### Appendix B

### A List of Standards Often Used for Designing Electrical Systems and for Specifying Equipment

Note .... Reference in {} brackets supersede the original references.

#### **B.1 INTERNATIONAL ELECTRO-TECHNICAL COMMISSION (EUROPE)**

Ref	Description	
IEC60027	Part 1: Letter symbols to be used in electrical engineering.	
IEC60034	Rotating electrical machines.	
	Parts 1, 2, 4, 5, 6, 8 and 14 in particular	
	Part 1: Rating and performance.	
	Part 2: Methods of determining losses and efficiency.	
	Part 4: Methods of determining synchronous machines quantities	
	Part 5: Classification of degrees of protection provided by enclosures f rotating machines	for
	Part 6: Methods of cooling rotating machinery.	
	Part 7: Symbols for types of construction and mounting arrangement.	
	Part 8: Terminal markings and direction of rotation.	
	Part 12: Starting performance of single-speed three-phase cage induction motors for voltages up to and including 660 V.	n
	Part 14: Mechanical vibration of certain machines with shaft heights	
	56 mm and higher.	
IEC60038	IEC standard voltages.	
IEC60043	Recommendations for alternating current watt-hour meters.	
{IEC600521}	-	
IEC60050	International electro-technical vocabulary {65 sections}	

(continued overleaf)

Ref		Description
IEC60051	Recommendatio	n for direct acting indicating electrical measuring
		nd their accessories.
	Part 2: Specia	al requirements for ampere-meters and voltmeters.
IEC60056	High-voltage alt	ernating-current circuit breakers.
IEC60059	Standard current	t ratings.
IEC60060	High voltage tes	st techniques.
	Part 1: Gener	ral definitions and test requirements.
	Part 2: Measu	uring systems.
	Part 3: Measu	uring devices.
		cation guide for measuring devices.
IEC60071	Insulation coord	ination.
	Part 1: Defini	itions, principles and rules.
	Part 2: Applie	cation guide.
	Part 3: Phase	-to-phase insulation coordination. Principles, rules and
	applic	ation guide. (Superseded by Part 1, 7th edition).
IEC60072-1	Dimensions and	output ratings – frame numbers 56 to 400.
IEC60072-2	Dimensions and	output ratings – frame numbers 355 to 1000.
IEC60073	Indicating lamps	3.
IEC60076	Power transform	ners.
	Part 5: Abilit	y to withstand short circuit.
IEC60079	Electrical appara	atus for explosive gas atmospheres.
	Part 0: Gener	ral requirements.
	Part 1: Const	ruction and verification test of flameproof enclosures of
	electri	ical apparatus.
	Part 2: Electr	ical apparatus with type of protection 'p'.
	Part 5: Sand-	filled apparatus.
	Part 6: Oil-in	nmersed apparatus.
	Part 7: Increa	sed safety 'e'.
	Part 10: Classi	fication of hazardous areas.
	Part 11: Const	ruction and test of intrinsically safe and associated apparatus.
		ruction and use of rooms of buildings protected by urisation.
		ical installations in explosive gas atmospheres (other than
		ical apparatus with type of protection 'n'.
		cial ventilation for the protection of analyser(s) houses.
		nmendations for inspection and maintenance of electrical
		ation in hazardous areas (other than mines).
		esulation 'm'.
IEC60083		t-outlets for domestic and similar general use.
IEC60085	Recommendations for the classifications of insulating materials in relation t	
1200000		stability in service.
IEC60088		current (2 to 63 A) of fuse links for LV
IEC60092	Electrical install	

