
Universal Decimal Classification

English full edition
Fourth international edition
FID publication no. 179

UDC 621/621.0 Mechanical engineering
in general. Nuclear technology

THIS BRITISH STANDARD, having been approved by the Documentation Standards Committee, was published under the authority of the Executive Board on 12 February, 1973.

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ISBN: 0 580 07541 9

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BS 1000 [621/621.0] : February 1973

UDC 025.45 : 621/621.0

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Amendments issued since publication

Amd. No.	Date of issue	Text affected

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BS 1000 [621/621.0] : 1973

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Foreword

The English version of the Universal Decimal Classification (UDC) is being prepared and published as BS 1000 by the British Standards Institution (BSI) at the original joint request of the British Society for International Bibliography (BSIB) and the Association of Special Libraries and Information Bureaux (ASLIB), now amalgamated as Aslib. It has the approval of the Education Foundation, Lake Placid Club, New York, proprietors of the Dewey Decimal Classification, from which the UDC derives. The first English Full Edition is the 4th International edition authorized by the Fédération Internationale de Documentation (FID), The Hague, Netherlands.

This section is part of the English Full Edition. It should be used in conjunction with the Abridged English Edition, BS 1000A, which refers to many other subjects of interest not listed in this schedule, and provides a conspectus of the whole scheme, together with an introduction to its use. For further practical information about the principles, application and utilization of the scheme, users should refer to BS 1000C.

This edition of UDC 621/621.0 includes modifications authorized in 'Extensions and Corrections to the UDC' up to and including Series 8, No. 2, dated September 1972. Subsequent issues of 'Extensions and Corrections to the UDC' should be consulted to keep the schedules up to date. Further information about this and other UDC publications is given on page 18. British standards related to this part of BS 1000 are listed on the inside back cover.

Scope

At 621 is classed information about mechanical engineering in general, the design, construction and applications of machinery; but information about machines for particular industries is classed at the number for the industry, *e.g.* 677.054 Weaving machinery. Theory and principles come at 621.01/.03, and simple kinds of engine at 621.08.

621.039 has been specially developed for all aspects of applied nuclear science, but not of pure nuclear physics or other aspects of the physical nature of matter, which come under 539.

Related subjects

53.08	General principles and theory of measurement and of the structure of instruments—Physics
536.48	Physical phenomena at low temperatures
539	Physical nature of matter
539.1	Nuclear, atomic and molecular physics
546.027	Isotopes—Inorganic chemistry
553.495	Radioactive elements. Uranium—Economic geology
614.73	Radioactive fallout—Public health
621.6	Fluid distribution and storage containers
622.349.5	Uranium and other radioactive materials—Mining
628	Public health engineering
656	Transport and postal services
66	Chemical and related industries
669	Metallurgy
669 . . . 5	Alloys
669.822	Uranium

Auxiliary signs and subdivisions

Full information about the common and special auxiliary signs and subdivisions (often abbreviated to common and special auxiliaries') will be found in BS 1000A and BS 1000C.

Colon sign of relation. For the classification of information for the public, as in abstracts and bibliographies, maximum use of colon combinations rather than of common or special auxiliaries is recommended. The use of the colon sign of relation is preferable for multiple entry systems, as it will help prevent the concealment of information. This usually results in longer notation, however, and for information for more restricted use, the application of auxiliaries, where available, may be simpler and more convenient provided that there is an adequate alphabetical subject index.

Common auxiliaries. The common auxiliaries of language = . . . , form (0 . . .), place (1/9), race and nationality (= . . .), time "...", point of view .00 . . . , materials -03 . . . and persons -05 . . . are applicable throughout the UDC. However, they should be used mainly to express concepts not otherwise provided for in the schedules.

Special auxiliaries. It should be noted that, despite the .0 . . . notation, the subdivisions of 621.0 are not special auxiliary subdivisions. However, special auxiliaries are provided at 621.039.5, denoting details of reactors; these may be detached and applied to any of the subdivisions of 621.039.5. Additionally, instructions for constructing new subdivisions are given under 621.039.51, 621.039.534, 621.039.62 and 621.039.7; these have the form of regular subdivisions, but are treated effectively as special auxiliaries and may be applied to any subdivision of the number at which they are listed, *e.g.*

621.039.7 Radioactive waste management
 . . . 14 Liquid wastes
 621.039.746 Transportation
 621.039.746.14 Transportation of liquid wastes

The hyphen special auxiliaries listed under 62 are also relevant to this section, and may be used to denote concepts not otherwise provided for.

