reside and where the requirements of the indoor environment shall be satisfied.

<table>
<tr><td rowspan="2">Element</td><td rowspan="2"></td><td colspan="2">Distance from the inner surface of the elements</td></tr>
<tr><td>Typical range
m</td><td>Default value
m</td></tr>
<tr><td>External windows, doors and radiators</td><td></td><td>0,50 to 1,50</td><td>1,00</td></tr>
<tr><td>External and internal walls</td><td></td><td>0,25 to 0,75</td><td>0,50</td></tr>
<tr><td>Floor (lower boundary)</td><td></td><td>0,00 to 0,20</td><td>0,10</td></tr>
<tr><td>Floor (upper boundary)</td><td></td><td>1,30 [a] to 2,00 [b]</td><td>1,80</td></tr>
</table>
[a] mainly seated occupants
[b] mainly standing occupants
For external walls with windows or doors the element with the weaker requirement is taken as valid for the whole surface.</td><td>273</td></tr>
<tr><td>odour</td><td>quality of gases, liquids or particles that stimulates the olfactory organ</td><td>274</td></tr>
<tr><td>odour dispersion time</td><td>time taken to reduce odour to a defined level from a given concentration and resulting from a standard test</td><td>275</td></tr>
<tr><td>odour reduction factor</td><td>efficiency of the reduction of odours by a device</td><td>276</td></tr>
<tr><td>openings of an air handling unit</td><td>apertures through which air is taken in or discharged from the air handling unit such as openings to outdoor air, supply air, recirculation air and exhaust air</td><td>277</td></tr>
<tr><td>operative temperature</td><td>see temperature</td><td>278</td></tr>
<tr><td>optimum operative temperature</td><td>see temperature</td><td>279</td></tr>
<tr><td>outdoor air</td><td>controlled air entering the system or opening from outdoors before any air treatment
(coded green)</td><td>280</td></tr>
<tr><td>overall heat transfer coefficient</td><td>heat flow per area for a given construction and for an overall temperature difference of one degree</td><td>281</td></tr>
<tr><td>overlap length</td><td>length by which a fitting or duct overlaps a connecting duct</td><td>282</td></tr>
<tr><td>particle number concentration</td><td>number of particles per unit of volume of the test air</td><td>283</td></tr>
<tr><td>partition fan</td><td>see fan functions.</td><td>284</td></tr>
<tr><td>penetration through filter</td><td>ratio of particle concentration measured downstream of the filter (expressed in %)</td><td>285</td></tr>
<tr><td>perforated plate</td><td>see flow equaliser</td><td>286</td></tr>
<tr><td>permissible range</td><td>range of a physical quantity that satisfies the different parameters for each of the categories of the specified environment</td><td>287</td></tr>
<tr><td>plane radiant temperature</td><td>see temperature</td><td>288</td></tr>
</table>

Term	Definition	Number
plaster frame	see fixing accessory for air terminal device	**289**
plate mounted axial flow fan	see fan types	**290**
plenum box	component forming an interface between a ductwork and one or more air terminal devices, by virtue of its design or by the inclusion of accessories, it can also be used to equalise the pressure/velocity across the Air Terminal Device	**291**
pollution	presence of undesired elements which are deleterious to the comfort, health and welfare of persons or the environment (pollution includes elements such as noise, vibration, odours and gases)	**292**
positive rated operating pressure	tested maximum positive pressure at which a duct is rated	**293**
predicted Mean Vote (PMV)	index that predicts the mean value of thermal sensation votes of a large group of persons expressed on a 7-point scale	**294**
predicted Percentage of Dissatisfied (PPD)	index that predicts the percentage of a large group of people who are likely to feel thermally dissatisfied for the body as a whole; i.e. feel either too warm or too cold	**295**
pressure difference	difference between pressures measured at two points or levels in fluids or gases	**296**
pressure drop	difference in total pressure between two points in an installation usually caused by frictional resistance to flow in a duct or component	**297**
pressure factor	test ratio between the pressure suction effect and the pressure due to an air velocity passing over a cowl or roof outlet	**298**
pressure limit of watertightness	maximum pressure difference at which the rated watertightness is assured under test conditions	**299**
pressure limit of watertightness of an air terminal device	maximum pressure difference at which the rated watertightness is assured under test conditions	**300**
pressure loss	see pressure drop	**301**
pressure loss coefficient	factor for mechanical energy loss as a result of flow	**302**
primary air	air entering a treated space	**303**
primary air flow rate	mass or volume of air entering a supply air terminal device in unit time from an upstream duct or a plenum box. It can also be the air leaving through an opening and entering a space	**304**
primary air temperature	air temperature of the primary air flow	**305**
propeller fan	see fan types	**306**
rain louvre (commonly called weather louvre)	device intended to allow the passage of outdoor air or exhaust air while minimizing the ingress of rain (see also louvre)	**307**
range hood	see cooker hood	**308**
recirculation air	extract air which is returned to an air handling unit (coded orange)	**309**
recirculation air handling unit	air handling unit where only recirculated air is treated	**310**
reference air temperature of a room with displacement ventilation	average of at least five measurements of the air temperature at a height of 1,1 m from the floor and outside the area directly influenced by a device by ATD	**311**

