

BRITISH STANDARD

Building and civil engineering – Vocabulary

Part 5: Civil engineering – Water engineering, environmental engineering and pipelines

ICS 01.040.93; 93.030



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ISBN 978 0 580 53725 7

The following BSI references relate to the work on this standard:

Committee reference B/500

Draft for comment 04/30087603 DC

Publication history

BS 6100-2.5 first published August 1991

BS 6100-2.6 first published June 1991

BS 6100-2.7:

BS 6100 2.7 first published October 1988

BS 6100-2.7 second edition September 1992

Previously published as:

BS 4118, first edition June 1967

BS 4118, second edition December 1980

First published as BS 6100-5 December 2008

Amendments issued since publication

Amd. no.	Date	Text affected
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Summary of pages

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Foreword

Publishing information

This part of BS 6100 is published by BSI and came into effect on 1 January 2009. It was prepared by Technical Committee B/500, *Basic data*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 6100 supersedes BS 6100-2.5:1991, BS 6100-2.6:1991 and BS 6100-2.7:1992, which are withdrawn.

Relationship with other publications

BS 6100 consists of the following parts.

- *Part 0: Introduction and index.*
- *Part 1: General.*
- *Part 2: Spaces, building types, environment and physical planning.*
- *Part 3: Civil engineering – General.*
- *Part 4: Civil engineering – Transport.*
- *Part 5: Civil engineering – Water engineering, environmental engineering and pipelines.*
- *Part 6: Construction parts.*
- *Part 7: Services.*
- *Part 8: Work with timber and wood-based panels.*
- *Part 9: Work with concrete and plaster.*
- *Part 10: Contract terms.*
- *Part 11: Performance characteristics, measurement and joints.*
- *Part 12: Plant, equipment and persons.*

Information about this document

BS 6100 has been completely restructured and compiled on different principles than previously. Consequently, this part of BS 6100 represents a full revision of the standard.

A general introduction to and explanation of the BS 6100 vocabulary is given in BS 6100-0, which provides an alphabetical index of all the terms in all parts of BS 6100. It is intended that individual parts of BS 6100 are used in conjunction with BS 6100-0 because they do not contain indexes themselves.

BS 6100-1 reproduces verbatim ISO 6707-1 and provides a vocabulary of general terms for the building and civil engineering industry. It is essential that individual parts of BS 6100 are read in conjunction with BS 6100-1.

BS 6100 does not repeat (or provide alternatives for) terms defined in other standards or in other parts of BS 6100. However, it does refer to where definitions can be found and includes a bibliography of all referenced standards.

Presentational conventions

Details of the structure, layout and presentational conventions used in this part of BS 6100 are given in Clause 2.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This part of BS 6100 defines terms for civil engineering that relate to:

- a) water engineering;
- b) inland waters, coastal and maritime engineering;
- c) public health and environmental engineering;
- d) pipelines and ducts.

2 Vocabulary structure

This part of BS 6100 does not contain its own index. Instead, a comprehensive index of terms is given in BS 6100-0. As a result, it is intended that this part of BS 6100 is used in conjunction with BS 6100-0.

The layout of this vocabulary is designed in accordance with ISO 10241 with terms arranged in a classified order and numbered in accordance with ISO 2145.

Each term has an individual number consisting of seven digits in two parts, the first of two digits, the second of five. Each number tells the following information about the term.

- a) The first two digits represent which part of BS 6100 the term belongs to.
- b) The third digit represents which group of terms it belongs to within the part.
- c) The fourth digit represents which subgroup of terms it belongs to within the group, as follows
 - 1) Works
 - 2) Parts
 - 3) Materials
 - 4) Activities
 - 5) Processes
 - 6) Plant, equipment and documentation
 - 7) Properties
 - 8) Spaces
 - 9) Miscellaneous.
- d) The fifth to seventh digits determine the location of the term within the subgroup.

Bold words within a definition indicate terms that are defined elsewhere in this part of BS 6100, other parts of BS 6100 or other standards. Reference to where the term is defined is given in parenthesis after the bold word.

NOTE 1 References to terms defined in BS 6100-1 are shown giving only the part number, e.g. (01); references to terms defined in all other parts of BS 6100 are shown using their full reference number, e.g. (07 59005).

NOTE 2 Where more than one definition source could be referred to, the reference containing the definition of most general applicability is given.

Alternative terms are given in medium type below preferred terms which are given in bold type. All alternative terms have the status of being deprecated. Abbreviations are given in bold type below the terms to which they relate.

In the vocabulary, terms of more than one word are written in their natural word order, e.g. pedestal elbow, and the word order is not inverted, e.g. elbow, pedestal. However, inverted forms of a term are included in the index in BS 6100-0.

Terms are only given in the singular form, even when the plural form is more common (unless the term is only found in the plural form).