Typographic presentation

Small type is used for cancelled numbers and text.

The arrow → means either 'see' or 'see also' according to the context.

The symbol $\cong$ 'subdivide as' means that the number preceding it may be subdivided in the same way as, and with meanings analogous to the subdivisions of, the number which follows it.

SCHEDULE

621 MECHANICAL ENGINEERING IN GENERAL. NUCLEAR TECHNOLOGY. ELECTRICAL ENGINEERING. MACHINERY

621.0 MECHANICAL ENGINEERING THEORY. NUCLEAR TECHNOLOGY

Note. In this section only, .0 is not used to denote special auxiliary subdivisions. The numbers 621.01/.087.35 are principal divisions and therefore the digits after the first decimal point may not be detached and applied to other subdivisions of 621

621.01	MECHANICAL ENGINEERING THEORY AND PRINCIPLES. MECHANICS AS THE BASIS OF MECHANICAL ENGINEERING	621.03	PHYSICAL PRINCIPLES OF ENGINEERING AND TECHNOLOGY <i>Here are classed general and comprehensive works about the technological applications of physics</i>
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621.039 APPLIED NUCLEAR SCIENCE. ATOMIC ENERGY AND ATOMIC INDUSTRY. NUCLEAR ENGINEERING IN GENERAL

	→539.1 Nuclear, atomic and molecular physics	621.039.341.6	Separation by thermal diffusion <i>For chemical exchange used in conjunction with thermal diffusion →621.039.322</i>
621.039.1	RAW MATERIALS FOR ATOMIC ENERGY <i>Only the most general aspects are classed here, e.g. general discussions on Uranium and Thorium industries. For geology, mining, metallurgy →553.495, 622.349.5 and 669.822. For reactor components and materials →621.039.53</i>	.7	Separation by sweep diffusion. Diffusion distillation. Hertz diffusion
		.342	Separation by mass centrifuge
		.343	Electromagnetic separation
		.345	Separation of helium isotopes at very low temperature <i>For low temperature physics →536.48</i>
		.37	Isotope separation using biological methods →66.098 Biological processes—Chemical technology
621.039.3	ISOTOPE SEPARATION <i>For applications →621.039.8 For physics of isotopes →539.183.2</i>	621.039.4	REACTOR ENGINEERING: GENERALITIES ON FISSION AND FUSION REACTORS
.31	General principles of isotope separating stages and cascades	621.039.5	NUCLEAR FISSION REACTORS <i>For specific reactor types, always use 621.039.52</i>
.32	Isotope separation using chemical methods		
.322	Chemical exchange. Catalytic exchange. Exchange distillation		
.2	Exchange between vapour and vapour, including methods in which chemical exchange is used in conjunction with thermal diffusion		
.3	Exchange between liquid and vapour		
.4	Exchange between liquid and liquid		
.324	Adsorption methods		
.2	Chromatography		
.325	Ion exchange		
.327	Solvent extraction		
.33	Isotope separation using physico-chemical methods		
.332	Distillation		
.2	Molecular distillation		
.4	Equilibrium distillation (fractionation)		
.333	Electrochemical methods		
.2	Electrolysis		
.4	Electromigration		
.335	Photochemical methods		
.337	Fractional crystallization. Fractional fusion. Zone melting		
.34	Isotope separation using physical methods		
.341	Diffusion or effusion		
.2	Separation by diffusion through a membrane		
.22	Manufacture, design and characteristics of membranes		
.27	Operation of gaseous diffusion plants in general		
.4	Separation on passage through a jet. <i>Trenndüse</i>		
		Special auxiliary subdivisions	
		621.039.5.0	Details of reactors <i>When parts or aspects of a complex subject are of secondary importance, they may be introduced as auxiliary subdivisions by affixing to the main UDC number for the primary concept the relevant .01/.08 auxiliary numbers, subdivided as 621.039.51/.58, and additionally by the digits:</i> ...021 Heterogeneous ...022 Homogeneous <i>If two or more of these auxiliaries have to be used, they are applied in ascending order (from .01 to .08...). This practice is especially useful under 621.039.52, where a particular example is given</i> <i>Further examples:</i> 621.039.524.2.034.34 CO ₂ cooled, graphite-moderated, thermal reactors 621.039.58.024.2.034.34 CO ₂ cooled, graphite-moderated, thermal reactor safety