Term	Definition	Number
reversible axial flow fan	see fan types	**312**
rise (of an air jet in mixing air diffusion)	vertical distance (h_v) between the highest horizontal plane tangent to a specified isovel and the centre of the core of an air jet	**313**
roof outlet	air terminal device used for mechanical ventilation installations	**314**
room air velocity	arithmetical average value of velocity conventionally derived from the various locally measured mean air velocities within the occupied zone	**315**
rand rejection efficiency of a sand trap louvre	efficiency of a sand trap louvre, at any velocity through the louvre, is the total weight of sand rejected (m_u) divided by the total weight of the sand injected (m_i)	**316**
sand trap louvre	device intended to allow the passage of outdoor air or exhaust air, while minimizing the ingress of airborne sand (see also louvre)	**317**
saturation pressure of vapour	pressure at which vapour and liquid or vapour and solid can exist in equilibrium at a given temperature	**318**
secondary air	air prevailing in a treated space (coded yellow)	**319**
secret (or concealed fixing)	see fixing accessories for air terminal devices	**320**
section of air handling unit	functional element of an air handling unit, consisting of one or more components contained in a single casing	**321**
sensor	device or instrument designed to detect and measure a variable	**322**
set point	value of the controlled variable to which a control device is set	**323**
shaft ventilation	natural ventilation by means of a duct mounted vertically (i.e. with an angle of 90°) or mounted with an angle of 45° at least	**324**
shielding of a dwelling	obstacle in the neighbourhood of the dwelling by which the infiltration or ventilation is influenced	**325**
short circuit of air external	direct recirculation of exhaust air with outdoor air	**326**
short circuit of air internal	direct extraction of supply air before it contributes to the treatment of the space	**327**
single duct unit	air terminal unit assembly having one ducted air inlet and a device for regulating the air flow rate either manually (pressure dependent) or by automatic means at a value which may be maintained constant or variable (pressure independent)	**328**
single leaf damper or valve	see damper and valve	**329**
size designation of a fan	size designation of a fan is the nominal impeller tip diameter, which is defined as the impeller tip diameter on which the design of the fan is based	**330**
slide damper or valve	see damper and valve	**331**
slip joint	normally used on small rectangular ducts to join one component to another. The joint normally comprises of a female end on one component into which the male end of the adjacent component is inserted. Slip joints can also be made with an extended male end to provide some linear tolerance in the assembly	**332**
smoke damper	see fire and smoke damper	**333**
'snap in' fastener	see fixing accessory for air terminal device	**334**

Term	Definition	Number
sound attenuating section	section in which a sound transferred into ductwork or to ambient is reduced	**335**
sound attenuator	element inserted into the air distribution system and intended to reduce the airborne noise in the system	**336**
sound reduction (attenuation)	reduction of sound energy	**337**
spread (of an air jet in mixing air diffusion)	maximum distance (d_V) between two vertical planes tangent to a specified isovel and perpendicular to a plane through the centre of the core of an air jet. There may be two different spreads, not always equal: one for the left side, the other for the right side (considered when looking at the treated space from the supply air terminal device)	**338**
stack effect	pressure difference caused by the difference in density between indoor and outdoor air due to an indoor/outdoor temperature difference	**339**
standard air	atmospheric air having a density of 1,2 kg m^{-3} at 20 °C, 101 325 Pa (1013,25 mbar) and 65 % relative humidity	**340**
static pressure	total pressure minus velocity pressure	**341**
static gauge pressure	static pressure relative to the atmosphere	**342**
stiffener	frames, tie rods or the like, which increase the stiffness of the walls of the ducts in order to reduce the risk of vibration due to the velocity of the air and/or to reinforce the duct against the pressure of the air	**343**
straight duct component	duct component with a constant straight section along the considered element; it can be either rigid or flexible, a flexible duct is one which can change orientation without the use of a fitting	**344**
straight duct surface area	product of the internal perimeter of the duct and its length	**345**
straightening element	see flow equaliser	**346**
supply air	air flow entering the treated space, or air entering the system after any treatment (coded with a colour according to the number of thermodynamic treatments)	**347**
	Number of thermodynamic treatments / Colour None / green 1 / red 2 or 3 / blue 4 / violet	
supply air flow rate	air quantity entering a supply air terminal device from an upstream duct	**348**
supply air terminal device	air terminal device through which air enters the treated space. It is designed in order to ensure the predetermined comfort conditions of temperature, velocity, humidity and sound in the occupied zone	**349**
supply temperature differential	algebraic difference between the supply air temperature and the mean measured air temperature of the occupied zone	**350**
supply ventilation installation package	installation package intended for supply of air see ventilation installation package	**351**
system powered flow rate controller	see flow rate control device	**352**

Term	Definition	Number
temperature	**general definition** measurement of warmth or coldness with respect to an arbitrary zero or to the absolute zero **induced air temperature** air temperature of the internally induced air flow **mean measured air temperature of the occupied zone** arithmetical average of the measured values of air temperature within the occupied zone **mean radiant** theoretical uniform surface temperature of an enclosure, in which an occupant would exchange the same amount of radiant heat as in the actual non-uniform enclosure **operative** theoretical uniform temperature of an enclosure in which an occupant would exchange the same amount of heat by radiation and convection as in the actual non-uniform space **optimum operative** operative temperature that satisfies the greatest possible number of people at a given clothing and activity level **plane radiant** uniform temperature of an enclosure where the radiance on one side of a small plane element is the same as in the non-uniform actual environment **primary air temperature** air temperature of the primary air flow **asymmetry, radiant** difference between the plane radiant temperature of the two opposite sides of a small plane element **primary air temperature difference** algebraic difference of the primary air temperature and the reference air temperature of the occupied zone **reference air temperature of a room** average of at least five measurements of the air temperature at a height of 1,1 m from the floor and outside the area directly influenced by a device **total air temperature** air temperature of the total air flow supplied by an air terminal device **dewpoint (temperature)** temperature of a mixture of air and water vapour at which further cooling or adding more water vapour results in condensation of water vapour from the air	**353**
temperature difference, vertical air	difference in air temperature measured at 1,1 m and 0,1 m above the floor. The distances 1,1 m and 0,1 m are theoretical average values for head and ankle height of a sedentary person	**354**
temperature differential within the occupied zone	largest value of the difference between the measured air temperatures within the occupied zone	**355**
temperature gradient risk	percentage of people predicted to be dissatisfied due to a difference in air temperature between ankle and head	**356**

