BRITISH STANDARD

BS 3618-7: 1973

Glossary of

Mining terms —

Section 7: Electrical engineering and lighting

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Co-operating organizations

The Mining and Quarrying Requisites Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government department and scientific and industrial organizations:

Association of Mining Electrical and Mechanical Engineers*
British Electrical and Allied Manufacturers' Association
British Steel Industry
Council of Underground Machinery Manufacturers
Department of Trade and Industry*
Engineering Equipment Users' Association
Federation of Manufacturers of Construction Equipment and Cranes
Institute of Quarrying
Institution of Mechanical Engineers
Institution of Mining Engineers*
Mechanical Handling Engineers' Association
National Coal Board*

The Government department and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Institution of Mining and Metallurgy
University of Birmingham
University of London
University of Nottingham

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Contents

Foreword

This glossary has been prepared, under the authority of the Mining and Quarrying Requisites Industry Standards Committee, in order to standardize and to co-ordinate the technical terms in current use in mining in the United Kingdom. Although the majority of the terms defined in the original edition of this glossary were primarily concerned with coal mining, account has been taken of terms used in other forms of mining and of quarrying.

The need for this glossary arose from the widely varying interpretation of terms used within the industry, and the prevalent use of more than one synonym, some purely local in origin, to indicate specific meanings.

The glossary has been issued in a number of sections, according to subject matter, as follows:

— *Section 1: Planning and surveying;*

— *Section 2: Ventilation;*

— *Section 3: Boring and exploration;*

— *Section 4: Drainage;*

— *Section 5: Geology;*

— *Section 6: Drilling and blasting;*

— *Section 7: Electrical engineering and lighting;*

— *Section 8: Winning and working;*

— *Section 9: Shafts and associated equipment;*

— *Section 10: Transport;*

— *Section 11: Strata control.*

In the normal process of periodical review of the BS 3618 publications it was seen that a number of modifications were desirable to Section 7, "*Electrical engineering and lighting*"; therefore, since the initial edition was dated 1965, it was decided to publish a revision incorporating these changes.

In compiling the glossary account has been taken of the fact that terms primarily associated with coal are separately defined in BS 3323, "*Glossary of coal terms*", and terms relating to coal preparation are defined in BS 3552, "*Glossary of terms used in coal preparation*". The following factors also have applied in the statement, selection and definition of terms:

1) Where two or more terms are grouped together, the term which is favoured is printed first and in heavy type. It is hoped that such preferred terms will gradually displace the non-preferred terms. The non-preferred terms of a group are printed in smaller type. Where the use of any term is considered to be undesirable it is marked *deprecated*.

2) Generally, only terms which have a specific meaning in this field have been included. Where a technical term has an accepted meaning in other fields of engineering it has been omitted; the few exceptions are terms which are of particular importance in mining.

3) Purely local terms are not defined, but those of sufficient importance are included as non-preferred terms.

4) Obsolete terms are excluded.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 4, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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7.1 Electrical engineering

Term	Definition
approved apparatus	Apparatus, not necessarily flameproof or intrinsically safe, which has been approved under Government authority for use in mines and quarries.
automatic control	Control by means of any device other than a manually operated switch or push-button.
backing-out switch	A switch applied to winders and man-riding haulages which allows the control circuit to be energized, in order to move the conveyance out of an overwind, provided that the winder control lever or other operating mechanism is moved in the appropriate direction. (See also *overwind switch*.)
belt protection device	A device fitted to a belt conveyor to give an alarm or to cause the conveyor to stop in the event of a defect such as belt slip, breakage, tearing, misalignment, overload, or overheating.
belt slip device	A device fitted to a belt conveyor to give an alarm or to cause the conveyor to stop in the event of belt slip exceeding a predetermined amount.
bolted cable coupler	Two cable coupling units with connecting pins, bolted together to form a straight through connecting box.
bolted cable plug and socket	A plug and a socket designed to be held together by one or more bolts or screws, or studs and nuts, in such a way that they cannot be disengaged without the use of a tool.
cable coupler adaptor flit plug adaptor	An adaptor used to connect a cable coupling unit to apparatus. It may either be separate from or be integral with the enclosure of the apparatus to which the cable coupling unit is to be connected.
cable coupling unit flit plug	A detachable cable sealing box utilizing contact tubes and pins to facilitate ready connection to, or disconnection from, a similar unit or other apparatus.
cable sealing box	A closed box to which a cable can be attached by means of a gland and which is designed to be filled with insulating compound to protect the insulation of the cable from air or moisture.
cancelling device (shaft signals)	A device, operated by movement of a rope drum or sheave, which cancels signals shown on the shaft signal indicator and enables fresh signals to be received.
certified apparatus	Apparatus which has been certified under Government authority as complying with the requirements for flameproof enclosure or for intrinsic safety.
core balance (earth fault) protection	A system of protection applied to circuits in an a.c. system having its neutral point earthed and utilizing a core balance transformer to detect the earth leakage current. (See also *earth fault protection*.)
core balance transformer	A form of current transformer, the primary windings of which are connected in each phase (and neutral if any) of a circuit. The flux resulting from an out-of balance current in the primary windings induces a voltage in a secondary winding.
detachable cable sealing box	A cable sealing box which can be disconnected and detached from associated apparatus without disturbing the sealing of the cable.
earth fault latchout	A feature of an earth fault protective system which requires the earth fault relay to be manually reset.
earth fault lockout system	A system whereby a circuit is monitored to prevent application or restoration of supply if an earth fault exists.

