

***IGEM/G/4 Edition 2
Communication 1763***

Definitions for the gas industry



*Founded 1863
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Patron: Her Majesty the Queen*

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SECTION 1 : INTRODUCTION

- 1.1 This Standard provides definitions of terms used in Institution of Gas Engineers and Managers (IGEM) Standards.
- 1.2 For the purposes of this Standard, definitions have been agreed between the relevant IGEM Committees responsible for the publication of IGEM Standards.
- 1.3 This Standard recognises inconsistency between definitions within IGEM Standards issued up to September 2009 due to the time period over which those Standards were developed. It attempts to consolidate the varied use of different terms across IGEM Standards, to provide a base for their future amendment and to represent current best practice.

Definitions contained within such an IGEM Standard published prior to 1st September 2009 may continue to be used until such time as that Standard is made obsolete. Where an IGEM Standard published on or after 1st September 2009 does not contain definitions, this Standard applies.

- 1.4 For metering, this Standard should be read alongside IGEM/G/1 "Defining the end of the Network, a meter installation and installation pipework", whose definitions specifically have been accepted by Ofgem as definitions for metering arrangements in Great Britain. The definitions from IGEM/G/1 are replicated in IGEM/G/4 but drawings of "standard" and "legacy" designs of metering arrangements are not.

When required, it is the intention to amend both IGEM/G/1 and IGEM/G/4 simultaneously to retain consistency.

- 1.5 This Standard is produced on CD and can be freely downloaded from IGEM's website alongside IGEM/G/1 for use on personal computer systems. In the event an update is required to any definition, an amendment will be issued which will be freely available to download from the IGEM website. This amendment will be tailored so that it can be inserted into hardcopies of IGEM/G/4. Alternatively the whole updated version may be downloaded from the IGEM website.
- 1.6 Requests for interpretation of this Standard in relation to matters within its scope, but not precisely covered by the current text, should be addressed to Technical Services, IGEM, IGEM House, High Street, Kegworth, Derbyshire, DE74 2DA and will be submitted to the relevant Committee for consideration and advice, but in the context that the final responsibility is that of the engineer concerned. If any advice is given by, or on behalf of, IGEM, this does not relieve the responsible engineer of any of his or her obligations.
- 1.7 This Standard was published in December 2012.

SECTION 2 : SCOPE

- 2.1 This Standard is applicable to all Natural Gas systems and to liquefied petroleum gas (LPG) and LPG/air systems where appropriate.
- 2.2 All pressures are gauge pressures unless otherwise stated.

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SECTION 3 : DEFINITIONS

1 in 20 peak six minute design criterion

Maximum demand for gas that will occur, on average, in not more than 1 winter in 20 years. This is defined as an average in any period of six minutes, expressed as an hourly rate.

1 in "n" annual demand

Annual gas demand which, in a long series of years, would be exceeded only once in a specified number of years.

1 in "n" load duration curve

That curve which, in a long series of years, with total load held at the levels appropriate to the year in question, would be such that the volume of demand above any given demand threshold (represented by the area under the curve and above threshold) would be exceeded in one out of "n" years.

accuracy class

Range of values that define performance accuracy, typically of a regulator.

accuracy group

Range of values that define performance accuracy, typically of a slam-shut valve (SSV).

active regulator

Regulator that, normally, controls outlet pressure.

additional emergency control valve (AECV)

The AECV is a valve, not being the emergency control valve (ECV), for shutting off the supply of gas in an emergency, intended for use by a consumer of gas.

Note 1: An AECV may be located within either a meter installation or installation pipework and, as such, may not isolate all of the meter installation or consumer's pipework.

Note 2: An AECV does not denote the end of the Network and is always fitted downstream of the ECV. The existence of an AECV does not affect the existence of an ECV (which is always required).

aeration

Displacement of purge gas with air to create a safe working atmosphere.

air box

Box fitted to a watersealed gasholder crown or main to allow access onto the gasholder without the loss of air contained at gasholder pressure within it.

alignment clamps

Clamps used to hold pipes in the correct position prior to welding or heat fusion.

alternating pilot

Pilot for lighting a main burner that is extinguished at the end of the main burner ignition period and is re-ignited immediately before the main burner is shut-down for control purposes.

ambient temperature

Environmental temperature.

anaerobic sealant

Chemical compound used for joint sealing, where setting (curing) takes place in the absence of oxygen.

analogue failure

Failure mode whereby a reed switch attains an electrical resistance of between a few hundred ohms to a few hundred thousand ohms, rather than being an open circuit or a short circuit.

anchor block

Concrete block (with or without reinforcement), used for anchorage.