Term	Definition	Number
test pressure	static gauge pressure measured in the device to be tested	**357**
theoretical air flow rate of a louvre	product of the core area and the air velocity calculated, using the pressure difference across the louvre as a dynamic pressure, assuming a pressure loss coefficient =1	**358**
thermal bridging factor (of an air handling unit)	ratio of the lowest temperature difference between any point on the external surface and the mean internal air temperature, and the mean air to air temperature difference	**359**
thermal comfort	condition of mind, which expresses satisfaction with the thermal environment	**360**
thermal environment	characteristics of the environment, which affect the heat exchange between the human body and the environment	**361**
thermal insulation	see acoustic and/or thermal insulation	**362**
thermal radiation	transmission of energy by means of electromagnetic waves emitted due to temperature	**363**
thermal sensation	conscious feeling commonly graded into the categories cold, cool, slightly cool, neutral, slightly warm, warm and hot	**364**
thermometer	device for measuring temperature	**365**
throttling	irreversible adiabatic process in which pressure is lowered by expansion without work	**366**
throw (of an air jet in mixing air diffusion)	maximum distance (L_V) between the centre of the core and a plane which is tangent to a specified isovel and perpendicular to the intended direction of flow	**367**
time constant	time required for response of a device to reach a specified percentage of its final value after a step change	**368**
tolerance	difference between upper and lower limits of size for a given nominal dimension	**369**
total air flow rate	mass or volume of air entering a space and being the total of the primary and secondary flow rate	**370**
total air temperature	see temperature	**371**
total gauge pressure	absolute pressure with the atmosphere as a zero reference	**372**
total pressure difference over the air handling unit	difference between the total gauge pressure at the outlet of the air handling unit and the total gauge pressure at the inlet	**373**
transferred air	indoor air which passes from the treated room to another treated room (coded grey)	**374**
transformation **(fitting)**	affects a change of area and/or the form of the cross-section. If the transformation is continuous then a reduction in the area is termed convergent and an increase in area is termed divergent. If the transformation is abrupt the reduction in area is termed an abrupt contraction and an increase in area is termed an abrupt enlargement (see also duct fitting)	**375**
treated space	enclosure served by an air distribution system	**376**
troffer luminaire air terminal device	air terminal device, usually in the form of a slot or combination of slots for use with, but functionally independent from, a linear luminaire	**377**
turbulence intensity	ratio of the standard deviation of the air velocity to the mean air velocity	**378**
turbulent flow	flow that is characterized by a forward motion accompanied by irregular eddies associated with momentum transfer between fluid layers	**379**
upper limit (of a duct)	algebraic difference between the maximum limit of size and the corresponding nominal size	**380**

Term	Definition	Number
vane control (of a fan)	see fan control methods	**381**
vane ratio (of a grille)	ratio of the chord length to the vane pitch	**382**
vapour barrier (duct)	vapour resistant coating applied to the exterior of the thermal insulation used on ductwork through which air flows at sub-ambient temperature. Also used for the same purpose in other building constructions. Its purpose is to avoid migration of water vapour into and condensation of water within the thermal insulation. A vapour barrier can also be necessary to prevent corrosion of a metallic sheath caused by condensation	**383**
variable blade pitch control (of a fan)	see fan control methods	**384**
variable speed control (of a fan)	see fan control methods	**385**
velocity, relative air	air velocity relative to an occupant	**386**
vent	any opening in the building intended for ventilation	**387**
ventilation	designed supply and removal of air to and from a treated space	**388**
ventilation effectiveness concentration	Measure of the relationship between the pollutant concentration in the exhaust air and the pollutant concentration in the specified zone.	**389**
ventilation installation	combination of all components required to provide ventilation	**390**
ventilation installation package (for a single dwelling)	combination of compatible components, which are tested, sold and installed as a single product and specified by the manufacturer to complete a residential ventilation installation NOTE It may include minor parts, such as tapes, sealants and screws.	**391**
ventilation flow rate	volume flow rate at which ventilation air is supplied or removed	**392**
ventilation or air conditioning system	Combination of the ventilation or air conditioning installation and the building itself.	**393**
vibration reduction device	means intended to increase the natural frequency of duct walls in order to minimize the possible effects of vibration	**394**
volume flow rate	volume of matter, which passes a given surface, divided by time	**395**
water rejection efficiency $_w$ of a weather louvre	efficiency of a weather louvre at any air velocity under test conditions	**396**
water tightness	ability of an externally mounted air transfer device to resist water penetration NOTE It is observed in the conventional conditions of a standard.	**397**
width of the v $m \cdot s^{-1}$ isovel (for displacement air diffusion)	maximum width of the rectangle circumscribing the specified isovel perpendicular to the intended direction of flow and independent of the distance from the floor	**398**
window mounted (air terminal device)	air terminal device designed to be integrated with window units. (See also externally mounted air terminal devices)	**399**
zone (comfort process control)	space, or group of spaces with similar thermal characteristics, which enable the required internal conditions to be maintained by a single control system or a single element of a comprehensive control system	**400**

4 Symbols and units

For the purposes of this European Standard the symbols and units given in EN 779, EN ISO 5135, ISO 5801, and ISO 13349 and the symbols given in Table 2 apply.

