

Universal Decimal Classification —

English full edition —

**UDC 621.8 Machine elements — Motive
power engineering — Materials
handling — Fixings — Lubrication**

UDC 025.45:621.8

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Information and Documentation Standards Policy Committee (DOT/-) to Technical Committee DOT/3, upon which the following bodies were represented:

- Aslib
- British Association for Information and Library Education and Research
- British Library
- British Steel Industry
- Chemical Industries Association
- Classification Research Group
- Cranfield University
- Institute of Information Scientists
- Institution of Electrical Engineers
- Library Association
- Royal Institute of British Architects
- Royal Institution of Chartered Surveyors
- Standing Conference of National and University Libraries
- University College London, School of Library Archive and Information Studies
- University of North London

This British Standard, having been prepared under the direction of the Information and Documentation Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 April 1995

© BSI 12-1999

First published February 1976
Second edition April 1995

The following BSI reference relates to the work on this standard:
Committee reference DOT/3

ISBN 0 580 23494 0

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Related subjects	1
3 Sources of this edition, and editing policy	1
4 Auxiliary signs and subdivisions	2
5 Disclaimer	2
6 Typographic presentation	2
Summary of the classification	3
Schedule	
621.81 Machine elements in general	4
621.82/.85 Drive systems. Drive elements	5
621.86/.87 Materials-handling technology. Conveying equipment	12
621.88 Fastening, fixing devices. Fasteners	20
621.89 Lubrication, Lubricants. Lubricating devices	26
Annex A (informative) Bibliography	56
Alphabetical subject index	28
Publications referred to	Inside back cover

Foreword

This British Standard is published under the direction of the Information and Documentation Standards Policy Committee. It supersedes BS 1000 [621.8]:1976, which is withdrawn.

The Universal Decimal Classification (UDC) was originally derived from Dewey Decimal Classification (DDC), and managed by the organization now known as the International Federation for Information and Documentation (FID). It was first published (in French) from 1904 to 1907.

The preparation and publication of the English versions of UDC as BS 1000 was 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, the Association for Information Management. It was approved by Lake Placid Education Foundation, New York, then proprietors of the Dewey Decimal Classification. DDC is now published by Forest Press, a division of OCLC Online Computer Library Center, Inc., Albany, N.Y., the current owner of the copyright in DDC.

On 1 January 1992, all rights and responsibilities for UDC were transferred to the UDC Consortium (UDCC), whose founder members are:

AENOR (Asociación Española de Normalización y Certificación), Spain

Bohn Stafleu Van Loghum, Netherlands

BSI/DISC, UK

CLPCF (Centre de Lecture publique de la Communauté française de Belgique), Belgium

FID

INFOSTA-NIPDOK (Information Science and Technology Association), Japan.

BS 1000 is now published under general licence from the UDCC, whose Executive Committee authorizes editions in various languages and at various levels of inclusiveness. This is part of the English full edition.

This edition of UDC 621.8 includes modifications authorized in *Extensions and Corrections to the UDC* (FID publication no. 248) up to and including Series 15, dated September 1993, and is consistent with the Master Reference File maintained by the UDC Consortium in the Hague.

We suggest that it should be used in conjunction with a synopsis of UDC such as BS 1000M *UDC. International Medium Edition. English text*, 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 use of the scheme, users are referred to *Guide to the use of UDC* by I.C. McIlwaine.

Details of the *Guide*, and of 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 56, 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.

1 Scope

In UDC 621.8 is classed information about various machine elements and installations: bearings, shafts, gears, gearing and other forms of power transmission, materials handling and transfer equipment, cranes, lifts, excavating and dredging equipment, fastening and fixing devices (including screws, bolts and associated tools), and lubrication and lubricants.

Class here information about machine elements, etc. treated generally. If they are treated as parts of specific kinds of machinery, class with the subject, adding the –1/–9 auxiliaries listed under 62.

2 Related subjects

The following sections of UDC contain subjects related to those in this fascicle.