Ref	Description
IEC60092-3	Part 1: Cables (construction, testing and installations).
IEC60092-101	Part 101: Definitions and general requirements.
IEC60092-352	Part 352: Choice and installation of cables for low-voltage power systems.
IEC60092-353	Part 353: Single and multicore cables with extruded solid insulation for rated voltages 0.6/1 kV.
IEC60092-354	Part 354: Single- and three-core power cables with extruded insulation for rated voltages 6 kV, 10 kV and 15 kV.
IEC60092-359	Part 359: Sheathing materials for shipboard power and telecommunication cables.
IEC60092-375	Part 375: Shipboard telecommunication cables and radio-frequency cables.  General instrumentation, control and communication cables.
IEC60092-376	Part 376: Shipboard multicore cables for control circuits.
IEC60092-505	Part 505: Special features-mobile offshore drilling units.
IEC60112	Methods for determining the comparative and the proof-tracking indices of solid insulating material under moist conditions.
IEC60113	Diagrams, charts and tables.
IEC60120	Dimensions of ball and socket coupling of string insulator units.
IEC60129	Isolators and earth switches above 1000 volts.
IEC60146	Semiconductor converters.
	Part 1: Specifications of basic requirements.
	Part 2: Semiconductor self-commutated converters.
IEC60156	Insulating liquids – determination of the breakdown voltage at power frequency
IEC60157	LV switchgear and controlgear.
{IEC60947}	Part 1: Contactors
IEC60158	LV control gear for industrial use.
{IEC60947}	Part 1: Contactors.
IEC60182	Basic dimensions of winding wires.
IEC60183	Guide to the selection of high-voltage cables.
IEC60185	Current transformers.
IEC60186	Voltage transformers.
IEC60189	Low-frequency cables and wires with PVC insulation and PVC sheath Part 1: General test and measuring methods
IEC60214	On load tap changes.
IEC60227	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V.
	Part 1: General requirements Part 2: Test methods.
IEC60228	Conductors for insulated cables.
IEC60225	Rubber insulated cables of rated voltages up to and including 450/750 V. Six parts.
IEC60247	Measurements of relative permittivity, dielectric dissipation. Factor and DC resistivity of insulating liquids.

Ref	Description
IEC60251	Methods of test for winding wires.
	Part 1: Enamelled round wires
IEC60255 and BS142	Electrical protection relays.
	Part 3: Single input energising quantity measuring relays with dependent or independent time.
	Part 5: Insulation tests for electrical relays.
	Part 6: Measuring relays and protection equipment.
	Part 8: Thermal electrical relays.
	Part 12: Directional relays and power relays with two input energising quantities.
	Part 13: Biased (percentage) differential relays.
	Part 16: Impedance measuring relays.
	Part 20: Protection (protective) systems.
	Part 23: Contact performance.
IEC60265	High-voltage switches
	Part 1: High-voltage switches for rates voltages above 1 kV and less than 52 kV.
IEC60269	Low-voltage fuses
	Part 1: General requirements.
IEC60270	Partial discharge measurements.
IEC60277	Definitions for switchgear and control gear.
(withdrawn)	
IEC60282	High-voltage fuses.
	Part 1: Current-limiting fuses.
	Part 2: Expulsion and similar fuses.
IEC60287	Calculation of the continuous current rating of cables (100% load factor)
IEC60292	LV motor starters
IEC60298	High-voltage metal enclosed switchgear and controlgear.
IEC60309	Plugs, socket-outlets and couplers for industrial purposes.
	Part 1: General requirements.
	Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories.
	Part 3: Particular requirements for plugs, socket-outlets, connectors and appliance inlets for use in explosive gas atmospheres.
IEC60331	Fire resisting characteristics of electric cables.
IEC60332	Tests on electric cables under fire conditions.
	Part 1: Test on a single vertical insulated wire or cable.
	Part 2: Test on a single small vertical insulated copper wire or cable.
	Part 3: Tests on bunched wires or cables.
IEC60337	Control auxiliary switches, relays and pushbuttons.
IEC60354	Loading guide for oil immersed transformers.