Table 2 – Symbols and units

Term	Symbol	Unit	Number
absolute static pressure	p_{sa}	Pa	1
absolute total pressure	See stagnation pressure		2
acceleration	a	$m \cdot s^{-2}$	3
acceleration of free fall (or acceleration due to gravity)	g	$m \cdot s^{-2}$	4
acceptable leakage rate of an installation	k	%	5
actual expansibility of a gas at constant pressure		K^{-1}	6
air flow rate (see mass or volume flow rate)	q_v or q_m	$m^3 \cdot s^{-1}$ or $kg \cdot s^{-1}$	7
air leakage factor	f	$m^3 \cdot s^{-1} \cdot m^{-2}$	8
air leakage rate	q_{vl}	$m^3 \cdot s^{-1}$	9
angle		radians (rad) or degrees	10
angular acceleration	a	$rad \cdot s^{-2}$	11
angular velocity		$rad \cdot s^{-1}$	12
area	A	m^2	13
area ratio of a flow measuring device	$m =$ ^{2}	-	14
atmospheric pressure	p_a	Pa	15
blade tangential velocity (within a fan impeller)	u	$m \cdot s^{-1}$	16
breadth	b	m	17
bulging/caving of a duct or enclosure	s	m	18
Celsius temperature	$, (t)$	°C	19
coefficient of thermal conductivity		$W \cdot m^{-1} \cdot K^{-1}$	20
compressibility factor of a gas	Z	-	21
concentration	c	$gram \times m^{-3}$	22
convective heat transfer coefficient	h_c	$W \cdot m^{-2} \cdot K^{-1}$	23
cross-sectional area of a duct	A_c	m^2	24

Term	Symbol	Unit	Number
Darcy friction factor for a duct of constant area		-	25
deflection of a joint (ductwork)	c	m	26
density		$kg \cdot m^{-3}$	27
diameter	d,D	m	28
diameter ratio of a flow measuring device		-	29
distance to the v $m \cdot s^{-1}$ isovel	L_v	m	30
drop (of an air jet)	h_v	m	31
dynamic pressure	p_d	Pa	32
dynamic viscosity		$N \cdot s \cdot m^{-2}$	33
effective area of an air terminal device	A_k	m^2	34
effective length	l	m	35
efficiency		-	36
energy	E	J	37
energy loss per unit mass	y	$J \cdot kg^{-1}$	38
enthalpy per unit mass	$h, (i)$	$J \cdot kg^{-1}$	39
entropy per unit mass	s	$J \cdot kg^{-1} \cdot K^{-1}$	40
equivalent absorption area	A_e	m^2	41
equivalent diameter of a straight parallel rectangular duct	d_e	m	42
fan air power	P_f	W	43
fan efficiency	R	-	44
fan equivalent orifice	O	m^2	45
fan head	H	m	46
fan impeller power	P_R	W	47
fan pressure	p_F	Pa	48
fan shaft power	P_a	W	49
fan work per unit mass	y	$J \cdot kg^{-1}$	50
flow coefficient of leakage	C_l	$m^3/(s \cdot Pa^n)$	51

Term	Symbol	Unit	Number
flow coefficient of a subsonic flow in an orifice (or in a throat)		-	52
fluid density upstream of a flow measuring device	$_u$	$kg \cdot m^{-3}$	53
force	F	N	54
Fourier number	Fo	-	55
frequency (of a periodic phenomenon)	f	s^{-1}	56
Froude number (or Reech number)	Fr	-	57
Grashof number	Gr	-	58
heat capacity	C	$J \cdot K^{-1}$	59
heat flux (or thermal power)		W	60
heat flux density		$W \cdot m^{-2}$	61
height	h	m	62
height above datum	z	m	63
height of the v $m \times s^{-1}$ isovel	h_v	m	64
hydraulic diameter of a straight parallel duct	d_h	m	65
impeller tip diameter of a fan	D	m	66
impeller tip radius of a fan	R	m	67
insulation of clothing	I_{cl}	$m^2 \cdot K \cdot W^{-1}$	68
internal diameter of a pipe	D	m	69
internal energy per unit mass	u	$J \cdot kg^{-1}$	70
isentropic exponent	k	-	71
kinematic viscosity		$m^2 \cdot s^{-1}$	72
kinetic energy factor through a section of A_1	$_{A1}$	-	73
kinetic energy per unit mass	e_K	$J \cdot kg^{-1}$	74
latent heat per unit mass (for the isothermal transformation of a phase)	l	$J \cdot kg^{-1}$	75
length	L	m	76
Mach number	Ma	-	77
mass	m	kg	78

Term	Symbol	Unit	Number
mass air flow rate	q_m	$kg \cdot s^{-1}$	79
mean flow velocity in the cross-section of a duct	v_m	$m \cdot s^{-1}$	80
metabolic rate	M	$W \cdot m^{-2}$	81
molar mass	M	$kg \times mol^{-1}$	82
moment of inertia	I	$kg \cdot m^2$	83
momentum	p	$kg \cdot m \cdot s^{-1}$	84
motor input power	P_E	W	85
motor output fan efficiency	M	-	86
motor output power	P_M	W	87
number of blades of a fan impeller	K,B	-	88
Nusselt number	Nu	-	89
operative temperature	$_o,(t_o)$	°C	90
orifice diameter of a flow measuring device	d	m	91
overall fan efficiency	E	-	92
overall heat transfer coefficient	U	$W \cdot m^{-2} \cdot K^{-1}$	93
overlap length (ductwork)	l_p	m	94
partial pressure of water vapour	p_v	Pa	95
percentage dissatisfied due to local discomfort	PD	%	96
periodic time (of a periodic phenomenon)	T	s	97
pipe Reynolds number	Re_d	-	98
polytropic coefficient	n	-	99
position of valve or induction damper setting	s	% or degree	100
power	P	W	101
Prandtl number	Pr	-	102
predicted Mean Vote	PMV	-	103
predicted Percentage of Dissatisfied	PPD	%	104
pressure difference between any two specified points	p_t, p_s *etc.*	Pa	105