Table Ii Common auxiliaries of point of view

(e.g. .002	Practical point of view. Realization. Execution. Production
.002.71	Transport. Handling. Haulage. Conveyance
.002.72	Mounting. Assembling. Fitting. Installation
.004	Point of view of application, operation, use
.005	Equipment, fitting, installation point of view)
53	Physics (e.g. 531.43/.49 Friction. Other passive resistances)
62–1/–9	Characteristics and details of machines, equipment, plant, processes and products
621.3	Electrical engineering (e.g. 621.333 Electric traction motors)
621.6	Fluids handling, storage and distribution plant and techniques
621.7	Mechanical technology in general: processes, tools, machines, equipment
621.9	Working or machining with chip formation. Abrasive working. Hammers and presses. (e.g. 621.99 Screw thread forming. Screw cutting. Screw tapping)
622	Mining (e.g. 622.67/.69 Hoisting. Winding. Vertical transport and haulage. Surface storage, handling and transport of minerals)
623	Military engineering

624	Civil and structural engineering in general. (e.g. 624.8/.9 Movable bridges. Superstructures)
625	Civil engineering of land transport. Railway engineering. Highway engineering
626	Hydraulic engineering in general (e.g. 626.5 Lifting gear and inclined planes for vessels)
629	Transport vehicle engineering
63	Agriculture and related sciences and techniques. (e.g. 631.3 Agricultural machines, implements and equipment)
656.073	Goods transport services and formalities
669	Metallurgy
672.6	Chains. Anchors
679.7	Cable and cordage industries
681	Precision mechanisms and instruments
69	Building (construction) trade. Building materials. Building practice and procedure
792	Theatre. Stagecraft. Dramatic performances (e.g. 792.022 Mechanical equipment and services. Including: Stage machinery. Lighting equipment. Theatre workshops)

3 Sources of this edition, and editing policy

This fascicle, forming part of the English full edition, agrees with the Master Reference File (MRF) of the UDC, but extends to greater detail. The MRF, maintained by the UDC Consortium, has about 60 000 entries, and is the official core text of the UDC; by contrast, the full editions have in total about 220 000 direct divisions. The known sources at full-edition level have been assembled and conflated for this edition.

In a few cases where the entry originally appeared in German in *Extensions and Corrections*, the translation is tentative, and the original text is also given; see 621.882.216.8, 621.882.217 and 621.882.217.2/.4. Where possible, references are given to the relevant BS/ISO terminological standard.

It has not proved possible to ascertain the exact distinction between the terms “Scraper” and “Schrapper” in these two entries:

621.878.27	Schürfkübel. Schürfwagen (Scraper)
621.878.6	Schrapper (both in <i>Extensions and Corrections</i> , Series 14).

4 Auxiliary signs and subdivisions

4.1 General

Information about auxiliary signs and subdivisions is to be found in BS 1000: *Auxiliaries*, BS 1000M and the *Guide to the use of UDC* by I.C. McIlwaine (see inside back cover).

4.2 Colon sign of relation

For the classification of information for the public, as in abstracts and bibliographies, maximum use of colon combination rather than of common and 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.

4.3 Common auxiliary subdivisions

The common auxiliaries of language = ..., form (0...), place (1/9), ethnic grouping and nationality (= ...), time "...", non-UDC notation (e.g. a–z), 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.

4.4 Special auxiliary subdivisions

Tables of .0 special auxiliaries are provided at several places in the schedule. Special auxiliary subdivisions are valid in the form in which they appear, but the auxiliary part of the notation may also be detached and applied to any direct subdivision of the number at which it is listed, e.g.

621.86.016	Load. Dead weight. Limit (maximum) load. Carrying, lifting capacity. Overload
621.868.258.5	Lift trucks. Fork-lift trucks. Portal lift trucks

hence:

621.868.258.5.016	Loading, limit loads, etc. of lift trucks
-------------------	---

Apostrophe auxiliaries derived from the subdivisions of 621.822.62/.68 (see the note there) are available in 621.822.7/.9.

The –1/–9 special auxiliaries listed under 62 are applicable throughout the schedule. They may be applied to any subdivision of 621.8 where the result forms a meaningful combination. Details of BS 1000[62/62–9] are given on the inside back cover.