3 Water engineering (05 1xxxx)

3.1 Works (05 11xxx)

- 05 11001 impounding reservoir**
reservoir (01) that collects **surface water** (01) from an open area of **land** (01)
NOTE Usually in the upper reaches (BS EN ISO 772) of a watercourse (01).
- 05 11002 pumped storage reservoir**
 high level (01) **reservoir** (01) in a **pumped storage** (05 11034) system
- 05 11003 millpond**
impounding reservoir (05 11001) that serves a watermill
- 05 11004 embankment dam**
dam (01) formed as an **embankment** (01)
- 05 11005 earth dam**
 earth fill dam
embankment dam (05 11004) constructed with **soil** (01)
- 05 11006 gravity dam**
dam (01) that relies on its **weight** (11 27002) for stability
- 05 11007 arch dam**
dam (01) arched horizontally to resist the thrust of the water, the **force** (01) being transmitted to **abutments** (01)
- 05 11008 gravity arch dam**
dam (01) arched horizontally to resist the thrust of the water, but also relying on its own **weight** (11 27002) for stability
- 05 11009 buttress dam**
dam (01) that consists of a watertight **wall** (01), supported by **buttresses** (01) at intervals on the downstream side
- 05 11010 rock fill dam**
embankment dam (05 11004) constructed mainly of **rock** (03 23027)
- 05 11011 hydraulic fill dam**
embankment dam (05 11004) constructed of **hydraulic fill** (05 12032)

- 05 11012 mine tailings dam**
dam (01) constructed with **waste** (01) from mining operations
- 05 11013 constant radius arch dam**
arch dam (05 11007) that, in every horizontal cross-section, has approximately the same radius of curvature
- 05 11014 constant angle arch dam**
arch dam (05 11007) in which the angle subtended by any horizontal cross-section is constant throughout the **height** (01)
- 05 11015 double curvature arch dam**
arch dam (05 11007) that is curved both horizontally and vertically
- 05 11016 arch buttress dam**
multiple arch dam
buttress dam (05 11009) in which the upstream part consists of a series of **arches** (01)
- 05 11017 flat slab buttress dam**
buttress dam (05 11009) in which the upstream part is a relatively thin inclined **flat slab** (01)
NOTE The flat slab (01) is usually of reinforced concrete (09 33032).
- 05 11018 solid head buttress dam**
buttress dam (05 11009) in which the upstream ends of all the **buttresses** (01) are enlarged symmetrically to meet those adjacent, thereby forming a continuous **structure** (01)
- 05 11019 prestressed dam**
dam (01) the stability of which depends in part on the **tension** (03 15002) in vertical steel wires, **cables** (01) or **rods** (01) that pass through the **dam** (01) and are anchored into the **foundation** (01) **rock** (03 23027)
- 05 11020 fabridam**
dam (01) made of flexible membrane anchored to a **river** (BS EN ISO 772) **bed** (05 22001) that can be inflated with water or air, or both, and is completely collapsible
- 05 11021 gabion dam**
gravity dam (05 11006) constructed with **gabions** (05 21079)
- 05 11022 crib dam**
gravity dam (05 11006) constructed with crossed pieces of **timber** (01) and **fill** (01)
- 05 11023 bellmouth spillway**
morning glory spillway
spillway (01) that consists of a vertical **shaft** (01) with a **bellmouth** (05 32059) inlet
- 05 11024 ski jump spillway**
spillway (01) with a **chute** (05 12154), at the bottom of which is a **flip bucket** (05 12061) that throws water up into the air to dissipate **energy** (01) at a safe distance from the bottom of the **spillway** (01)
- 05 11025 siphon spillway**
spillway (01) that operates on the **siphon** (05 19008) principle

- 05 11026 air regulated siphon spillway**
siphon spillway (05 11025) in which automatic regulation of **liquid flow** (BS EN ISO 772) to match the **discharge** (BS EN ISO 772) without appreciable change in the upstream water **level** (01) is achieved through admission of air at the inlet
- 05 11027 side channel spillway**
spillway (01), the **crest** (05 12067) of which is roughly parallel to the **channel** (01) immediately downstream of the **spillway** (01)
- 05 11028 auxiliary spillway**
 emergency spillway
 secondary **spillway** (01) that operates only during exceptional **flooding** (05 25012)
- 05 11029 fuse plug spillway**
embankment (01) that when over-topped erodes in a controlled manner to form an **auxiliary spillway** (05 11028)
- 05 11030 bye channel**
 byewash
channel (01) constructed to divert **run-off** (01) around and not into a **reservoir** (01)
- 05 11031 energy dissipator**
 device constructed in a **watercourse** (01) to reduce substantially the kinetic **energy** (01) of fast flowing water
- 05 11033 hydroelectric power station**
power station (02 21061) in which the **energy** (01) of falling water is used to drive **water turbines** (05 12002) coupled to **generators** (07 12034)
- 05 11034 pumped storage**
 means of storing **energy** (01) by pumping water up to a high **level** (01) **reservoir** (01) and releasing it at suitable times to a **hydroelectric power station** (05 11033)
- 05 11035 power tunnel**
tunnel (01) that carries water to a **hydroelectric power station** (05 11033)
- 05 11036 headrace**
liquid flow (BS EN ISO 772) **conduit** (01) from a **forebay** (05 11057) to a **water turbine** (05 12002) or **waterwheel** (05 11039)
- 05 11037 tailrace**
conduit (01) that conveys the discharge from a **waterwheel** (05 11039) or **water turbine** (05 12002)
- 05 11038 millrace**
channel (01) that carries water from a **river** (BS EN ISO 772), **stream** (BS EN ISO 772) or **millpond** (05 11003) to a **waterwheel** (05 11039)
- 05 11039 waterwheel**
 wheel, with buckets or paddles on the rim, that is rotated by water around a horizontal axis to provide **energy** (01)