Term	Symbol	Unit	Number
pressure loss coefficient		-	106
primary air flow rate	q_{vp}, q_{mp}	$m^3 \cdot s^{-1}$ or $l \cdot s^{-1}$, $kg \cdot s^{-1}$	107
quantity of heat	Q	J	108
radiant temperature	$_r(t_r)$	°C	109
radiation heat transfer coefficient	h_r	$W \cdot m^{-2} \cdot K^{-1}$	110
radius	r	m	111
radius of curvature	r_m	m	112
ratio of the specific heat capacities		-	113
relative fluid velocity (to the impeller of a fan)	w	$m \cdot s^{-1}$	114
relative humidity	p	-	115
reverberation time	T	s	116
Reynolds number	Re	-	117
Reynolds number of a flow measuring device	Re_d	-	118
rotational speed	n	s^{-1}	119
saturation pressure of water vapour	p_{sat}	Pa	120
secondary air flow rate	q_{vs}, q_{ms}	$m^3 \cdot s^{-1}$ or $l \cdot s^{-1}$, $kg \cdot s^{-1}$	121
shaft power fan efficiency	A	-	122
solid angle		sr	123
sound power level	L_W	dB	124
sound pressure level	L_p	dB	125
specific fan power	SFP	$W \times m^3 \cdot s^{-1}$	126
specific heat capacity	c	$J \cdot kg^{-1} \cdot K^{-1}$	127
specific heat capacity at constant pressure	c_p	$J \cdot kg^{-1} \cdot K^{-1}$	128
specific heat capacity at constant volume	c_v	$J \cdot kg^{-1} \cdot K^{-1}$	129
spread (of an air jet)	b_v	m	130
stagnation (or absolute total) pressure	p_{ta}	Pa	131
Stanton number	St	-	132

Term	Symbol	Unit	Number
static gauge pressure	p_s	Pa	133
straight duct surface area	A_i	m^{-2}	134
surface heat transfer coefficient	h	$W \cdot m^{-2} \cdot K^{-1}$	135
surface tension		$N \cdot m^{-2}$	136
tangential component of the fluid absolute velocity (within a fan impeller)	c_u	$m \cdot s^{-1}$	137
temperature difference	, t, T	K	138
thermal bridging factor of a casing of an air handling unit	k_b	-	139
thermal diffusivity	a	$m^2 \cdot s^{-1}$	140
thermodynamic (or absolute) temperature	T	K	141
thickness	t,d	m	142
thickness of the dynamic boundary layer		m	143
thickness of the thermal boundary layer	T	m	144
throw	L_v	m	145
time	t	s	146
time constant (of an exponential change of a quantity)		s	147
tip Reynolds number of a fan impeller	Re_u	-	148
tip speed of a fan impeller	U	$m.s^{-1}$	149
torque	T	$N \cdot m$	150
total air flow rate	q_{vt}, q_{mt}	$m^3 \cdot s^{-1}$ or $l \cdot s^{-1}$, $kg \cdot s^{-1}$	151
total gauge pressure	p_t	Pa	152
turbulence intensity	T_u	%	153
universal gas constant	R	$J \cdot kg^{-1} \cdot K^{-1}$	154
velocity	v	$m \cdot s^{-1}$	155
velocity of sound	c	$m \cdot s^{-1}$	156
volume	V	m^3	157

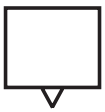
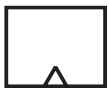
Term	Symbol	Unit	Number
volume flow rate	q_v	$m^3 \cdot s^{-1}$ or $l \cdot s^{-1}$	158
wave length (of a periodic phenomenon)		m	159
weight	G	N	160
weighted sound pressure level	L_{pA} L_{pB} L_{pC}	dB (A) dB (B) dB (C)	161
wetted perimeter of a duct		m	162
width	b	m	163
work	W	J	164
young's modulus	E	$N \cdot m^{-2}$	165

5 LINE GRAPHICAL SYMBOLS

5.1 Diffusion

Table 3 specifies graphical symbols for diffusion.

Table 3 – Graphical symbols for diffusion

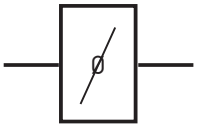
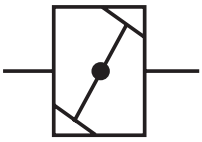
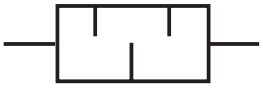
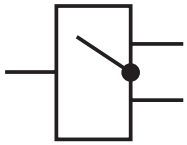
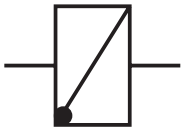
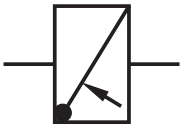
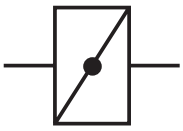
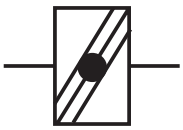
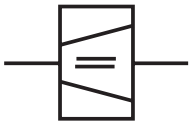
Number	Graphical symbol	English term
1		Supply air terminal device
2		Exhaust air terminal device

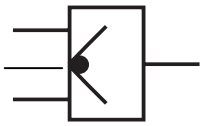
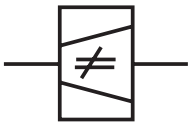
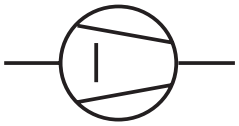
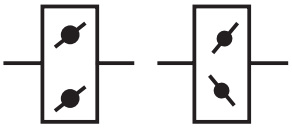
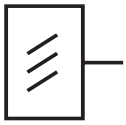
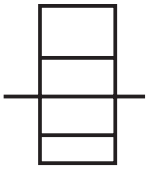
5.2 Distribution

Table 4 specifies graphical symbols for distribution.