Ref	Description	
IEC60363	Short-circuit current evaluation with special regard to rated short-circuit	
	capacity of circuit-breakers in installations in ships.	
IEC60364	Requirements for electrical installations 7 parts, 6 appendices also called the	
	IEE wiring regulations 16th edition.	
IEC60376	Specification and acceptance of new sulphur hexafloride.	
IEC60383	Insulators for overhead lines with a nominal voltage above 1000 V.	
	Part 1: Ceramic or glass insulators units for AC systems-definitions, test methods and acceptance criteria.	
	Part 2: Insulator strings and insulator sets for AC systems-definitions, test methods and acceptance criteria.	
IEC60408	Low-voltage air-break switches, air-break	
{IEC60947}	disconnectors and fuse combination units.	
{Part 3}		
IEC60409	Guide for the inclusion of reliability clauses into Specifications for	
	components (or parts) for electronic equipment.	
IEC60414	Safety requirements for indicating and recording measuring instruments and	
	accessories.	
IEC60417	Graphical symbols for use on equipment. Index, survey and compilation of	
	the single sheets. Note, there are 12 supplements.	
IEC60420	High-voltage alternating current switch-fuse combinations.	
IEC60433	Characteristics of string insulator units of the long rod type.	
IEC60439	Low-voltage switchgear and control gear assemblies.	
	Part 1: Type-tested and partially type-tested assemblies.	
	Part 2: Particular requirements for busbar trunking systems.	
	Part 3: Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled	
	persons have access for their use–distribution boards.	
	Part 4: Particular requirements for assemblies for construction sites (ACS).	
	Part 5: Particular requirements for assemblies intended to be installed outdoors in public places (CDC).	
IEC60445	Identification of apparatus terminals and general rules for a uniform systems	
	of terminal making, using an alphanumeric notation.	
IEC60446	Identification of insulated and bare conductors by colours.	
IEC60470	High-voltage alternating current contactors, Amendment No. 1.	
IEC60473	Dimensions for panel-mounted indicating and recording electrical measuring instruments.	
IEC60478	Stabilised power supplies, DC output.	
	Part 1: Terms and definitions.	
	Part 2: Rating and performance.	
IEC60479	Effects of current on human beings and livestock.	
	Part 1: General aspects.	
IEC60502	Extruded solid dielectric insulated power cables from 1 kV	
	up to 30 kV.	

Ref	Description
IEC60529	Classification of degrees of protection provided by enclosures
	(IP Code).
IEC60536	Part 1: Classification of electrical and electronic equipment with regard to protection against electric shock.
	Part 2: Guideline to requirements for protection against electric shock.
IEC60549	High-voltage fuses for the external protection of shunt Power capacitors.
IEC60551	Measurement of transformer and reactor sound levels.
IEC60555	Disturbances in supply systems caused by household appliances and similar electrical equipment.
	Part 1: Definitions
	Part 2: Harmonics
	Part 3: Voltage fluctuations.
IEC60593	Internal fuses and internal over-pressure disconnections for shunt capacitors.
IEC60606	Application guide for power transformers
IEC60614	Specifications for conduits for electrical installations.
	Part 1: General requirements.
TEG(0(1)	Part 2: Particular specifications for conduits. Section one Metal conduits.
IEC60616	Terminal and tapping markings for power transformers.
IEC60617	Graphic symbols for diagrams.
	Part 1: General information, general index.
IEC60623	Cross-reference tables.
IEC60623	Vented nickel-cadmium prismatic rechargeable single cells.
IEC00032	High-voltage motor starters.  Part 1: Direct-on-line full voltage starters.
IEC60644	Specifications for high-voltage fuse links for motor circuit applications.
IEC60662	High pressure sodium vapour lamps.
IEC60664	Insulation coordination within low-votage systems including clearness and
ILC00004	creepage distances for equipment.
	Part 1: Principles, requirements and tests.
	Part 3: Use of coatings to achieve insulation coordination of printed board assemblies.
IEC60686	Stabilised power supplies AC output.
IEC60688	Electrical measuring transducers for converting AC electrical quantities into DC electrical quantities.
	Part 1: General purpose transducers.
IEC60694	Common clauses for high-voltage switchgear and controlgear standards.  Amendment No. 1.
IEC60722	Guide to lightning impulse and switching impulse testing of power transformers and reactors.
IEC60726	Dry type power transformers.
IEC60742	Isolating transformers and safety isolating transformers.
IEC60745	Safety of handheld motor operated electric tools.
	Part 1: General requirements.
	Part 2: 17 sections covering drills, hammers, grinders etc.