5 Disclaimer

In a few cases, proprietary names are included in this edition if they are in common use and help to define the concept intended. No reflection on their legal status, either by the British Standards Institution or by any of its cooperating organizations, is intended, and none should be inferred from this publication.

6 Typographic presentation

Small type [thus] is used for cancelled numbers and text, usually accompanied by relocation references for the deleted concepts. Such relocations are given for entries that have appeared in previous English editions of UDC.

The arrow → means “see also”.

NOTE In earlier English UDC editions, the arrow meant “see” or “see also”. In the present edition, the word “see” on its own is spelt out.

The “subdivide as” symbol $\cong$ 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.

Summary of the classification

Terms following a bullet (●) represent examples of concepts from subdivisions that are omitted from this summary.

621.8	Machine elements. Motive power engineering. Materials handling. Fixings. Lubrication	621.868	Floor conveyors. Materials-handling vehicles ● Barrows. Carts. Trolleys. Tractors. Tip-carts. Fork-lift trucks. Portal lift trucks. Crane trucks. Stacking and retrieving equipment. Warehouse conveyors. Others
621.8-1/-9 621.8.02/.03	Special auxiliary subdivisions (applicable throughout 621.8)	621.869	Auxiliary equipment for making-up unit loads. Loading and unloading (discharging) devices, including those on vehicles ● Tipplers. Dumpers. Loading ramps, platforms etc. Pallets. Transport containers. Freight containers
621.81	Machine elements in general Collective information about these concepts	621.87	Cranes. Transporters. Lifts. Escalators. Levellers. Excavators. Dredgers
621.82/.85	Drive systems. Drive elements	621.873	Cranes in general ● Fixed, mobile (travelling) and floating cranes
621.82	Journals. Bearings. Shafts etc	621.874	Bridge cranes
621.821	Journals. Pivots. Trunnions	621.875	Transporter cranes. Portal cranes
621.822	Bearings. Bushes	621.876	Lifts. Escalators. Hoists
621.824	Shafts. Axles	621.877	Cable cranes. Cable excavators. Cable dredgers
621.825	Couplings	621.878/.879	Excavation equipment for bulk materials. Earth-moving equipment
621.827	Connecting rods. Cranks. Eccentrics	621.878	Levelling equipment. Loaders. Scrapers
621.828	Articulated links	621.879	Digging machinery. Excavating machinery. Dredging machinery
621.83	Mechanical transmissions. Gears, gearing. Cams. Sliding tracks	621.88	Fastening, fixing devices. Fasteners ● Thread systems and profiles. Forms of head etc
621.833	Toothed wheels. Toothed gears, gearing. Toothed profiles	621.881	Clamping tools (devices for clamping and gripping) ● Vices. Clamps. Presses. Tongs. Pincers etc
621.835	Cams. Cams operating on bars and levers. Drop cams. Swashplates	621.882	Bolts. Screws. Nuts. Washers
621.836	Guides. Slide-bar transmissions. Link transmissions. Cams on link transmissions	621.883	Spanners. Wrenches. Screwdrivers ● Wrench keys (insertion keys, Allen keys)
621.837	Drives with eccentrics, inclined planes, wedges, cranks	621.884	Rivets. Riveting. Riveters
621.838	Locking mechanisms. Engaging devices	621.885	Hook, eye, clip and ring fastenings and attachments
621.839	Friction drives (frictionally engaged rolling contact gears)	621.886	Pins. Nails. Split pins. Keys and cotters
621.85	Power transmission by flexible elements ● Belts. Cables. Ropes. Chains	621.887	Rings. Bushes (bushings). Collars (collets). Sleeves
621.852	Belt drives	621.888	Fixing with some movement
621.854	Cable drives. Rope drives	621.889	Interlocking insertion connections
621.855	Chain drives	621.89	Lubrication. Lubricants. Lubricating devices
621.86/.87	Materials-handling technology. Conveying equipment	621.891	Generalities. Friction in machines
621.86	Materials handling in general	621.892	Lubricants
621.861	Pulley lifting tackle. Block and tackle	621.893	Materials for decreasing friction. Antifrictional materials
621.863	Winding, hoisting or lifting gear. Hoists	621.894	Materials for increasing friction. Frictional materials
621.864	Winches. Windlasses. Capstans	621.895	Cutting oils
621.865	Manhandling equipment. Handlers ● Brooms. Spades. Shovels. Funnels. Hoppers. Levers. Crowbars. Others	621.896	Lubrication apparatus
621.866	Short-lift raising devices ● Jacks. Autolifters. Differential thrustors. Lifting cushions. Others	621.899	Reclamation, recuperation of used lubricants. Purification
621.867	Continuous transfer equipment. Conveyors. Elevators. Chutes		