- 05 11040 undershot waterwheel**
waterwheel (05 11039) in which the water strikes the paddles at the bottom
- 05 11041 overshot waterwheel**
waterwheel (05 11039) in which the water strikes the buckets at the top and passes over the wheel
- 05 11042 breast waterwheel**
waterwheel (05 11039) in which the water strikes the buckets about half way up and passes underneath the wheel
- 05 11043 surge shaft**
shaft (01) in **rock** (03 23027) that reduces transient pressure fluctuations in a **tunnel** (01)
- 05 11044 headwall**
retaining wall (01) at the end of a **culvert** (01) or **pipe** (01)
- 05 11045 diversion weir**
weir (01) to divert water from a **watercourse** (01) into another **channel** (01)
- 05 11052 barrage**
structure (01) constructed across a **river** (BS EN ISO 772) that comprises a series of **gates** (05 12001) that when fully open allow flood water to pass without raising appreciably the **head water level** (05 17017)
- 05 11053 cross regulator**
barrage (05 11052) across an artificial **channel** (01)
- 05 11054 barrier**
structure (01) in a tidal **waterway** (05 22131) with **gates** (05 12001) that can be closed to prevent exceptionally **high water** (BS EN ISO 772) reaching inland areas liable to **flooding** (05 25012)
- 05 11055 intake**
structure (01) through which water is drawn from a **river** (BS EN ISO 772) or other body of water
- 05 11056 outfall**
structure (01) through which water is discharged into a **watercourse** (01) or body of water
- 05 11057 forebay**
structure (01) that forms a transition from a **reservoir** (01), **river** (BS EN ISO 772) or other body of water to the upstream end of a **conduit** (01)

3.2 Parts (05 12xxx)

- 05 12001 gate**
leaf or **structure** (01) moved to stop or control **liquid flow** (BS EN ISO 772) in a **channel** (01) or through an opening
- 05 12002 water turbine**
prime mover rotated by water to generate power

- 05 12003 valve tower**
tower (03 51005) within a **reservoir** (01) that houses **pipes** (01) with **draw-off valves** (05 12109) at various **levels** (01)
- 05 12004 scour outlet**
structure (01) in the **bed** (05 22001) of a **reservoir** (01) at the upstream end of a **scour pipe** (05 12005) or **scour tunnel** (05 12006)
- 05 12005 scour pipe**
outlet **pipe** (01) from a **reservoir** (01) at the lowest possible **level** (01) for discharging water
- 05 12006 scour tunnel**
outlet **tunnel** (01) for discharging water and **sediment** (BS EN 772) from a **reservoir** (01) at the lowest possible **level** (01)
- 05 12007 scour sluice**
sluice gate (05 12077) that controls **liquid flow** (BS EN ISO 772) through a **scour outlet** (05 12004)
- 05 12008 top of dam**
uppermost surface of a **dam** (01), excluding **parapets** (01) and **railings** (06 12023)
- 05 12009 heel of dam**
junction of the upstream face of a **gravity dam** (05 11006) with the **ground** (01) surface
- 05 12010 toe of dam**
junction of the downstream face of a **gravity dam** (05 11006) or of the face of a **shoulder** (05 12013) with the **ground** (01) surface
- 05 12011 core**
zone of **material** (01) of low **permeability** (01) in an **embankment dam** (05 11004) that extends from the **foundation** (01) to near the **top of dam** (05 12008) and that inhibits **seepage** (05 19004)
- 05 12012 core wall**
wall (01) of **material** (01) of low **permeability** (01) in an **embankment dam** (05 11004)
- 05 12013 shoulder**
part of **embankment dam** (05 11004), on the upstream or downstream side of the **core** (05 12011), that supports the **core** (05 12011)
- 05 12014 cut-off trench**
trench (01) excavated below the general **foundation** (01) **level** (01) to a layer of low **permeability** (01) and then filled with a **material** (01) of low **permeability** (01)
- 05 12015 cut-off wall**
wall (01) of **material** (01) of low **permeability** (01) built into a **foundation** (01) to reduce **seepage** (05 19004)
- 05 12016 grout cut-off**
grout curtain
thin vertical zone in a **foundation** (01) into which **grout** (01) is injected to reduce **seepage** (05 19004) under a **dam** (01)