Term	Definition
earth fault protection earth leakage protection, *deprecated*	A system of protection designed to cause the supply to a circuit or system to be interrupted when the leakage current to earth exceeds a predetermined value.
earth leakage protection	See *earth fault protection*.
flameproof enclosure	An enclosure for electrical apparatus that will withstand an internal explosion of the flammable gas or vapour which may enter it, without suffering damage and without communicating the internal flammation to the external flammable gas or vapour for which it is designed, through any joints or structural openings in the enclosure. (See also *certified apparatus*.)
flexible cable	See *trailing cable*.
flexible cable coupler	See *trailing cable coupler*.
flit plug	See *cable coupling unit*.
flit plug adaptor	See *cable coupler adaptor*.
gate-end box gate-end switch, *deprecated* gate-end unit	A flameproof enclosure containing electrical apparatus, such as control gear, switchgear or protective gear, designed primarily for use underground. (See also *gate-end section switch*.)
gate-end section switch	A form of gate-end box incorporating a circuit-breaker to control and/or isolate part of an electrical system.
gate-end switch	See *gate-end box*.
gate-end unit	See *gate-end box*.
gate interlock	A system designed to prevent shaft conveyances from being moved, or action signals being transmitted, unless all shaft gates are closed.
incendive sparking	Sparking capable of causing an ignition.
inset tee box	A junction box designed to be mounted in an inset to enable a connection to be taken from a shaft cable.
intrinsically safe apparatus	Apparatus that is so constructed that, when it is installed and operated under the conditions specified by the certifying authority, any electrical sparking that may occur in normal working, either in the apparatus or in the circuit associated therewith, is incapable of causing an ignition of the prescribed flammable gas or vapour. (See also *certified apparatus*.)
intrinsically safe circuit	A circuit in which any electrical sparking that may occur in normal working under the conditions specified by the certifying authority, and with the prescribed components, is incapable of causing an ignition of the prescribed flammable gas or vapour.
kep interlock	A system designed to prevent a shaft conveyance being lowered before all keps are fully withdrawn.
kep switch	A switch associated with kep interlocks or warning devices.
local control	Control of a circuit breaker, starter, or similar apparatus by means of a manually operated external switch or push-button integral with the apparatus.
overwind switch	A switch which may be used on winders, or haulages, to cause the power to be cut off from the driving motor, or engine, and the brakes to be applied in the event of the conveyance passing its normal limit of travel. Such a switch may be: 1) situated in the headgear and operated by the conveyance; 2) mounted on the automatic contrivance; or 3) operated by the depth or distance indicator.