SCHEDULE

**621.8 MACHINE ELEMENTS. MOTIVE POWER
ENGINEERING. MATERIALS HANDLING.
FIXINGS. LUBRICATION**

Special auxiliary subdivisions		621.8.031.2	Static mass forces: gravity, buoyancy, inequalities in the gravity field
621.8-1/-9	MACHINERY DETAILS	.3	Inertial forces. Gyration forces
	621.8-1/-9 $\cong$ 62-1/-9	.4	Dynamic mass forces. Impact forces. Centrifugal forces
621.8.02	MODES OF TRANSFORMATION OF MOTION	.6	Surface resistance due to friction. Adhesive friction. Sliding friction. Rolling friction. Wheel friction
	<i>The kinds of conversion of motion listed below may also be understood to imply conversion in the reverse direction</i>	.032	Static-dynamic fluid forces. Hydraulic forces
.022	Transformation of continuous rectilinear motion	.2	Utilization of kinetic energy (Föttinger, Seemann)
.2	Into continuous rectilinear motion	.3	Utilization of potential energy
.3	Into reciprocating rectilinear motion	.32	Variable number of pump cylinders
.4	Into continuous rotary motion	.34	Variable lift or stroke of piston
.5	Into reciprocating rotary motion	.033	Pneumatic forces. Air resistance
.6	Into continuous motion in a defined track	.034	Static-dynamic vibrational forces. Vibrational energy
.7	Into reciprocating motion in a defined track	.2	Solid pendulum as energy store. Weight pendulum. Spring pendulum. Elastic pendulum
.023	Transformation of reciprocating rectilinear motion	.3	Transverse vibrations. Transverse vibrators. Surface waves
.3	Into reciprocating rectilinear motion		
.4	Into continuous rotary motion	.4	Longitudinal vibrations. Longitudinal vibrators. Acoustic vibrations
.5	Into reciprocating rotary motion	.035	Radiant energy. Thermal radiations. Light radiations
.6	Into continuous motion in a defined track	.036	Thermal energy. Forces of thermal expansion and contraction. Generation of pressure by heat
.7	Into reciprocating motion in a defined track	.037	Electric energy. Electrostatic attraction
.024	Transformation of continuous rotary motion	.038	Electromagnetic and magnetic forces
.4	Into continuous rotary motion	.039	Molecular forces. Resilience (elasticity, elastic force, spring power)
.5	Into reciprocating rotary motion		
.6	Into continuous motion in a defined track		
.7	Into reciprocating motion in a defined track		
.025	Transformation of reciprocating rotary motion		
.5	Into reciprocating rotary motion		
.6	Into continuous motion in a defined track		
.7	Into reciprocating motion in a defined track		
.026	Transformation of continuous motion in a defined track		
.6	Into continuous motion in a defined track		
.7	Into reciprocating motion in a defined track		
.027	Transformation of reciprocating motion in a defined track		
.6	Into continuous motion in a defined track		
.028	Transformation of constant-speed motion into variable-speed motion		
.2	According to simple laws		
.3	Into differential motion		
621.8.03	FORMS OF ENERGY FOR GENERATION, CONDUCTION (TRANSFER), STORAGE, TRANSFORMATION, CONTROL OF MECHANICAL FORCES AND RESISTANCES		
	<i>The .03 auxiliaries are not applicable in 621.86/.87</i>		
.031	Static and dynamic mass forces and resistances		