anchorage

Fixing of pipe ends, bends and tees to prevent movement.

ancillary permitry

Permit for working that is usually part of routine operations, such as a regular work process or maintenance procedure that requires permission to carry it out from the Line Managers or Engineers.

annulus

Space between a carrier and a sleeve.

appropriate fitting

A fitting which:

- has been designed for the purpose of effecting a gas tight seal in a pipe or other gas way and
- achieves that purpose when fitted and
- is secure, so far as is reasonably practicable, against unauthorised opening or removal.

asset

Gas system including the personnel, property, plant and equipment.

associated apparatus

Electrical apparatus in which the circuits are not all intrinsically safe but which contains circuits that can affect the safety of intrinsically safe circuits connected to it.

audit

Systematic assessment of the adequacy of a management system.

auger

Drilling tool with a cutting head and spiral flighting along which cuttings pass or are retained to clear the borehole produced.

authorised person

Person, appointed in writing by the responsible engineer who has been properly instructed in his or her duties and deemed competent.

authorising engineer (AE)

Engineer appointed to approve permitry.

automatic burner

Burner for which, when starting from a completely shut-down condition, the start-gas flame is established and the main gas safety shut-off valves (SSOVs) are activated without manual intervention.

automatic isolation valve (AIV)

Valve which closes automatically in response to an external signal.

auxiliary

Device or system, such as a pilot regulator, which powers or controls main equipment.

auxiliary energy supplies

All forms of motive power supplying an installation, excluding fuel.

auxiliary fired burner, relating to a gas turbine

Burner that is provided with all of its combustion air (oxygen) requirements from an air fan independent of the turbine.

back reamer

Cutting head attached to the leading end of a drill string to enlarge the pilot bore diameter during a pull-back operation to enable the product pipe to be installed.

badged meter

Gas meter which has been stamped and/or approved by the Office of Gas and Electricity Markets (OFGEM) or other metrological authority acceptable to OFGEM, as legal metrology and which operates within prescribed statutory limits.

bag-stop

Technique of stopping off the flow through a pipeline, by inserting and inflating bags in the pipeline.

balanced compartment

Plant room or enclosure for one or more gas appliances, specifically designed to draw its combustion air from a point at which the combustion products are discharged, the inlet and outlet being so disposed that wind effects are substantially balanced.

barholing

Practice of safely driving a purpose-designed tool through the ground surface to a prescribed depth for the purpose of taking gas concentration measurements.

base conditions

Standard conditions of temperature, pressure and compressibility, to which gas is converted to account for the measurement conditions of those values.

Note: In the United Kingdom (UK), metric standard conditions are applied as base conditions.

bent sub

Short coupling placed in a drill string to intentionally change the direction or angle of the borehole.

black start

Worst case start condition when a compressor starts with near atmospheric pressure on its outlet.

blast shield

Flat plate used to prevent injury from flying debris or fire due to the explosive effects of a utility strike in a borehole.

block and vent

Single flow stopping device, for example a single seat valve, with a vent point in the downstream section to be isolated.

blowing indicator

Equipment fitted to show that a low pressure gasholder has been over-inflated.

borehole

Circular hole of any pre-determined diameter and direction formed in any geological formation or man-made material by rotary or percussive drilling tools, jetting or impact moling techniques.

bottom curb, relating to a watersealed gasholder

Metal stiffening ring which provides mechanical strength at the bottom of the outer lift.

branch

Connection, usually at right angles, often to a larger pipeline.

breather line

Line between a device and atmosphere to equalise the pressure on the detector element when it changes its position in normal operating conditions.

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breather membrane

Sheet membrane that is waterproof but permeable to water vapour, to protect and waterproof a building prior to cladding being completed and to provide a second line of defence against any wind driven rain which may penetrate the cladding.

burner

Single or group of flame ports ignited as a single entity.

butt fusion

Method of jointing PE pipes and fittings, where the two pipe ends are heated and brought together to be fused without the use of a separate fitting or filler material.

butt welding

Method of jointing steel pipes and fittings of similar outside diameter, by bridging the gap between them with successive deposits of weld metal.

by-pass

Arrangement of valved pipework around a whole installation (or part thereof) that provides temporary continuity of supply and where necessary, control.

cable strike

Hitting a below-ground, live, electrical cable.

capacity

Maximum flow rate through an installation or item of equipment at which the installation/equipment will remain within its design parameters.

capstone

Slab on top of a U-duct terminal.

caravan holiday home

A transportable leisure accommodation vehicle designed to comply with BS EN 1647 for temporary or seasonal occupation but that does not meet all legal requirements for the construction and use of road vehicles but which retains means of mobility.