Ref	Description
IEC60751	Platinum resistance thermometer sensors.
IEC60754	Test on gases evolved during combustion of electric cables.
	Part 1: Determination of the amount of halogen acid gas evolved during
	the combustion of polymeric materials taken from cables.
	Part 2: Determination of degree of acidity amount of gases evolved
	during the combustion of polymeric materials taken from cables
	by measuring pH and conductivity.
IEC60781	Application guide for calculation of short-circuit currents in low-voltage
	radial systems.
IEC60800	Heating cables with a rated voltage of 300/500 V for comfort heating and
	prevention of ice formation.
IEC60801	Electromagnetic compatibility for industrial process measurement and
	control equipment:
	Part 1: General introduction.
	Part 2: Electrostatic discharge requirements-test severity level 4.
	Part 3: Radiated electromagnetic field requirements-test severity
	level 3.
	Part 4: Noise immunity against fast transient disturbances-test severity
	level 3.
	Part 5: Surge immunity requirements-test severity level 4.
	Part 6: Immunity to conducted radio frequency disturbances above
	9 kHz-test severity level 2.
IEC60812	Analysis techniques for system reliability - Procedure for failure mode and
	effects analysis (FMEA).
IEC60815	Guide for the selection of insulators in respect of polluted conditions.
IEC60826	Loading strength of electrical overhead lines.
IEC60831	Shunt power capacitors of the self-healing type for AC systems having a
	rated voltage up to and including 1000 V.
	Part 1: General-performance, testing and rating-safety
	requirements – Guide for installation and operation.
	Part 2: Ageing test, self-healing and destruction test.
IEC60836	Specification for silicone liquids for electrical purposes.
IEC60840	Tests for power cables with extruded insulation for rated voltage above
	30 kV.
IEC60851	Methods of test for winding wire.
	Part 1: General
IEC60865	Short-circuit currents – Calculation of effects.
	Part 1: Definitions and calculation methods.
TEG(0071	Part 2: Examples of calculation.
IEC60871	Shunt capacitors for AC power systems having a rated voltage above 660 V
	Part 1: General-performance, testing and rating-safety
	requirements – Guide for installation and operation
	Part 2: Endurance testing.

Ref		Description
IEC60885	Electric	test methods for electric cables.
	Part 1:	Electrical tests for cables, cords and wires for voltages up to and including 450/750 V.
	Part 2:	Partial discharge tests.
	Part 3:	Test methods for partial discharge measurement on lengths of extruded power cable.
IEC60896	Stationar test.	ry lead-acid batteries. General requirements and methods of
IEC60898		oreakers for overcurrent protection for household and similar ations.
IEC60905	Loading	guide for dry type power transformers.
IEC60906	IEC syst	ems of plugs and socket-outlets for household and similar ses.
	Part 1:	Plugs and socket-outlets 16 A 250 V AC
	Part 2:	Plugs and socket-outlets 15 A 125 V AC
IEC60909	Short-cir 1991.	cuit current calculation in three-phase AC systems. Third impression
	Part 1:	Factors for the calculation of short-circuit currents in three-phase
		AC systems according to IEC60909.
	Part 2:	Electrical equipment – Data for short-circuit current calculation in accordance with IEC60909 (1988).
IEC60944	Guide fo	or the maintenance of silicone transformer liquids.
IEC60947		tage switchgear and control gear.
	Part 1:	General rules.
	Part 2:	Circuit breakers.
	Part 3:	Switches, disconnectors, switch disconnectors, and fuse-combination units.
	Part 4:	Contractors and motor starters. Section one: electromechanical contactors and motor starters.
IEC60993	Electroly	te for vented nickel cadmium cells.
IEC61000	Electromagnetic compatibility (EMC)	
IEC61000-1-1	Part 1:	General – Section 1: Application and interpretation of fundamental definitions and terms.
IEC61000-2-1	Part 2:	Environmental – Section 1: Description of the environment: electromagnetic environment for low-frequency conducted disturbances and signaling in public power supply systems.
IEC61000-2-2	Part 2:	Environment – Section 2: Compatibility levels for low-frequency conducted disturbances and signaling in public low-voltage power supply systems.
IEC61000-2-4	Part 2:	Environment – Section 4: Compatibility levels in industrial plans for low-frequency conducted disturbances.
IEC61000-3-2		nagnetic compatibility (EMC) limits for harmonic current emissions oment current <16 A per phase)