Principal divisions

621.81	MACHINE ELEMENTS IN GENERAL
	<i>The subdivisions 621.812/.818 should be used only if it is necessary to bring these concepts together; otherwise, prefer the numbers given in the references</i>
.812	Permanent fixings
	→621.791 Welding and allied techniques
	621.792 Joining by adhesion or pressure. Bonding, gluing etc.
	621.88.084 Shrink-on connections
	621.884 Rivets. Riveting. Riveters
.813	Detachable fixings
	→621.882 Bolts. Screws. Nuts. Washers
	621.886 Pins. Nails. Split pins. Keys and cotters
	621.887.6/.8 Rings. Bushes and sleeves
	621.888 Fixings with some movement
.814	Elastic fixings
	→62-272 Springs — Engineering, technology in general

621.814 (cont'd)	621.888.4 Securing springs	621.822.116 (cont'd)	→621.822.4 Footstep bearings, e.g. jewel bearings for fine mechanisms
.815	621.888.6 Anti-vibration mountings		
	Shaft-hub connections	.17	Plain bearings according to type of lubrication
	→621.824.4 Shaped, profiled shafts		→62-722 Lubricant distribution systems. Central lubrication systems
	621.88.084 Shrink-on connections	.172	Hydrostatic plain bearings (pressure chamber bearings)
	621.886.1 Pin connections (for existing holes)	.173	Hydrodynamic plain bearings
	621.886.6 Key and spline connections	.174	Aerostatic (gas-static) plain bearings
	621.887.1/.4 Frictionally engaged spindle-hub connections	.175	Aerodynamic (gas-dynamic) plain bearings
.816	Rotational elements	.176	Hybrid bearings (hydrostatic and hydrodynamic lubrication)
	→62-592 Brakes. Braking methods	.177	Plain bearings with solid lubricant, e.g. graphite
	621.821 Journals. Pivots. Trunnions	.178	Self-lubricating plain bearings (lubrication by means of the bearing material, e.g. by means of the sintered bushing materials)
	621.822 Bearings. Bushes	.18	Plain bearings according to sliding surface
	621.824 Shafts. Axles	.181	Plain bearings with solid bushes. Single-lobe bearings
	621.825 Couplings	.182	Plain bearings with two wedge slits. Two-lobe bearings (bearings with oval clearance)
.817	Gears	.183	Plain bearings with three wedge gaps. Three-lobe bearings
	→62-233.3/.9 Gears. Gearing etc (≅ 621.833/.839)	.184	Sectionalized-surface bearings with four or more wedge gaps (multi-wedge bearings)
	62-585.2 Alteration of speed or motion by hydraulic torque converters	.186	Bearings with rigid pads. Pad-type bearings
	621.83 Mechanical transmissions. Gears, gearing	.187	Bearings with elastic pads. Tilting pad bearings. Sliding pad bearings
	621.85 Flexible drives. Flexible transmissions	.188	Bearings with self-adjusting surfaces
.818	Pipes and pipe fittings	.2	Plain thrust bearings (longitudinal bearings)
	→62-762 Fluid-tight (pressure-tight) joints and protective jointings. Packings. Glands. Seals	.22	Collar thrust bearings. Collar step bearings
	621.643 Fluid distribution and transport devices. Conduits. Pipes. Pipe fittings	.24	Thrust bearings for collar journals. Collar bearings
	621.646 Devices for opening and closing pipes. Valves etc.	.27	Thrust bearings according to lubrication
621.82/.85	DRIVE SYSTEMS. DRIVE ELEMENTS		621.822.27 ≅ 621.822.17, e.g.
	→62-8 Motive force or motive power characteristics of machines and apparatus		621.822.273 Hydrodynamic thrust bearings
	629.03 Propulsion systems — Transport vehicle engineering	.28	Thrust bearings according to sliding surface
621.82	JOURNALS. BEARINGS. SHAFTS ETC		621.822.28 ≅ 621.822.18, e.g.
	→621.816 Rotational elements	621.822.3	621.822.287 Tilting pad thrust bearings
621.821	JOURNALS. PIVOTS. TRUNNIONS	621.822.4	[cancelled] see 621.822.188, 621.822.5-219.12
.2	Journals		Footstep bearings (step bearings), e.g. jewel bearings for fine mechanisms
.3	Pivots. Trunnions	.5	Plain journal bearings (guide bearings)
		.51	Built-in bearings
621.822	BEARINGS. BUSHES	.511	Single-ring short plain bearings
	→62-233.2 Bearings. Bushings — Components of rotary motions	.512	Double-ring short plain bearings
.1	Plain bearings in general	.52/.56	Journal bearings according to method of attachment
	→62-722.2 Oil grooves		<i>The final digits of the subdivisions of 621.822.52/.56 may be converted into apostrophe auxiliaries '2'6 for use in 621.822.57/.59, e.g.</i>
.11	Plain bearings according to kind of load		621.822.574'2 Aerostatic pedestal bearings
.114	Plain bearings principally for radial loads		621.822.588'3 Self-adjusting hanging bearings
	→621.822.5 Plain journal bearings (guide bearings)		621.822.593'4 Triple-layer eye-type bearings
.115	Plain bearings principally for axial loads		
	→621.822.2 Plain thrust bearings (longitudinal thrust bearings)		
.116	Plain bearings for radial and axial loads. Combined radial/axial plain bearings (thrust bearings)	.52	Pedestal bearings. Plummer blocks. Pillow blocks