carriages

Guide roller housings attached to the lift or tank of a watersealed gasholder.

carrier

Existing pipe into which another pipe is inserted.

case length

Axial distance along a pipeline over which risk is assessed.

casing

Lengths of screwed tubing inserted into a borehole to prevent the hole caving in or to prevent loss of drilling fluid to the surrounding formations.

catastrophic failure

Rupture or failure of a process vessel, pipe, component and similar rare events that are not predictable.

cathodic protection (CP)

Method of inhibiting corrosion of buried metallic plant by ensuring that it is permanently cathodic, i.e. electrically negative, to the electrolyte in the surrounding soil.

cavity, relating to a timber-framed building

Drained and ventilated, or vented, space between the external cladding and the face of a timber wall panel.

central bulk storage vessel

Permanently installed container of approved design for the storage of fluid and which is filled on site.

check meter

Meter used for energy management purposes, that is not used for external billing purposes.

check valve

Valve, typically of the swinging plate type which does not guarantee 100% reverse flow shut off.

chimney

Structure consisting of a wall or walls enclosing a flue or flues.

chimney/flue terminal

Device fitted at the flue outlet to allow or assist products of combustion to escape, minimise down draught and prevent entry of material which might block the flue.

chimney system

Complete assembly of components that form a flue path from one or more appliances to a flue outlet.

closed at rest regulator

Design of regulator in which the internal flow control element(s) is designed to be in the closed position when all control and sensing connections are removed.

closed position indicator switch

Switch fitted to a safety shut-off valve (SSOV) which indicates when the SSOV is in the normally-closed position.

closing time

Time taken between commencing and completing the closing action of an internal valve element.

collar

Fitting used to join together the plain ends of two pipes.

column guides

Steel or cast iron sections attached to the inner face of watersealed gasholder columns on which carriage wheels run.

column-guided gasholder

Watersealed gasholder in which the movement of the lifts is constrained by an external framework designed to withstand the forces acting on the gasholder.

combustion chamber

That part of a plant in which the main combustion of gas takes place.

commissioning

Initial start-up of plant and equipment resulting in safe, reliable and efficient subsequent operation.

communal flue system (CFS)

Fabricated chimney which removes combustion products and usually supplies air to gas fired appliances fitted to the system.

compartment

plant room or enclosure for one or more gas appliances, specifically designed to draw its combustion air from a point at which the combustion products are discharge.

competent person

Person having the ability, appropriate training, knowledge and experience to supervise or carry out work being undertaken in a safe and proper manner.

condensate drain

Fixture in a chimney or appliance (resistant to corrosion from condensate formed from the products of combustion) where condensate can be drained.

condensate pipework

Pipework which may also be part of the chimney (resistant to corrosion from condensate formed from the products of combustion), which is leak-free, and along which condensate may flow.

condensing appliance

Appliance designed to make use of the latent heat from water vapour in the combustion products by condensing the water vapour within the appliance.

constant mass flow vent

Vent from which mass flow rate is controlled at a constant level for as long as practicable.

consumer

End-user of gas.

continuity bond

Electrical connection made between two sections of a pipeline or pipework prior to and during their temporary severance, to prevent sparking from stray currents or static electricity.

continuous grade of release

Release which is continuous or is expected to occur frequently or for long periods.

contractor

Persons, firm, company or authority carrying out work on behalf of the promoter of works.

control device

Valve or component which regulates the supply of fuel, air, products of combustion and process throughout.

control pipework

Pipework that transmits a control function.

controlled interface

System interface where gas pressure and/or flow is continuously controlled.

controlled vent area

Area around a temporary vent stack bounded by a contour which may be subject to restricted personnel access and is covered by operational procedures.

conversion device

Device using electronic circuitry that computes and indicates the volume, at standard conditions, of gas that has passed through a gas meter installation, and using as inputs the volume at measurement conditions as measured by a gas meter and other parameters such as temperature and pressure.

conversion device type 1

Conversion device including fixed transducers for temperature and pressure that are not field-interchangeable.

conversion device type 2

Conversion device with field interchangeable transducers for temperature and pressure.

conversion system

System comprising a conversion device or a flow computer, a pressure transducer and a temperature sensor.

converted index

Index reading displayed on a conversion device which shows the result of a conversion of the unconverted index to standard reference conditions.

corrosion allowance

Additional wall thickness provided where corrosion or erosion is expected to be of significance during the life of a system.

cranking

Rotation of an engine, or part of the engine, prior to ignition.

creep, relating to a material

Deformation of material over time, under constant stress.

creep, relating to gas control equipment

Minor leakage volume of gas which a regulator or other control unit may let by in its normally closed state.