Ref	Description
IEC61000-4-11	Part 4: Testing and measuring techniques – section 11: Voltage dips, she interruptions and voltage variations immunity tests: Basic EMC publication.
IEC61000-5-2	Electromagnetic compatibility (EMC).
	Part 5: Installation and mitigation guidelines – section 2: Earthing and cabling.
IEC61010	Safety requirements of electrical equipment for measurement, control and
	laboratory use.
	Part 1: General requirements.
IEC61029	Safety of motor-operated transportable tools.
	Part 1: General requirements.
IEC61034	Part 1: Measurement of smoke density of cables burning under defined conditions. Test apparatus.
	Part 2: Measurement of smoke density of cables burning under defined conditions. Test procedure and requirements.
IEC61039	General classification of insulating liquids.
IEC61067	Glass and glass polyester fibrewoven tapes. Definitions, classifications and general requirements.
IEC61084	Cable trunking and ducting systems for electrical installation.
	Part 1: General requirements.
IEC61089	Round wire concentric lay overhead electrical standard conductors.
IEC61203	Synthetic organic esters for electrical purpose – guide for maintenance of transformer esters in equipment.
IEC61294	Insulating liquids – determination of the partial discharge inception voltage (PDIV): Test procedure.
EN50006	The limitations of disturbances in electrical supply networks caused by domestic and similar appliances equipped with electronic devices.
EN50085	Cable trunking systems and cable ducting systems for electrical installation Part 1: General requirements ratified European text.
EN55014	Specification for radio interference limits and measures for equipment embodying small motors, contacts, control and other devices causing similar interference.
EN55015	Limits and methods of measurement of radio interference characteristics of fluorescent lamps and luminaires.
EN55022	Limits and methods of measurement of radio interference characteristics of information technology equipment.

### **B.2 INSTITUTE OF PETROLEUM (UK)**

Ref	Description
IP	Model code for safe practices, Parts 1, 8 and 15.

### **B.3 INTERNATIONAL STANDARDS ORGANISATION (WORLDWIDE)**

Ref	Description
ISO3	Preferred numbers (voltages, currents, kVA etc.).
ISO281	Rolling bearings – dynamic load ratings and rating life.
ISO1000	Specification for SI units and recommendations for the use of their multiples and of certain other units.
ISO1680	Acoustics: Test code for the measurement of airborne noise emitted by rotating electrical machinery.
ISO1813	Antistatic endless V-belts – electrical conductivity-characteristics and methods of test.
ISO2372	Mechanical vibration of machines with operating speeds from 10 to 200 rev /sec. Basis for specifying evaluation standards.
ISO3046/IV	Reciprocating internal combustion engines: Performance.
	Part 1: Specifications for standard reference conditions and declarations of power, fuel consumption and lubricating oil consumption.
	Part 2: Test methods
	Part 3: Specification of test measurements.
	Part 4: Speed governing.
	Part 5: Torsional vibrations.
	Part 6: Specifications for overspeed protection.
	Part 7: Specifications for codes for engine power.
ISO5292	Industrial V-belt drives. Calculation of power ratings.
ISO9000	Quality management and quality assurance standards – guidelines for selection and use.
ISO9001	Quality systems. Model for quality assurance in design, development, production, installation and servicing.
ISO9002	Quality systems. Model for quality assurance in production, installation and servicing.
ISO9003	Quality systems. Model for quality assurance in final inspection and test.
ISO9004	Quality management and quality system elements.