Table 4 – Graphical symbols for distribution

Number	Graphical symbol	English term
1	oval Ø a b	Ducts rigid Oval Circular Rectangular
2	XXXX XXXX	Ducts rigid with thermal insulation Outside Inside
3		Ducts rigid with acoustic insulation Outside Inside
4		Ducts flexible
5		Bend 90°, 45° etc.
6		Branch, splitting
7		Transformation, abrupt
8		Transformation, continuous

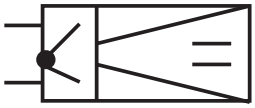
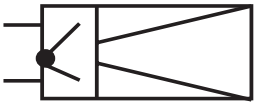
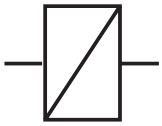
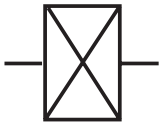
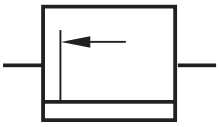
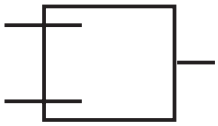
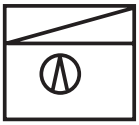
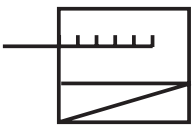
Number	Graphical symbol	English term
9		Damper
10		Airtight damper
11		Attenuator
12		Diverting element
13		Non return damper
14		Pressure relief damper
15		Smoke damper
16		Fire damper
17		Fire and smoke damper
18		Constant flow control damper

Number	Graphical symbol	English term
19		Bypass
20		Variable flow control damper
21		Fan
22		Radial fan
23		Axial fan
24		Air filter
25	 parallel opposed	Multi-leaf damper
26		Louvre
27		Flow rectifier

5.3 Treatment

Table 5 specifies graphical symbols for treatment.

Table 5 – Graphical symbols for treatment

Number	Graphical symbol	English term
1		Mixing box with constant air flow
2		Mixing box with variable air flow
3		Air heater
4		Air cooler
5		Air humidifier
6		Mixing chamber
7		Fan coil unit
8		Induction unit

5.4 Controls and instruments

Table 6 specifies graphical symbols for controls and instruments.

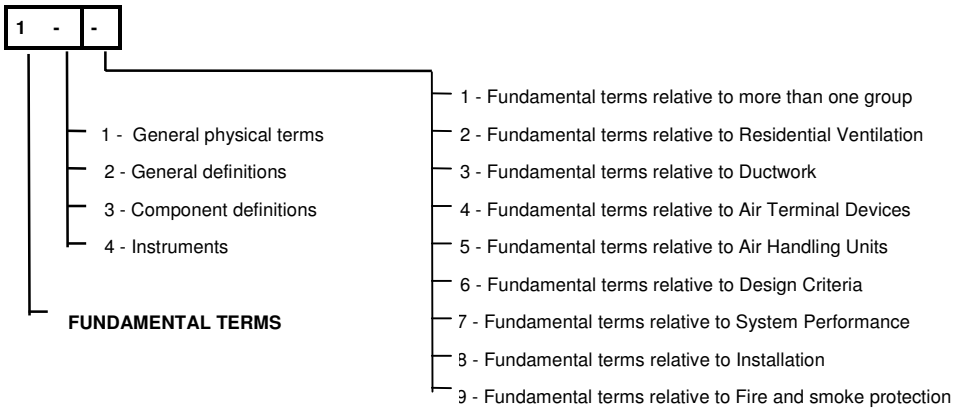
Table 6 – Graphical symbols for controls and instruments

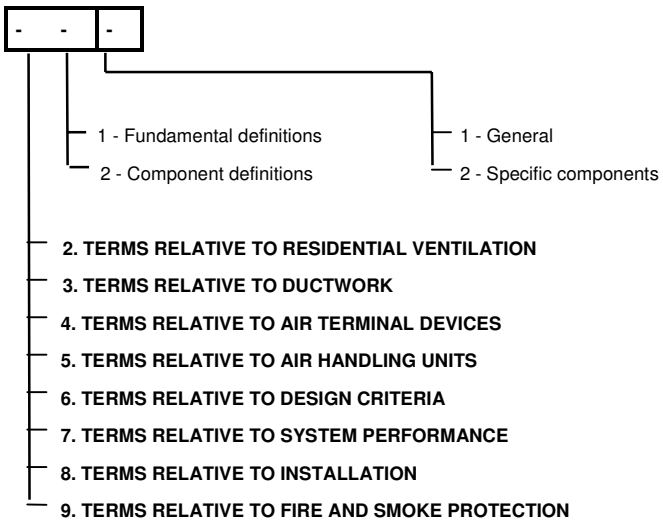
Number	Graphical symbol	English term
1		Measuring sensor
2		Controller
3		Actuator

Annex A
(Informative)