- 05 12017 grout cap**
concrete (01) pad constructed to facilitate subsequent pressure grouting of the **grout cut-off** (05 12016) below
- 05 12018 grout blanket**
 area of **foundation** (01) of an **embankment dam** (05 11004) grouted to a uniform **depth** (01)
- 05 12019 upstream blanket**
 layer of impervious **material** (01) placed on a **reservoir** (01) **bed** (05 22001) or under an upstream **shoulder** (05 12013)
- 05 12020 clay blanket**
 layer of **clay** (BS EN 12670) placed on the **bed** (05 22001) of a **reservoir** (01) or the upstream face of an **embankment dam** (05 11004)
- 05 12021 finger drain**
 one of a series of narrow parallel **trenches** (01) filled with pervious **material** (01) constructed in the **foundation** (01) **material** (01) of the downstream **shoulder** (05 12013) to relieve **pore water pressure** (03 27011)
- 05 12022 filter zone**
 band of granular **material** (01) in an **embankment dam** (05 11004) graded to allow **seepage** (05 19004) causing migration of material within the **embankment dam** (05 11004) itself
- 05 12023 transition zone**
 semi-pervious zone
 part of an **embankment dam** (05 11004) between a **filter zone** (05 12022) and a less permeable zone, whose **particle size distribution** (03 27009) is intermediate between the two
- 05 12024 drainage curtain**
 line of **relief wells** (05 12030)
- 05 12025 dam membrane**
sheet (01) or thin zone of a flexible impervious **material** (01) on the upstream face of an **embankment dam** (05 11004)
- 05 12026 slope protection**
 layer of **material** (01) on the **slope** (01) of an **embankment** (01) to protect it against **wave** (05 29002) **action** (01) and other sources of damage
- 05 12027 weighting of a slope**
 additional **material** (01) placed on the **slope** (01) of an **embankment** (01) so as to form a **berm** (03 22001) to improve stability
- 05 12029 toe weight**
 additional **material** (01) placed at the toe of an **embankment dam** (05 11004) to increase its stability
- 05 12030 relief well**
 vertical **well** (05 21002) or **borehole** (01) downstream of, or in downstream **shoulder** (05 12013) of, a **dam** (01) to collect **seepage** (05 19004) water passing through or under the **dam** (01) and so reduce **pore water pressure** (03 27011)

- 05 12031 toe filter**
graded **filter medium** (05 33003) forming the downstream toe of an **earth dam** (05 11005)
- 05 12032 hydraulic fill**
material (01) for an **embankment** (01) conveyed in suspension and allowed to settle in place
- 05 12033 inspection gallery**
passage in a **gravity dam** (05 11006) that gives access for observation of measuring instrument **readings** (BS 6953) to monitor **performance** (01) of the **structure** (01)
- 05 12034 drainage gallery**
passage in a **gravity dam** (05 11006) to collect **seepage** (05 19004)
- 05 12035 fish pass**
artificial passage down which water flows to enable migratory fish to surmount an obstruction
*NOTE Examples of obstructions are **weirs** (01) and **dams** (01).*
- 05 12036 fish ladder**
fish pass (05 12035) in the form of an ascending series of pools
- 05 12037 seepage collar**
projecting collar of **concrete** (01) built around the outside of a **conduit** (01) under an **embankment dam** (05 11004) to reduce **seepage** (05 19004) through a material adjacent to the **conduit** (01)
- 05 12038 toe loading**
material (01) deposited at the foot of a **soil** (01) or **rock** (03 23027) **fill** (01) **slope** (01) to improve **soil** (01) stability
- 05 12039 settlement gauge**
gauge (12 86029) for **measuring** (01) **settlement** (01) within **fill** (01) comprising nominally vertical telescopic **tube** (01) with protruding crossarms; the vertical movement at the **joints** (01) in the **tube** (01) is measured by lowering a torpedo with spring-loaded pawls
- 05 12040 magnetic settlement gauge**
gauge (12 86029) for **measuring** (01) **settlement** (01) within **fill** (01) comprising vertical non-magnetic **tube** (01) with magnetic **plates** (01) at various levels; vertical movement is **measured** (01) by lowering a probe that responds to the local magnetic field at each **plate** (01)
- 05 12041 settlement plate**
horizontal **plate** (01) connected to **risers** (05 42030) for **measuring** (01) **settlement** (01) within **fill** (01)
- 05 12042 inverted plumb line**
vertical wire strung between a fixed base in stable **ground** (01) and a floating top, for **measuring** (01) the horizontal movement of a **structure** (01)
- 05 12043 borehole extensometer**
set of **rods** (01), each of a different **length** (01) and individually anchored within a **borehole** (01), terminating at a **measuring instrument** (BS 6953) at the surface, for determining displacements

- 05 12044 slip rod**
one of a series of **rods** (01) of variable **length** (01) indicating magnitude and position of **deflection** (03 15001) of a buried vertical **tube** (01) by whether the **rod** (01) will pass down the **tube** (01); this will show horizontal displacement of surrounding **soil** (01)
- 05 12045 hydraulic piezometer**
piezometer (03 26053) by which **pore water pressure** (03 27011) is relayed to the **ground** (01) surface for **measurement** (01)
- 05 12046 pneumatic piezometer**
piezometer (03 26053) read by **measuring** (01) the pressure of a **gas** (BS 1179) required to balance a **diaphragm valve** (05 12105) near a porous tip
- 05 12047 electrical piezometer**
piezometer (03 26053) read by **measuring** (01) the **deflection** (03 15001) of a diaphragm near a porous tip, using an **electrical** (07 17003) transducer
- 05 12048 Casagrande pot**
porous **tube** (01) attached to the base of a **pipe** (01) embedded in **soil** (01) to **measure** (01) **pore water pressure** (03 27011)
- 05 12049 total pressure cell**
device for **measuring** (01) total **soil** (01) pressure normal to its face
- 05 12050 strain gauge**
gauge (12 86029) for **measuring** (01) small displacements from which **strains** (01) can be calculated
- 05 12051 vibrating wire strain gauge**
strain gauge (05 12050) in which changes of frequency of a vibrating wire are related to **strain** (01)
- 05 12052 electrical resistance strain gauge**
strain gauge (05 12050) in which changes of frequency of an **electrical** (07 17003) element are related to **strain** (01)
- 05 12053 mechanical strain gauge**
strain gauge (05 12050) that gives a direct **measure** (01) of changes in distance between two or more reference points
- 05 12054 optical strain gauge**
strain gauge (05 12050) that employs optical means of **measurement** (01)
- 05 12055 stand pipe**
vertical **pipe** (01) installed in the **ground** (01) so that **ground water** (BS ISO 6107-1) **level** (01) may be determined
- 05 12056 tell tale**
strip (01) of **glass** (01) or other brittle **material** (01), firmly anchored over a crack; it will itself crack if the original crack continues to widen, and hence provide a coarse indication of movement
- 05 12057 spillway crest**
crest (05 12067) of a **spillway** (01)