creep relief

Means of relieving over-pressure caused by regulator let-by or creep.

critical pipework

Pipework that provides a primary safety, sensing or control function.

cross duct

Duct bringing air for combustion from outside the property to the primary inlet of a SE-duct.

crossing

Installation in which the primary purpose is to provide one or more passages beneath an obstruction.

crown

Sheet metal top of a watersealed gasholder.

cup, relating to a watersealed gasholder

U-shaped seal at the bottom of a lift which allows a watersealed connection to be made to the next lift.

cup blocks (or dip blocks), relating to a watersealed gasholder

Spacers placed in the bottom of a cup or under a dip to provide a bearing surface for the adjacent lift to be raised.

cup level indicators

Equipment for measuring the depth of water in a watersealed gasholder cup.

cupping (and uncupping), relating to a watersealed gasholder

Action of engaging (and disengaging) the lifts of a gasholder in the tank water, which ensures that an adequate gas tight seal is maintained at all times.

cut off plate (sealing plate, hanging seal, safety seal)

Plate which alights on the outlet main as a watersealed gasholder descends, to prevent over-extraction of gas.

cutting head/cutter head

Any tool or system of tools on a common support, which excavates at the face of a bore.

cutting samples

Cold cutting of small discs to assess metal thickness.

cut-out

Section of pipeline to be isolated for replacement or repair, or the installation of an in-line tee to extend supplies.

cyclic volume

Typical volume per revolution of a diaphragm meter.

cylinder

Container of approved design for the storage of a fluid and which is removed from site for filling.

danger

Liability or exposure to harm; a thing which causes peril.

dangerous dose

Specified dose which results in: "severe distress to almost everyone; a substantial fraction (of people exposed to it) requiring medical attention; some people (exposed to it) are seriously injured requiring prolonged treatment; any highly-susceptible people (exposed to it) might be killed".

dangerous occurrence

Event arising out of or in connection with work, which is reportable under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) and may or may not have resulted in injury.

dangerous substance

Specific term defined in the Control of Major Accident Hazard Regulations (COMAH) referring to listed substances.

demand activated governing

Form of pressure regulating installation (PRI) specifically designed to adjust automatically its set-point within pre-determined limits in sympathy with demand variations.

dense traffic

Generally means traffic on a high density traffic route but, where specific constraints apply which creates traffic congestion, a lower traffic density may result in the road being classified as carrying dense traffic at full capacity.

design brief

Brief provided by a client to define the requirements of work.

design factor

Stress safety factor used in pipe wall thickness calculations.

design flow rate, relating to network design

Maximum flow rate that can occur over any continuous six minute period, expressed as an hourly rate.

design maximum incidental pressure (DMIP)

Maximum pressure a system is permitted to experience under fault conditions, limited by safety devices, when the system is operated at design pressure (DP).

design minimum pressure (DmP)

Minimum pressure that may occur at a point (for example at the end of a service) at the time of system design flow rate under extreme gas supply and maintenance conditions.

design pressure (DP)

Pressure on which design calculations are based.

design temperature

Temperature on which design calculations are based.

dew point

Temperature at which water or other vapour present in a gas condenses.

diagnostic check

Check which provides evidence of the condition and performance of equipment.

diaphragm meter

Positive displacement meter in which the measuring chambers have deformable walls.

differential strength regulator

Regulator in which some of the pressure-containing parts have design pressure (DP) less than the upstream maximum operating pressure (MOP_u).

dilution purging

Purging to a specified end-point with maximum mixing of incoming and outgoing gases.

dilution ventilation

Sufficient air to effectively dilute any reasonably foreseeable sustained leak to below lower flammability limit (LFL).

dip, relating to a watersealed gasholder

Inverted U at the top of a lift which engages with the cup to provide a gas-tight seal between the lifts.

dip pipe

Pipe inserted in a pipeline for removal of condensate and other liquids.

dip pipe collar

Collar with integral boss, designed to accommodate a dip pipe.

direct acting

Not requiring auxiliary power for operation.

direct purge

Displacement of air by fuel gas or vice versa.

directional drilling

Steerable system for the installation of pipes, conduits and cables in a shallow arc using a surface-launched drilling rig.

displacement purging

Purging to a specified end-point with minimal mixing of incoming and outgoing gases.

distribution main (main)

Pipeline through which a gas transporter (GT) is for the time being distributing gas and which is not being used only for conveying gas in bulk.

distribution main valve (DMV)

Valve (other than an emergency control valve (ECV) or service isolation valve (SIV)) for controlling the supply of gas, being a valve:

- incorporated in a distribution main
- intended for use by a gas transporter (GT)
- not situated in a building.