621.822.53	Pendant bearings (hanging bearings). Hanging-bracket bearings
.54	Eye-type bearings. Flange bearings
.55	Wall bearings. Wall-bracket bearings
.56	Bracket bearings. Pillar-bracket bearings
.57	Journal bearings according to method of lubrication 621.822.57 $\cong$ 621.822.17, e.g. 621.822.577 Bearing bushes with solid lubricant
621.822.572/.575	<i>[cancelled]</i> , see instruction under 621.822.57
621.822.58	Journal bearings according to sliding surface 621.822.58 $\cong$ 621.822.18, e.g. 621.822.584 Sectionalized-surface bearings
.59	Journal bearings according to bearing material
.591	Solid bearings made from a single material. Unimetallic, one-metal bearings
.592	Multi-layer bearings with two layers. Bimetallic, two-metal bearings. Two-layer bearings
.593	Multi-layer bearings with three layers. Trimetallic, three-metal bearings. Three-layer bearings
.6	Rolling contact bearings in general
.61	Rolling contact bearings according to type of load
.614	Rolling contact bearings for mainly radial loads →621.822.74 Radial ball bearings 621.822.84 Radial roller bearings
.615	Rolling contact bearings for mainly axial loads →621.822.75 Axial ball bearings 621.822.85 Axial roller bearings
.616	Rolling contact bearings for separate absorption of radial and axial loads
.62/.68	Bearings according to type of assembly, fixing and removal <i>The final digits of the subdivisions of 621.822.62/.68 may be converted into apostrophe auxiliaries'2/.8 for use in 621.822.7/.9, e.g.</i> 621.822.745'6 Self-aligning ball bearings with withdrawal sleeves (6 is from 621.822.66) 621.822.841.2'8 Flanged radial double cylinder roller bearings (8 is from 621.822.68)
.62	Pressed-on, pressed-in bearings →621.88.084 Shrink-on connections
.64	Bearings with fixed rings and discs →621.887.6 Adjusting rings. Snap rings. Retaining rings
.66	Adapter bearings. Bearings with withdrawal sleeves →621.887.82 Split or spring tapered bushes
.67	Sealed bearings →62-762.8 Seals. Seal units
.68	Flange bearings. Collar-end bearings
.7	Ball bearings →621.822.8 Roller bearings. Needle bearings

Special auxiliary subdivisions

621.822.7'2/.8	Assembly, fastening and dismantling 621.822.7'2/.8 $\cong$ 621.822.62/.68 (See note at 621.822.62/.68).
----------------	---

Principal divisions (continued)