### **B.4 BRITISH STANDARDS INSTITUTION (UK)**

Ref	Description
BS116 {BS5311: 1 to 7}	Oil circuit breakers (for alternating current systems above 1 kV) {High-voltage alternating current circuit breakers.}
BS162	Electric power switchgear and associated apparatus.
{BS7354} BS170	{Code of practice for the design of high voltage open terminal stations.}
{BS5000: 2}	{Rotating electrical machines of particular types or for particular applications. Part 2: Specific requirements or turbine type synchronous machines.}

Ref	Description
BS229	Flameproof enclosure of electrical apparatus.
BS350	Part 1: Conversion factors and tables. Basis of tables.
BS801	Cable sheaths, lead and lead alloy.
BS921	Rubber mats for electrical purposes.
BS1259	Intrinsically safe electrical apparatus and circuits for use in explosive atmospheres.
BS2045	Preferred numbers (for voltages, currents kVA etc.).
BS2613	
{BS5000: 99}	{Rotating electrical machines of particular types or for particular applications. Part 99: Machines for miscellaneous applications.}
BS2627	Wrought aluminium for electrical purposes: wire.
BS2757	Method for determining the thermal classification of electrical insulation.
BS2782	Methods of testing plastics.
BS2783	Specification for copper and copper alloys. Wire.
BS3192	Safety requirements for radio transmitting equipment status.
{BSEN60215}	
BS3535	Isolating transformers and safety isolating transformers.
BS3763	The international system of units (SI). Withdrawn.
{BS 5555}	
See ISO 1000	
BS3988	Wrought aluminium for electrical purposes: solid conductors.
BS4066	Electrical cables, tests under fire conditions.
BS4109	Copper for electrical purposes.
BS4142	Method for rating industrial noise affecting mixed residential and industrial areas.
BS4296	Methods of test for determining synchronous machine quantities.
BS4683: 3	Electrical apparatus for explosive atmospheres.
{BSEN60922}	{Electrical apparatus for explosive atmosphere with type of protection $N$ .}
BS4782	Ballasts for discharge lamps.
{BSEN60922}	{Auxiliaries for lamps – Ballasts for discharge lamps. (excluding tubular fluorescent lamps) General and safety requirements.}
{BSEN60923}	{Performance requirements for ballasts for discharge lamps (excluding tubular fluorescent lamps).}
BS4800	Specification for paint colours for building purposes.
BS4992	Guide to protection against ignition and detonation
(withdrawn)	initiated by radio frequency radiation. Replaced by BS6656 and BS6657.
BS4999	General requirements for rotating electrical machines.  Part 140: Specification for voltage regulation and parallel operation of AC synchronous generators.
BS5000	Rotating electrical machines of particular types or for Particular applications. All parts.