- 05 12058 training wall**
wall (01) that directs the **liquid flow** (BS EN ISO 772) in a **watercourse** (01)
- 05 12059 siphon hood**
structural member (01) that provides the upper surface containing the **liquid flow** (BS EN ISO 772) in a **siphon spillway** (05 11025)
- 05 12060 nappe deflector**
projection downstream of the **spillway crest** (05 12057) of a **siphon spillway** (05 11025) to deflect the **liquid flow** (BS EN ISO 772) against the **siphon hood** (05 12059) to **prime** (05 14003) the **siphon** (05 19008)
- 05 12061 flip bucket**
structure (01) that deflects high velocity water into an upward trajectory
- 05 12062 spillway channel**
channel (01) that conveys water from a **spillway crest** (05 12057) to the **river** (BS EN ISO 772) downstream
- 05 12063 flashboard**
length of **timber** (01), **concrete** (01) or steel placed on a **spillway crest** (05 12057) to raise the **retention water level** (05 17001); it may be removed quickly should **flooding** (05 25012) occur
- 05 12065 chute block**
baffle (BS EN ISO 772) block in the **chute** (05 12154) of a **spillway** (01)
- 05 12066 plunge pool**
deep water-filled **basin** (01) for dissipating the **energy** (01) of a free-trajectory jet entering it from a **spillway** (01)
- 05 12067 crest**
top, controlling surface of a **weir** (01), **spillway** (01) or similar hydraulic **structure** (01)
- 05 12068 end contraction**
contraction at the edges of the water area flowing over a **weir** (01) calibrated for **measurement** (01) of **discharge** (BS EN ISO 772)
- 05 12069 trash rack**
row of parallel **bars** (01) across an **intake** (05 11055) to catch waterborne **solid waste** (01)
- 05 12070 stop log**
component (01), the ends of which are placed in grooves in **walls** (01) or **piers** (01) on either side of a water passage to close it
- 05 12071 fish screen**
barrier (01) that prevents fish entering a **conduit** (01)
- 05 12072 silt trap**
sand trap
basin-shaped enlargement in a **stream** (BS EN ISO 772) or **channel** (01) where the **sediment** (BS EN 772) is deposited due to the drop in velocity

- 05 12073 flow meter**
measuring instrument (BS 6953) for **flow** (01) in a **conduit** (01)
- 05 12074 orifice meter**
measuring instrument (BS 6953) for fluid flow in a **pipe** (01) that consists of an opening in a **plate** (01) fixed within the **pipe** (01) and with **pressure tappings** (BS EN 1487) on the upstream and downstream sides
- 05 12075 Venturi meter**
flow meter (05 12073) in a **pipe** (01) with a short tapered constriction followed by a cylindrical **throat** (BS EN ISO 772) and a longer tapered expansion, so proportioned as to minimize **energy loss** (4), with **pressure tappings** (BS EN 1487) before the inlet and in the **throat** (BS EN ISO 772)
- 05 12076 water meter**
device that **measures** (01) and indicates **flow** (01) of water without interruption
NOTE May maintain a record of measurements (01).
- 05 12077 sluice gate**
penning gate
gate (05 12001) that moves vertically between guides
NOTE Usually rectangular.
- 05 12078 vertical lift gate**
large, mechanically operated, **gate** (05 12001) that moves vertically within guides
- 05 12079 fixed wheel gate**
gate (05 12001) with wheels, mounted on its end posts, that bear against **rails** (04 22051)
- 05 12080 flap gate**
gate (05 12001) with hinges along its top or bottom edge
- 05 12081 radial gate**
segmental sluice gate
gate (05 12001) with a curved upstream **plate** (01) supported by radial arms
- 05 12082 sector gate**
gate (05 12001) with a curved upstream **plate** (01) supported by several radial arms pivoted at the downstream rim of a recess into which the **gate** (05 12001) retracts
- 05 12083 sector gate**
spillway gate (05 12084), similar to a roller **drum gate** (05 12085), in which the roller is not cylindrical but a sector of a circle
- 05 12084 spillway gate**
crest gate
gate (05 12001) on the **crest** (05 12067) of a **spillway** (01) to control overflow or **reservoir** (01) water **level** (01)