621.822.71	Balls
.72	Components other than balls
.722	Cages
.723	Inner races
.724	Outer races
.73	Ball bearings in general <i>For radial, axial and radial/axial ball bearings individually see 621.822.74/.76</i> →621.822.88 Combined bearings (ball-and-roller bearings) 621.822.97 Ball guides. Ball boxes
.731	Deep-groove ball bearings in general →621.822.741 Deep-groove radial ball bearings 621.822.751 Deep-groove axial ball bearings
.732	Angular ball bearings in general →621.822.742 Angular radial ball bearings 621.822.752 Angular axial ball bearings 621.822.762 Angular-contact ball bearings
.74	Radial ball bearings (transverse-load ball bearings)
.741	Deep-groove radial ball bearings
.1	Single
.2	Double
.742	Angular radial ball bearings
.1	Single (including four-point bearings)
.2	Double
.743	Separable radial ball bearings (removable outer race)
.745	Self-aligning ball bearings
.75	Axial ball bearings (longitudinal ball bearings)
.751	Deep-groove axial ball bearings
.5	Effective on one side
.6	Effective on both sides
.752	Angular axial ball bearings
.76	Radial/axial ball bearings (for transverse and longitudinal loads)
.761	Ball-bearing slewing gear
.762	Angular-contact ball bearings
.765	Swivel bearings
.767	Live ring bearings
.8	Roller bearings. Needle bearings

Special auxiliary subdivisions

621.822.8'2/.8	Assembly, fastening and dismantling 621.822.8'2/.8 $\cong$ 621.822.62/.68 (See note at 621.822.62/.65)
----------------	--

Principal divisions (continued)

621.822.81	Rollers
.811	Cylinder rollers
.812	Needle rollers
.813	Tapered rollers (conical rollers/bevelled rollers)

621.822.814	Spheroidal rollers (barrel-shaped rollers)	621.822.851	Axial cylinder roller bearings
.816	Collared rollers. Rollers with necks (bobbin rollers)	.5	Operating on one side
.818	Spring rollers (coiled)	.6	Operating on two sides
.82	Individual parts other than rollers	.852	Axial needle bearings
.822	Cages	.5	Operating on one side
.823	Inner races	.6	Operating on two sides
.824	Outer races	.853	Axial taper roller bearings
.828	Movable shoulders	.855	Axial self-aligning roller bearings (axial spheroidal roller bearings/barrel-shaped roller bearings)
.83	Roller bearings in general	.86	Radial/axial roller bearings (for transverse and longitudinal loads)
	<i>For radial, axial and radial/axial roller bearings individually see 621.822.84/.86</i>	.863	Cross-type roller bearings
	→621.822.98 Roller guides. Roller rotation shoes	.865	Oscillating bearings
.831	Cylinder roller bearings in general	.867	Live ring bearings
	→621.822.841 Radial cylinder roller bearings	621.822.87	[cancelled] see 621.822.833
	621.822.851 Axial cylinder roller bearings	621.822.88	Combined bearings (ball-and-roller bearings)
	621.822.883 Combination of radial roller bearings and axial roller bearings	.881	Combination of radial roller bearings and axial ball bearings. Needle axial ball bearings
.832	Needle bearings in general	.882	Combination of radial roller bearings and angular-contact ball bearings. Needle angular-contact ball bearings
	→621.822.842 Radial needle bearings	.5	Operating on one side
	621.822.852 Axial needle bearings	.6	Operating on two sides
.833	Taper roller bearings (conical roller bearings) in general	.883	Combination of radial roller bearings and axial roller bearings. Needle axial cylinder roller bearings
	→621.822.843 Radial taper roller bearings	.9	Linear contact bearings. Longitudinal guideways. Straight guideways
	621.822.853 Axial taper roller bearings		
.835	Self-aligning roller bearings in general		Special auxiliary subdivisions
	→621.822.844 Radial spheroidal roller bearings	621.822.9'2/8	Assembly, fastening and dismounting
	621.822.845 Radial self-aligning roller bearings		621.822.9'2/8 $\cong$ 621.822.62/.68
	621.822.855 Axial self-aligning roller bearings		(See note at 621.822.62/.68)
.84	Radial roller bearings (transverse-load roller bearings)		Principal divisions (continued)
.841	Radial cylinder roller bearings	621.822.97	Ball guides. Ball boxes
.1	Single	.98	Roller guides. Roller rotation shoes
.2	Double	621.824	SHAFTS. AXLES
.3	With three or more rows		→62–233.1 Axles. Shafts etc. — Gear mechanisms
.842	Radial needle bearings	.2	Straight shafts. Smooth shafts. Plain shafts
.1	Single	.3	Eccentric shafts. Shafts with control elements
	<i>Further particulars may be denoted by use of the hyphen special auxiliaries listed under 62, e.g.</i>	.32	Crankshafts
	621.822.842.1–182.54 Adjustable single needle bearings	.33	Camshafts
.2	Double	.4	Shaped, profiled shafts
.3	With three or more rows		→621.815 Shaft-hub connections
.843	Radial taper roller bearings	.42	Polygonal shafts (and shafts of uniform width)
.1	Single	.43	Shafts with splines (with straight or involute flanks)
.2	Double	.44	Shafts with keyways
.4	With four rows	.47	Power take-off shafts (with profiled stub)
.844	Radial spheroidal roller bearings (barrel-shaped roller bearings)	.5	Flexible shafts
.845	Radial self-aligning roller bearings (double spheroidal roller bearings)	.6	Hollow shafts
.848	Spring-roller bearings	.8	Taper shaft elements. Shaft collars
.85	Axial roller bearings (thrust roller bearings/longitudinal roller bearings)		→621.88.084.8 (Shrink-on connections) by taper seats
			621.887.61 Adjusting rings