Ref	Description
BS5099	Specification for safety of machinery.
BS5266	Code of practice for emergency lighting.
BS5304	Code of practice for safety of machinery.
BS5308	Instrument cables.
BS5311	High-voltage alternating current circuit breakers.
BS5345	Code of practice for the selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres (other than mining applications or explosives manufactures).
BS5467	Specification for 600/1000 V and 1900/3300 V armoured electric cables having thermosetting insulation.
BS5468	Cross-linked polyethylene insulation of electric cables.
BS5486	Low-voltage switchgear and controlgear assemblies. Parts: 1, 2, 11, 12 and 13. Mostly withdrawn.
BS5490	Check (sonar devices).
BS5501	Electrical apparatus for potentially explosive atmospheres.
BS5555	Specification for SI units and recommendations for the use of their
See ISO 1000	multiples and of certain other units.
BS6007	Rubber insulated cables for electric power and lighting.
BS6121	Cable glands. Part 1.
{BSEN50014,	(were the hazardous area parts of BS5345).
50018 and 50019}	<u>-</u>
BS6195	Insulated flexible cables and cords for electric power and lighting.
BS6231	Specification for PVC insulated cables for switchgear and control gear wiring.
BS6234	Insulated cables, polyethylene.
BS6290	Lead-acid stationary cells and batteries.
BS6346	PVC insulated cables for electricity supply.
BS6351	Electric surface heating.
BS6360	Electric conductors, insulated cables.
BS6387	Performance requirement for cables required to maintain circuit integrity under fire conditions.
BS6467	Electrical apparatus with protection by enclosure with use in the presence of combustible dusts.
BS6469	Insulated cables, insulation and sheaths, test methods.
BS6480	Power cables, impregnated paper – insulated, lead or lead alloy sheathed.
BS6500	Insulated flexible cords.
BS6622	Specification for cables with extruded cross-linked polyethylene or ethylene propylene rubber insulation for rated voltages from 3.8/6.6 kV up to 19/33 kV.
BS6651	The protection of structures against lightning.
(Was CP326)	
BS6656	Guide to prevention of inadvertent ignition of flammable atmospheres by radio-frequency radiation.

Ref	Description
BS6657	Guide to prevention of inadvertent initiation of electro-explosive
	devices by radio-frequency radiation.
BS6724	Armoured cables for electricity supply having thermosetting insulation
	with low emissions of smoke and corrosive gases when affected by fire.
BS6746	Specification for PVC insulation and sheath of electric cables.
BS6883	Specification for elastomer insulated cables for fixed wiring in ships and on mobile and fixed offshore units.
BS6899	Specification for rubber insulation and sheath of electric cables.
BS6941	Electrical apparatus for explosive atmospheres with type of protection $N$ .
BS7211	Thermosetting insulated cables (non-armoured) for electric power and lighting with low emissions of smoke and corrosive gases when affected by fire.
BS7244	Flame arresters for general use.
BS7354	Design of HV stations for earthing.
BS7430	Code of practice for earthing.
BS7622	Measurement of smoke density of electric cables burning under defined
{BSEN50268 pt 1}	conditions. Test apparatus.
BS7629	Part 1: Specification for 300/500 V fire resistance electric cables having low emission of smoke and corrosive gases when affected by fire. Multicore cables (renamed in 1997).
	Part 2: Specification for 300/500 V fire resistant electric cables having low emission of smoke and corrosive gases when affected by fire. Multipair cables (renamed in 1997).
BS7655	Insulation and sheaths, electric cables.
BS7671	See IEC60364
BS7835	Specification for armoured cables with extruded cross-linked polyethylene or ethylene propylene rubber insulation for rated voltages from 3.8/6.6 kV up to 19/33 kV having low emission of smoke and corrosive gases when affected by fire.
BS7846	Electric cables. 600/1000 V armoured fire-resistant cables having thermosetting insulation and low emission of smoke and corrosive gases when affected by fire.
BS7889	Specification for 600/1000 V single-core un-armoured electric cables having thermosetting insulation.
BS7917	Elastomer insulated fire resistant (limited circuit integrity) cables for fixed wiring in ships and on mobile and fixed off-shore units. Requirements and test methods.
BS9000	General requirements for a system for electronic components for assured quality.
BSEN10257	Part 1: Zinc and zinc alloy coated non-alloy steel wire for armouring either power cables or telecommunication cables.  Land cables.