- 05 12085 drum gate**
spillway gate (05 12084) or **barrage** (05 11052) **gate** (05 12001) that consists of a long hollow drum held in its raised position by the water pressure in a flotation chamber; it rises with the **reservoir** (01) **water level** (01) and lowers when overtopped by floods
- 05 12086 roller drum gate**
spillway gate (05 12084) in the form of a hollow cylinder for regulating **liquid flow** (BS EN ISO 772) at a **dam** (01) **spillway** (01) carried each side on large toothed wheels that mesh with steeply inclined racks up which the **gate** (05 12001) moves
- 05 12087 tilting gate**
bottom hinged **flap gate** (05 12080)
- 05 12088 guard gate**
gate (05 12001) that shuts off the **liquid flow** (BS EN ISO 772) for **maintenance** (01) or in emergencies
- 05 12089 wicket**
small **gate** (05 12001) that forms part of a larger **gate** (05 12001) in a hydraulic **structure** (01)
- 05 12090 stop valve**
valve (01) that turns a supply completely on or off
- 05 12091 discharge valve**
valve (01) in a **pipeline** (01) for increasing or decreasing **discharge** (BS EN ISO 772)
- 05 12092 non-return valve**
valve (01) that prevents reversal of fluid flow
- 05 12093 pressure relief valve**
spring or weight-loaded **valve** (01) that discharges automatically to a safe place fluid that has built up to excessive pressure
- 05 12094 pressure reducing valve**
valve (01) that reduces the pressure of a fluid immediately downstream of its position in a **pipe** (01) to a pre-selected value or by a predetermined ratio
- 05 12095 pressure sustaining valve**
valve (01) that maintains a predetermined pressure immediately upstream of its position in a **pipe** (01)
- 05 12096 outlet valve**
valve (01) at the outlet of a **pipe** (01)
- 05 12097 sluice valve**
stop valve (05 12090) that closes or regulates **liquid flow** (BS EN ISO 772) in a **pipe** (01) by a **plate** (01) sliding at right angles to the flow
- 05 12098 gate valve**
small **sluice valve** (05 12097)

- 05 12099 wedge gate valve**
sluice valve (05 12097) with a **plate** (01) in the form of a **wedge** (06 32230) that fits into tapered guides
- 05 12100 screwdown valve**
valve (01) in which a **plate** (01) is moved by rotation of a screwed spindle to close or open the orifice
- 05 12101 butterfly valve**
valve (01) in which a streamlined disc pivots about a diametric axis
- 05 12102 Howell-Bunger valve**
valve (01) for regulating high pressure outlets and ensuring good energy dissipation, in which a fixed cone pointed upstream causes dispersion of the jet and a cylindrical sleeve moves longitudinally to regulate fluid flow
- 05 12103 hollow jet valve**
valve (01) for regulating high pressure outlets in which air is admitted to prevent jet instability and from which fluid flow emerges in the form of a hollow cylinder segmented by **splitter walls** (05 12152)
- 05 12104 needle valve**
valve (01) for regulating the **liquid flow** (BS EN ISO 772) in or from a **pipe** (01) in which a slender cone moves along the axis of **liquid flow** (BS EN ISO 772) to close against a fixed conical seat
- 05 12105 diaphragm valve**
valve (01) with a **diaphragm seal** (BS EN 736-2)
- 05 12106 automatically controlled valve**
valve (01) controlled by ultrasonic or electronic sensing
- 05 12107 foot valve**
non-return valve (05 12092) at the bottom of the suction **pipe** (01) of a **pump** (01)
- 05 12108 guard valve**
valve (01) that shuts off the **liquid flow** (BS EN ISO 772) for **maintenance** (01) or in emergencies
- 05 12109 draw-off valve**
valve (01) controlling **discharge** (BS EN ISO 772) from a **reservoir** (01) or tank
- 05 12110 valve chamber**
chamber that houses a **valve** (01)
- 05 12111 positive displacement pump**
pump (01) in which fluid is alternatively drawn into and expelled from a chamber
- 05 12112 axial flow pump**
propeller pump
pump (01) with an **impeller** (05 12128) that causes the fluid to enter and be discharged axially

- 05 12113 mixed flow pump**
pump (01) with an **impeller** (05 12128) imparting both centrifugal and axial motion to water
- 05 12114 reciprocating pump**
positive displacement pump (05 12111) in which the motive **force** (01) is applied to water by a reciprocating mechanism
- 05 12115 bucket pump**
reciprocating pump (05 12114) in which a bucket with a **non-return valve** (05 12092) in it reciprocates within a vertical **pipe** (01)
NOTE Usually in a well (05 21002) or borehole (01).
- 05 12116 ram pump**
reciprocating pump (05 12114) in which a piston reciprocating within a cylinder, that has inlet and outlet **valves** (01), alternately draws water into and forces water out of the cylinder on successive strokes of the piston
- 05 12117 progressive cavity pump**
pump (01) with a helical rotor that revolves inside a suitably shaped resilient casing, forcing liquid from inlet to output
- 05 12118 rotary lobe pump**
pump (01) in which two rotors with lobes counter-rotate within a chamber, propelling liquid in the advancing cavities formed between the lobes and the casing
- 05 12119 peristaltic pump**
pump (01) in which a flexible **tube** (01) is compressed by rotating rollers offset from a common shaft, forcing fluid along the **tube** (01)
- 05 12120 diaphragm pump**
pump (01) in which liquid is drawn into and discharged from a chamber through **non-return valves** (05 12092) by alternating the capacity of the chamber using a flexible diaphragm
- 05 12121 hydraulic ram**
hydraulic mechanism using the **energy** (01) in a **stream** (BS EN ISO 772) to raise some of the water to a considerable **height** (01)
- 05 12122 Archimedean screw**
mechanical device that raises liquid by a long helical screw rotating within a closely fitting inclined **channel** (01) or **tube** (01)
- 05 12123 chain pump**
mechanical device that raises water by discs passing up a **pipe** (01) on a continuous chain
- 05 12124 multi-stage pump**
pump (01) that has several **impellers** (05 12128) and **diffusers** (05 12130) connected in series on one drive shaft
- 05 12125 submersible pump**
pump (01) with direct coupled motor that is operated when wholly submerged in the liquid