Possible structure of terms and definitions for database

A.1 A possible structure for identifying terms and definitions for use in a database is given below:





a	b	c	d
			A
1	1	1	absolute humidity
1	1	1	absolute total pressure (stagnation pressure)
3	1	1	accessibility
4	1	2	accessories of distribution
1	2	1	acoustic and/or thermal insulation
1	2	6	acoustic environment
1	2	1	actuator
4	2	1	adjustable flow rate air diffuser
4	2	1	adjustable grille
4	2	1	adjustable pattern air diffuser
1	2	1	air conditioning
1	2	1	air conditioning installation
4	2	1	air diffuser
4	1	2	air diffusing ceiling
1	2	4	air diffusion
1	2	4	air distribution
1	2	2	air duct
2	2	2	air extraction cooker hood
1	1	1	air flow
1	1	1	air flow rate
4	2	1	air flow rate controllers
5	1	1	air handling unit
5	2	2	air heating and cooling coils
1	1	1	air humidity
3	1	1	air leakage factor (of a duct)
3	1	1	air leakage rate (of a duct)
6	1	1	air pollutant
1	2	6	air pollution
4	2	1	Air Terminal Device (ATD)
4	1	1	Air Terminal Unit (ATU)
4	2	1	Air Terminal Unit assembly
4	2	2	Air Terminal Units with integral air terminal device
3	1	1	air tightness class A, B and C (of a duct)
4	2	1	air transfer device
1	2	1	air treatment
4	2	1	air turning vanes
1	2	6	air type
1	1	1	air velocity
4	1	1	A_k-value (effective area of an air terminal device
1	4	1	anemometer
3	1	1	angle of a transformation piece
4	1	1	aspect ratio (of a rectangular air terminal device)
4	2	1	automatically controlled air terminal device
5	2	2	axial flow fan
			B
4	2	2	baffle
1	2	8	balancing
3	2	2	bend (elbow)
5	2	2	bifurcated fan
5	1	1	blow through unit
3	2	2	branch
1	2	1	bulging, caving of a duct or enclosure(s)
3	2	2	butt connection
4	2	2	butterfly dampers or valves

1	2	5	bypass factor
			C
1	2	8	calibration
1	3	1	casing
5	2	2	casing of an air handling unit
5	2	2	centrifugal fan
1	3	5	chiller
5	2	2	circulating fan
1	2	1	clean room
3	1	1	clearance (for ductwork connections)
3	2	2	cleat
6	1	1	Clo-unit
3	2	2	collar
5	2	1	combined section of an air handling unit
6	1	1	comfort condition
1	2	8	commissioning
1	3	1	component
5	2	1	component of an air handling unit
2	2	1	component of ventilation or air conditioning
4	2	1	components of air diffusion
4	2	1	components of air distribution
3	2	2	connector
5	2	2	contra rotating fan
4	2	1	control device (air terminal unit)
1	2	1	control system
2	2	2	cooker hood
5	2	2	cooler
1	3	5	cooling
5	2	1	cooling coil
4	1	1	core area of a sand trap louvre
4	1	1	core area of an air terminal device
2	2	2	cowl
4	1	1	cross-sectional area of a duct
			D
4	2	1	damper and valve
5	1	1	damper control (of a fan)
5	2	1	damper section
3	1	1	deflection of a duct
3	1	1	deflection of a joint
1	2	1	dehumidification
1	1	1	deviation
1	1	1	dewpoint (temperature)
1	2	4	diffusion of air
1	3	5	direct fired air heater
4	1	1	discharge or entry loss coefficient of a louvre
1	2	4	displacement air diffusion
6	1	1	distance to the v $m \cdot s^{-1}$ isovel
3	2	2	door and inspection panel
5	2	2	drain cock
5	2	2	drain plug or cock
6	1	1	draught
6	1	1	draught risk rating
4	1	1	drop (of an air jet in mixing air diffusion)
4	2	1	dual duct unit
3	2	1	duct board
3	2	1	duct connection component
3	2	1	duct fitting

3	1	2	duct sealing
3	2	1	duct support
3	1	1	duct support spacing
3	2	2	duct transformation
5	2	2	ducted fan
3	2	1	ductwork components
2	1	1	dwelling
1	1	1	dynamic pressure

E

4	1	1	effective area of an air terminal device
3	1	1	effective length of a duct
3	1	1	effective length of a fitting
4	2	1	element of distribution
3	1	1	equivalent diameter of a straight rectangular parallel duct
6	1	1	exfiltration
1	2	1	exhaust air
5	1	1	exhaust air classification
5	1	1	external fan pressure difference
6	1	1	external work
4	2	1	externally mounted air terminal device
2	2	2	externally mounted wall air terminal device
5	1	1	extract air
5	1	1	extract air classification
1	2	5	extract air classification
2	2	2	extract air terminal device
5	1	1	extract temperature differential

F

1	3	5	fan
2	1	1	fan assisted balanced ventilation
2	1	1	fan assisted exhaust ventilation
4	2	2	fan assisted induction terminal unit
4	2	2	fan assisted induction terminal unit with constant flow rate
4	2	2	fan assisted induction terminal unit with variable flow rate
2	1	1	fan assisted supply air ventilation
5	1	1	fan control methods
1	2	5	fan functions
5	2	2	fan inlet
1	2	5	fan installation categories
5	2	2	fan outlet
5	2	1	fan section of an air handling unit
1	2	5	fan types
3	2	2	female connector
1	3	1	filter
5	2	1	filter section of an air handling unit
1	2	1	filtration
4	2	2	fire and smoke damper
4	2	2	fire damper
4	2	1	fixed air terminal device
4	2	2	fixed directional grille
4	2	2	fixed non-directional grille
4	2	1	fixing accessory for air terminal devices
3	2	2	flange
5	2	1	flash chamber
3	2	1	flexible duct
6	1	1	floor temperature dissatisfaction risk
1	2	1	flow
4	2	2	flow equaliser
4	1	1	flow rate control device