Ref	Description
	Part 2: Zinc and zinc alloy coated non-alloy steel wire for armouring either power cables or telecommunication cables. Submarine cables.
BSEN12166	Copper and copper alloys. Wire for general purposes.

### **B.5 AMERICAN PETROLEUM INSTITUTE (USA)**

Ref	Description
API500	Recommended practice for classification of locations for electrical installations at petroleum facilities classified as Class 1, Division 1 or Division 2.
	Part A is for refining facilities.
	Part B is for process facilities.
	Part C is for transportation facilities.
API610	Centrifugal pumps for general refinery services.
API617 API670	Centrifugal compressors for general refinery services.  Non-contacting vibration and axial position monitoring systems.

## B.6 COUNSEIL INTERNATIONAL DES GRANDS RESEAUX ELECTRIQUES (FRANCE)

Ref	Description
CIGRE	Working Group 36.05: Equipment producing harmonics and conditions governing their connection to the mains power supply. ELECTRA 123, March 1989, pp 20–37.

### B.7 ENGINEERING EQUIPMENT AND MATERIALS USERS ASSOCIATION (UK)

Ref	Description
EEMUA107	Recommendations for the protection of diesel engines for use in
	Zone 2 hazardous areas.
EEMUA122	Guide to user needs for technical documentation (engineering).
EEMUA132	Three-phase induction motors.
EEMUA133	Underground armoured cable protection against solvent penetration and corrosive attack.
EEMUA140	Noise: Procedure specification.

Ref	Description
EEMUA141	Guide to the use of noise procedure specification.
EEMUA148	Reliability specification.

### **B.8 ELECTRICITY COUNCIL (UK)**

Ref	Description
G5/3	Limits for harmonics in the United Kingdom electricity supply systems (Electricity Council, London).

#### **B.9 VERBAND DEUTSCHER ELECTRECHNIKER (GERMANY)**

Ref	Description
VDE0875	Specification for radio interference suppression of electrical appliances and systems.
VDE0295	·
VDE0875	Specification for radio interference suppression of electrical appliances and systems.

# B.10 INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS INC. (USA)

Ref	Description
IEEE32	Standard requirements, terminology and test procedures for neutral grounding devices.
IEEE80	IEEE guide for safety in AC substation grounding.
IEEE81	IEEE guide for measuring earth resistivity, ground impedance and earth surface potentials of a ground system.
	IEEE112 IEEE standard test procedure for polyphase induction motors and generators.
IEEE344	IEEE recommended practice for seismic qualification of class 1E equipment for nuclear power generating stations.
IEEE519	Recommended practices and requirements for harmonic control in electrical power systems.
IEEE979	IEEE guide for substation fire protection.
IEEE1100	Recommended practice for powering and grounding sensitive electronic equipment.
IEEEC37.2	IEEE standard electrical power system device function numbers.

### **B.11 MISCELLANEOUS REFERENCES FROM THE UK**

Ref	Description
DINV19250	Control technology. Fundamental safety aspects to be considered for measurement and control equipment.
ERA69-30	Current rating standards for distribution cables.
ERA74-29	A method for calculating ratings for cables in multilayer groups on trays.
IALA	Recommendation for the notation of luminous intensity and range of lights. Appendix II. Dated 16th November 1966.
IALA	The definition and method of calculation of the nominal range and usual range of a fog signal. Dated 1st May 1984.
Dept of	Survey of aids to navigation on offshore structures.
Trade UK	Instructions for the guidance of surveyors (HMSO).
IEE	Regulations for the electrical and electronic equipment of ships with recommended practice for their implementation. 6th edition, 1990.
	ISBN 0 86 3-41 217-3.
IEE	Requirements for electrical installations. IEE wiring regulations. 16th edition, 1997 (also BS7671: 1992).
	ISBN 0 852-98927-9.
OSHA1910.25	Occupational noise exposure.