Term	Definition
pilot core protection	A feature of a remote control circuit which opens the control relay, and prevents it from closing, in the event of an open-circuit or a short-circuit on the control cores of the system.
pilot switch	See *remote control switch*.
pliable armoured cable	A flexible cable having collective armour comprising stranded groups of galvanized steel wires.
pommel	A restrained cable plug (q.v.).
portable apparatus	Apparatus designed to be moved while it is working.
portable substation	See *transportable substation*.
remote control	Control, from a distance, of a circuit breaker, starter, or similar apparatus.
remote control switch pilot switch	A switch operating in a low voltage control circuit to open or close a contactor or other switch in a main circuit.
restrained cable plug and socket	A plug and socket designed to be held together by an operating bolt, or screwed union ring, or other equivalent device, the use of which enables the plug to be readily inserted or withdrawn. A flameproof restrained plug and socket incorporates an interlock to ensure that the power connections are dead when they are separated or until they make contact; the design is such that the enclosure is flameproof at all times when there is contact between the pins and tubes. (See also BS 4673.)
restricted earth fault protection	As used in mining, a system of earth fault protection in which the fault current is limited, without requiring the use of sensitive earth fault protection.
screened trailing cable	A flexible cable provided with a protective screen or screens incorporating tinned copper wire, or other conducting material, applied a) to enclose each power core separately (individual screening), or b) to enclose all the cores of the cable (collective screening).
sensitive earth fault protection	A system of earth fault protection in which the fault current is limited by design to a low value which may require amplification in order to operate an earth fault relay. In the case of 3-phase a.c. systems, the limitation of the leakage current may be effected by either: 1) inserting a current limiting device between the neutral point of the system and earth (single-point earthing); or 2) connecting, in each circuit to be protected, all phases, in star, through current limiting devices, each star point being connected to earth through an earth leakage protective device (multi-point earthing).
sequence control	A method of control whereby, once action has been initiated, a number of electrical circuits will automatically function in a prescribed order.
sequence interlock	An interlock provided between a number of electrical circuits, which are required to function in a prescribed order, and which prevents a circuit from being operated unless the preceding circuit has completed its part in the sequence.
shaft cable cleat	A clamp fixed to a shaft wall or to a bunton to support vertical cables in a shaft.
shaft feeder cable	A cable mounted in a shaft to transmit electrical power to the shaft bottom and/or to an intermediate level.

Term	Definition
shaft signal indicator	A device, usually mounted in the winding engine house, which gives visual indication of the signals received from the banksman and the onsetter to regulate the movement of conveyances in a shaft, and which retains the indication until cancelled. (See also *cancelling device*.)
shaft signal recorder	A device which records, on paper or otherwise, the signals given by the banksman and the onsetter and the movements of the winder drum.
telephone coupler	A device, of a type approved under Government authority, designed to enable telephones of approved type below ground to be connected to telephones, of a type not so approved, at the surface, without affecting the intrinsic safety of the approved telephones.
trailing cable flexible cable	A flexible cable designed to be movable while in use.
trailing cable coupler flexible cable coupler	An assembly of two restrained type sockets for coupling together two trailing cables fitted with restrained plugs.
transportable substation portable substation, *deprecated*	A transformer equipped with switchgear and mounted upon wheels or skids.

7.2 Lighting

NOTE Safety lamps and associated matters are also dealt with in the *Ventilation* section.

air-turbo lamp (pneumatic-electric)	A lighting fitting containing an alternator driven by compressed air to provide the power to energize the light source.
cap lamp (electric)	A light source or sources contained in a headpiece designed to be attached to a miner's helmet, the power to energize the light source(s) being supplied through a flexible cable from a battery carried on the wearer's belt.
hand lamp (electric)	A portable battery-operated lamp incorporating a light source within a glass usually of the dome or well-glass type and providing maximum illumination in the horizontal plane.
lamp cabin	See *lamp room*.
lamp room lamp cabin, *deprecated*	A room or building at the surface of a mine, provided for charging, servicing and issuing all cap, hand and flame safety lamps held at the mine.
lamp station	A place underground, appointed for the examination, by an official, of safety lamps in use.
officials' inspection lamp	A portable combined electric lamp and battery, fitted with a reflector to provide directional illumination.
paddy lamp	A portable battery-operated lamp attached to the front or rear of a man-riding train.
safety lamp	A locked flame lamp or electric lamp which is so enclosed and protected as to preclude the ignition of an ambient firedamp-air mixture.
self-help	See *self-issue system*.
self-issue system self-help	(Of lamp room operation.) A system of storage, charging and issue, for alkaline type cap lamps, which allows a user access only to the storage racks for the purpose of lamp collection or return. Charging is controlled by a lamp room attendant.
self-service system	A system of storage and issue for lead-acid battery operated lamps, whereby the user has direct access to the charging racks for the purpose of connecting or disconnecting his lamp from the charging circuit.
sinking lamp	An electric lighting fitting designed to be suspended, either singly or in a cluster, in a sinking shaft.

Publication referred to

This standard makes reference to the following British Standard:

BS 4673, *150 A flameproof restrained plugs and sockets for voltages not exceeding 650 V, primarily for use in mining (embodying three power contacts, one auxiliary contact and a scraping earthing contact).*

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London
W4 4AL