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Universal Decimal Classification —

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UDC 52 Astronomy — Astrophysics — Space research — Geodesy

UDC 025.45:52

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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 Lake Placid Education Foundation, New York, proprietors of the Dewey Decimal Classification, from which UDC derives. The English Full Edition of the UDC is authorized by the International Federation for 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 52 includes modifications authorized in "Extensions and Corrections to the UDC" up to and including Series 9, No. 2 dated March 1976. Subsequent issues of "Extensions and Corrections to the UDC" should be consulted to keep the schedule up to date. Further information about this and other UDC publications is given on pages 48 and 49. British Standards related to this part of BS 1000 are listed on the inside back cover.

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.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 50, 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.

Scope

Under 52 is classed information about astronomy (theoretical and practical), navigation, geodesy, surveying, photogrammetry and cartography, and their associated instruments.

Related subjects

333	Land and landed property
34	Jurisprudence. Law. Legislation.
35	Public administration. Military art and science
51	Mathematics
53	Physics
54	Chemistry. Crystallography. Mineralogy
55	Geology. Meteorology. Hydrology
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623.64	Topography. Cartography. Surveying — Military engineering
624	Civil and structural engineering in general
625	Civil engineering of land transport
629	Transport vehicle engineering
655	Graphic industries. Printing. Publishing. Book trade
667.6	Coatings and coating techniques. Paints. Varnishes. Lacquers
681.2	Instrument making. Instrumentation. Measuring instruments and their manufacture
681.3	Data processing machines and equipment. Automatic data processing. Computers. Calculators etc
681.7	Optical apparatus and instruments
71	Physical planning
727.91	Observatories. Field (recording) stations — Architecture
744	Linear, geometric, technical drawing
77	Photography
91	Geography

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. Particularly useful here are alphabetic extension, for the names of heavenly bodies, e.g. at 525.45, and the asterisk to introduce non-decimal numeric subdivision, for catalogue designations, e.g. at 523.45-87, 523.985. 7–77. For some phenomena, e.g. satellites, either system is equally appropriate (compare Deimos at 523.43–87 DEIMOS with Io at 523.46–87*1), but the classifier will normally decide which is more effective for the needs of his collection.

Special auxiliaries. The special auxiliary subdivisions listed under 52 are applicable only to 52/524. Those listed under 520.2 are applicable only to 520.2/.25. Special auxiliaries are also provided at 520.6, 520.8, 524.31, 528, 528.5 and 528.7. These may be detached and applied to any subdivision of the number at which they are listed, e.g.

528.7.029.672	Infrared rays
528.711.11	Photogrammetric (surveying) cameras
528.711.11.029.672	Infrared cameras for photogrammetry

The auxiliaries quoted under 520.2 are derived from those listed under 681.7. The subdivisions of 528.08 are derived from those of 53.08. The hyphen auxiliaries at 528.5 are derived from those listed under 62. Some of the subdivisions of 528.7.029.4/.6 are derived from 621.3.029.4/.6. Each of these series may be further developed by reference to its source.

Typographic presentation

Small type is used for cancelled numbers and text. The arrow F means either "see" or "see also" according to the context. The symbol = "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.

Abbreviations

The following abbreviations are used in the text of 52/524, as being the usual forms:

HD	Henry Draper
HDE	Henry Draper Extension
IC	Index catalogue (see bibliographical references)
LTE	Local thermodynamic equilibrium
LZT	Lallemand zenith tube
M	Messier (see bibliographical references)
MKK	Morgan, Keenan, Kellmann
MW	Mount Wilson
NGC	New general catalogue (see bibliographical references)
$(P,V)_E$	(Photographic, visual) electronic
PZT	Photographic zenith tube
RGU	Rot, grün, ultraviolett
R,I	Rot, infrarot
VZT	Visual zenith tube
UBV	Ultraviolet, blue, visible

Bibliographical references

The full references for the works cited under 524.45 are: ALTER, G., RUPRECHT, J. *and* VANYSEK, V. Catalogue of star clusters and associations. Prague: Czechoslovak Academy of Sciences; New York: Plenum Press, 1958 (and updated)

Second edition, ed. G Alter, B. Balazs, J Ruprecht. Budapest: Publishing House of the Hungarian Academy of Sciences, 1970.

Index catalogue (IC)

Dreyer, J.L.E. Index catalogue of nebulae found in the years 1888 to 1894, with notes and corrections to the New General Catalogue. *Mem. R. Astron. Soc.,* **51,** 1895. 185–228. (Reprinted with NGC and IC II. London, Royal Astronomical Society, 1955).

Second index catalogue (IC II)

Dreyer, J.L.E. Second Index catalogue of nebulae and clusters of stars, containing objects found in the years 1895–1907, with notes and corrections to the New General Catalogue and to the Index Catalogue for 1888–94. *Mem. R. Astron. Soc.,* **59,** 1910. 105–198. (Reprinted with NGC and IC. London, Royal Astronomical Society, 1955).

Messier catalogue (M)

Garstang, R.H. The Messier objects. *Handb. Br. Astron. Assoc.,* **43,** 1964. 63–68: also, Catalogue of Messier. (*In,* Atlas of the heavens–II. Catalogue 1950. Bečv´ř, Antonin. Praha, Czechoslovak Academy of Sciences; Cambridge, Mass., Sky Publishing Corporation, 1964. pp. 333–339).

Charles Messier's Catalogue was originally published in *Connaissance des Temps.* 1787 (publ. 1784), p. 238–279.

New General catalogue (NGC)

Dreyer, J.L.E. New general catalogue of nebulae and clusters of stars; being the catalogue of the late Sir John F.W. Herschel, revised. *Mem. R. Astron. Soc.,* **49,** 1888. 1–237. (Reprinted with the Index Catalogue(s). London, Royal Astronomical Society, 1955).

SCHEDULE

52 Astronomy. Astrophysics. Space research. Geodesy

Special auxiliary subdivisions

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To be used only at 52/524

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–121 Unidentified objects
–123 Initial hypotheses
–125 Prediction(s)
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–14 Results of analysis and evaluation of observations and measurements
Further particulars may be denoted by the common auxiliaries of form [Table I(d)], *e.g.* 52–14(083.8) Catalogues
(084) Charts. Atlases. Graphic representations
–16 Theoretical treatment and development
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–37 **Biological properties**
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–425 Electromagnetic forces
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–44 **Disintegration. Separation. Mass-loss**
–46 **Bulk-matter processes**
–462 Conduction
–464 Convection
–466 Turbulence
–468 Shock processes
–47 **Atomic processes**
–472 Excitation
–473 Ionization
–48 **High-energy processes. Nuclear reactions**
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52–48:539.173 Fission (in bodies and systems)

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–52 **Origin. Formation. Cosmogony**
–54 **Evolution. Change of state or structure**
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