- 05 12126 vertical spindle pump**
pump (01) that is connected to the motor by a long vertical drive shaft
- 05 12127 wind pump**
pump (01) that obtains its motive **force** (01) from the wind
- 05 12128 impeller**
circular assembly of curved blades that converts rotating mechanical power into linear fluid motion in a rotodynamic **pump** (01)
- 05 12129 volute**
spiral case that encloses the **impeller** (05 12128) of a **centrifugal pump** (01)
- 05 12130 diffuser**
gradually increasing cross-section at the outlet to a **centrifugal pump** (01) or **air compressor** (12 46009) that reduces the speed of the air or water and thus increases its pressure
- 05 12131 pumping unit**
individual **pump** (01) and the means by which it is controlled
- 05 12132 pumping station**
building (01) or place where **pumps** (01) are located and operated
- 05 12133 pump house**
small **building** (01) within which **pumps** (01) are located and operated
- 05 12134 pump sump**
sump (01) in which the suction **pipe** (01) of a **pump** (01) is located
- 05 12135 reaction turbine**
water turbine (05 12002) in which both pressure and kinetic **energy** (01) are converted into rotary **energy** (01)
- 05 12136 impulse turbine**
water turbine (05 12002) in which kinetic **energy** (01) alone is converted into rotary **energy** (01)
- 05 12137 Francis turbine**
reaction turbine (05 12135) in which water enters the **turbine runner** (05 12143) radially inwards and exits axially
- 05 12138 mixed flow turbine**
inward flow **reaction turbine** (05 12135) in which the water acts on the **turbine runners** (05 12143) both radially and axially
- 05 12139 propeller turbine**
reaction turbine (05 12135) in which water enters and leaves axially
- 05 12140 Kaplan turbine**
propeller turbine (05 12139) with vertical shaft and variable pitch blades
- 05 12141 Pelton wheel**
impulse turbine (05 12136) with a **turbine runner** (05 12143) that comprises a set of double cup-shaped buckets rotated by the impact of a jet or jets of water on the buckets

- 05 12142 pump turbine**
machine that can act as a **pump** (01) and at other times as a **water turbine** (05 12002)
- 05 12143 turbine runner**
circular **assembly** (01) of blades or buckets in a **water turbine** (05 12002) that converts linear fluid motion into rotary mechanical power
- 05 12144 draft tube**
conduit (01) that receives flow from the outlet of the **turbine runner** (05 12143) of a **reaction turbine** (05 12135) and tapers outward to reduce velocity and convert **velocity head** (BS EN ISO 772) into **pressure head** (05 17020)
- 05 12145 gate seal**
jointing section (01) to prevent water leaking between a **gate** (05 12001) and the perimeter of the **waterway** (05 22131)
- 05 12146 music note seal**
gate seal (05 12145) that has a cross-section similar to the symbol for a quaver
- 05 12147 revolving screen**
screen (01), in the form of a cylinder or belt, turned mechanically or by the **force** (01) of the water passing through it
- 05 12148 screen rake**
hand or powered rake for cleaning bar **screens** (05 32040)
- 05 12149 float switch**
device that incorporates a **float** (BS EN ISO 772) that operates a switch in response to changes in the **level** (01) of the liquid
- 05 12150 hydrocyclone**
devices that uses centrifugal **forces** (01) to separate **suspended solids** (BS ISO 6107-2)
- 05 12151 air vessel**
air-containing vessel fitted to the delivery side of a **pump** (01) to smooth out the pulsating discharge
- 05 12152 splitter wall**
wall (01) in a **channel** (01) serving as a **flow splitter** (05 32038)
- 05 12153 sill**
construction (01) that provides a seating for a **gate** (05 12001)
- 05 12154 chute**
steep **channel** (01)
- 3.3 Activities (05 14xxx)**
- 05 14001 draw down**
lower or reduce the water **level** (01) in a **reservoir** (01)
- 05 14002 float tracking**
process of recording the movement of a **float** (BS EN ISO 772)

- 05 14003 prime**
fill a **pump** (01) or **siphon** (05 19008) with water to ensure a full flow when operation begins

3.4 Processes (05 15xxx)

- 05 15001 flood surcharge**
maximum rise of **still water level** (05 29102) above **top water level** (05 37001) during a **design flood** (05 29011)
- 05 15002 rapid drawdown**
sudden drop in water **level** (01) that leads to a reduced **factor of safety** (01) of an **embankment** (01) or earth retaining **structure** (01)