1	3	4	flow rate controller
1	2	4	flow rate pressure characteristic
4	1	1	free area of an air terminal device
4	1	1	free area ratio
4	1	1	free area velocity
4	2	2	fully adjustable air diffuser
8	1	1	functional check
8	1	1	functional measurement
			G
1	2	2	grease absorption efficiency
4	2	1	grille
			H
1	3	1	heat exchanger
1	2	5	heat recovery
5	2	1	heat recovery section of an air handling unit
4	2	2	heat removal luminaire
1	1	1	heating
5	2	2	heating coil
6	1	1	height of the v $m \cdot s^{-1}$ isovel (for displacement air diffusion)
4	2	2	hit and miss damper or valve
1	2	1	humidification
1	1	1	humidification efficiency
5	2	1	humidifier section of an air handling unit
1	1	1	humidity
1	1	1	hydraulic diameter
1	4	1	hygrometer
			I
1	2	5	impeller tip diameter (of a fan)
6	1	1	indoor air
6	1	1	indoor air classification
6	1	1	indoor air classification on CO_2 (non smoking areas)
6	1	1	indoor air classification on controlling
6	1	1	indoor air quality
4	1	1	induced air
4	1	1	induced air temperature
1	2	4	induction rate
4	2	2	induction supply air terminal device
4	2	2	induction terminal unit (excluding fan-powered terminal unit)
6	1	1	infiltration
3	1	1	insertion length
4	1	1	insertion loss (of a weather louvre)
3	2	2	inspection panel
6	1	1	insulation of clothing
1	2	1	internal heating load
4	1	1	internally induced air flow rate (air terminal device)
4	2	1	internally mounted air transfer device
4	2	2	iris damper and valve
4	1	1	isovel
			J
5	2	2	jet fan
			K
			L
1	2	1	leakage
5	1	1	leakage of the installation
4	2	2	linear air diffuser
4	2	2	linear grille
6	1	1	local air velocity

1	2	6	local mean air velocity
1	2	6	local measured mean air velocity
4	2	1	louvre
4	2	2	low velocity air terminal device
3	1	1	lower limit (of a duct)

M

3	2	2	male connector
1	4	1	manometer
4	2	2	manual damper
4	2	2	manual valve
4	2	2	manually adjusted air terminal device
1	1	1	mass flow rate
6	1	1	mean measured air temperature of the occupied zone
6	1	1	mean radiant temperature
1	4	1	measurement station
4	2	2	mechanical constant flow rate controller
4	2	2	mechanical variable flow rate controller
6	1	1	met-unit
6	1	1	metabolic rate
5	1	1	mixed air
4	1	1	mixing air diffusion
5	2	1	mixing section of an air handling unit
1	3	1	mixing section of an air terminal unit
4	2	2	multiple leaf damper or valve

N

1	2	1	natural ventilation
3	1	1	negative rated operating pressure
3	1	1	nominal length of a flexible duct
3	1	1	nominal length of a rigid duct
4	1	1	nominal size of an air terminal device
3	1	1	nominal size of duct and fitting
4	2	2	nozzle

O

1	2	1	occupied zone
6	1	1	odour dispersion time
6	1	1	odour reduction factor
6	1	1	operative temperature
6	1	1	optimum operative temperature
6	1	1	outdoor air
6	1	1	outdoor air classification
1	2	1	overall heat transfer coefficient
3	1	1	overlap length

P

5	2	1	partition fan
4	2	2	perforated plate
6	1	1	permissible range
6	1	1	plane radiant temperature
4	2	2	plaster frame
5	2	1	plate mounted axial flow fan
4	2	2	plenum box
1	2	6	pollution
3	1	1	positive rated operating pressure
6	1	1	predicted Mean Vote
6	1	1	predicted Percentage of Dissatisfied
1	1	1	pressure difference
1	1	1	pressure drop
2		1	pressure factor
4	1	1	pressure loss coefficient

1	2	1	primary air
1	2	1	primary air flow rate
4	1	1	primary air temperature
5	2	1	propeller fan
			Q
			R
4	2	2	rain louvre
2	2	2	range hood
2	2	2	recirculating air cooker hood
1	2	1	recirculation air
5	2	1	recirculation air handling unit
5	2	1	reversible axial flow fan
4	1	1	rise (of an air jet in mixing air diffusion)
2	2	2	roof outlet
4	1	1	room air velocity
			S
4	1	1	sand rejection efficiency of a sand trap louvre
4	2	2	sand trap louvre
1	1	1	saturation pressure of vapour
1	2	1	secondary air
1	2	4	secondary air flow rate
4	2	1	secret (or concealed fixing)
5	1	1	section of an air handling unit
1	4	1	sensor
1	2	8	set point
1	2	5	short circuit of air external
1	2	5	short circuit of air internal
4	2	2	single duct unit
4	2	2	single leaf damper or valve
5	2	1	size designation of a fan
4	2	2	slide damper or valve
3	2	1	slip joint
4	2	2	smoke damper
4	2	2	snap in fastener
4	2	1	sound reduction device
5	2	1	sound reduction section
5	1	1	specific fan power
4	1	1	spread (of an air jet in mixing air diffusion)
1	1	1	standard air
1	1	1	static gauge pressure
1	1	1	static pressure
3	2	1	stiffener
3	2	2	straight duct component
3	1	1	straight duct surface area
3	2	1	straightening element
1	2	1	supply air
5	1	1	supply air classification
1	2	1	supply air flow rate
4	2	1	supply air terminal device
6	1	1	supply temperature differential
4	2	2	system powered flow rate controller
			T
1	1	1	temperature
6	1	1	temperature difference, vertical air

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