3.5 Plant, equipment and documentation (05 16xxx)

- 05 16001 hydrograph**
relationship or graph showing variation with time of **level** (01), **discharge** (BS EN ISO 772) or **velocity** (BS EN ISO 772) of water in a **watercourse** (01) or **channel** (01)
- 05 16002 hydraulic model**
physical **model** (10 26005) of a hydraulic **structure** (01) or system from which **performance** (01) of a **prototype** (11 12002) can be deduced, using **criteria for similarity** (05 19028)
- 05 16003 rocking tray hydraulic model**
hydraulic model (05 16002) in which **tides** (BS EN ISO 772) are simulated by rocking
- 05 16004 mobile-bed hydraulic model**
hydraulic model (05 16002) in which the **bed** (05 22001) is formed of material suitable for studying **scour** (05 25011) and **accretion** (05 25002)
- 05 16005 uplift**
upward **force** (01) due to **pore water pressure** (03 27011) acting on the base of a **structure** (01)

3.6 Properties (05 17xxx)

- 05 17001 retention water level**
in **water engineering** (01), maximum **level** (01) that water rises under normal operating conditions, exclusive of any provision for **flood surcharge** (05 15001)
- 05 17004 maximum water level**
highest **still water level** (05 29102) in a **reservoir** (01) during the probable maximum flood
- 05 17005 reservoir capacity**
gross capacity of a **reservoir** (01) from the bottom up to **top water level** (05 37001)
- 05 17006 active storage**
working storage
volume of water in a **reservoir** (01) available for its intended use
- 05 17007 inactive storage**
volume of water in a **reservoir** (01) between **invert level** (05 17047) and minimum operating **level** (01)

05 17008	live storage sum of active storage (05 17006) and inactive storage (05 17007)
05 17009	dead storage volume of water in a reservoir (01) below the invert level (05 17047) of the lowest outlet
05 17010	bank storage ground storage water that has infiltrated from a reservoir (01) into the surrounding ground (01) where it remains until the water level (01) in the reservoir (01) is lowered
05 17011	freeboard vertical distance between water level (01) and lowest level (01) of a water-retaining structure (01) at which uncontrolled overflow would occur
05 17012	net freeboard dry freeboard vertical distance between maximum water level (01) and the top of the water retaining structure (01)
05 17013	dam freeboard gross freeboard vertical distance between top water level (05 37001) and top of dam (05 12008)
05 17014	capacity curve graph that shows the volume of water in a reservoir (01) or tank at any given water level (01)
05 17015	drawdown range difference between top water level (05 37001) and the minimum operating level (01)
05 17016	cut-off depth vertical distance from foundation (01) level (01) to the lowest level (01) of a cut-off trench (05 12014) or cut-off wall (05 12015)
05 17017	head water level water level (01) upstream of a hydraulic structure (01)
05 17018	tail water level water level (01) downstream of a hydraulic structure (01)
05 17019	weir head depth (01) of water over a weir (01) from the crest (05 12067) or bottom of the notch to the head water level (05 17017)
05 17020	pressure head hydrostatic pressure (05 47004) expressed as a head (01)
05 17021	potential head head (01) at a datum (01) due to the elevation of the liquid above that datum (01)
05 17022	static head pressure head (05 17020) of stationary liquid

- 05 17025 suction head**
vacuum head
head (01) equal to the ratio of the amount by which the pressure falls short of atmospheric pressure to the **density** (01) of the liquid
- 05 17026 static lift**
sum of **suction head** (05 17025) and **static head** (05 17022) at a **pump** (01)
- 05 17027 manometric head**
gross **head** (01) imparted by a **pump** (01), being the sum of the **static lift** (05 17026), **velocity head** (BS EN ISO 772) and the total **friction loss** (05 17043) on suction and delivery sides
- 05 17028 working pressure**
pressure at which a **pipe** (01), vessel, **pump** (01) or system is intended to work
- 05 17029 centre of pressure**
position of point of application of the resultant hydrostatic **force** (01) on a submerged surface
- 05 17030 buoyancy**
upward **force** (01) exerted on a body in a fluid equal to the **weight** (11 27002) of the fluid displaced
- 05 17031 piezometric water level**
level (01) to which water would rise in a **pipe** (01) inserted into an **embankment** (01) or **foundation** (01)
- 05 17032 centre of buoyancy**
centroid of the underwater volume of a vessel or floating body
- 05 17033 metacentre**
point at the intersection of vertical lines through the **centre of buoyancy** (05 17032) in the initial and slightly inclined positions of a vessel
- 05 17034 metacentric height**
distance between the centre of gravity of a floating body and its **metacentre** (05 17033)
- 05 17035 coefficient of velocity**
ratio of the actual **discharge** (BS EN ISO 772) **velocity** (BS EN ISO 772) to the theoretical **discharge** (BS EN ISO 772) **velocity** (BS EN ISO 772)
- 05 17036 coefficient of contraction**
ratio of the **vena contracta** (05 17042) of a jet discharged under pressure to the area of the orifice
- 05 17037 coefficient of permeability**
ratio of **velocity** (BS EN ISO 772) of water flowing through **soil** (01) to the **hydraulic gradient** (01) causing the flow
- 05 17038 effective area of orifice**
actual area of an orifice multiplied by its **discharge coefficient** (BS EN ISO 772)