Special auxiliary subdivisions

621.83.059	Individual components for friction gear mechanisms	Principal divisions (continued)
.1	Friction wheels. Friction discs	621.833 TOOTHED WHEELS. TOOTHED GEARS, GEARING. TOOTHED PROFILES
.13	According to material of friction surface (contact surface)	Special auxiliary subdivision for 621.833
	621.83.059.13 $\cong$ -03 [Table I(k)], e.g.	621.833.01 Running (working). Efficiency. Friction
	621.83.059.135.51 Friction wheels with leather covering (from -035.51)	Principal divisions (continued)
	.136.4 Rubber friction wheels (from -036.4)	621.833.1 Cylindrical gear systems (spur gear systems)
.14	According to the shape of the rolling body	.12 Gear racks
	621.83.059.14 $\cong$ 62-4, e.g.	<i>For gear rims see 621.833.15-477</i>
	621.83.059.143.41 Cylindrical friction gears (from 62-434.1)	.15 Cylindrical gears with external teeth. External gears
	.145 Slotted, grooved, splined friction wheels (from 62-45)	<i>Further particulars may be denoted by the hyphen special auxiliaries listed under 62, e.g.</i>
.2	Pressure mechanisms	621.833.15-477 Gear rims (of external gears)
.4	Intermediary elements	.16 Cylindrical gears with internal teeth. Internal gears (annular gears)
	621.83.059.4 $\cong$ 62-4, e.g.	<i>Further particulars may be denoted by the special auxiliaries listed under 621.83, e.g.</i>
	621.83.059.436.1 Spherical intermediary elements (from 62-436.1)	621.833.16.054.3 Internal gears with helical teeth (oblique gearing)
	.477 Annular intermediary elements (from 62-477)	.2 Bevel gears. Other gears on shafts with intersecting axes
621.83.06	TYPES OF TRANSMISSION. SPEED. OUTPUT	.22 Bevel gears with straight and helical teeth
.061	Speed reduction and increase. Reversal of direction of motion	.24 Bevel gears with curved teeth
.1	Transmissions for speed reduction	.28 Cylindrical gears on shafts with intersecting axes
.2	Transmissions for constant speed	.3 Gears on shafts with non-parallel, non-intersecting axes
.3	Transmissions for speed increase	.35 Crossed helical gear pairs
.4	Transmissions for reversal of direction of motion	.36 Hypoid gears
.062	Speed changes	.38 Worm gears in general
.1	Continuously variable change of speed	.382 Worms
.2	Stepwise change of speed	.383 Worm wheels
.21	Transmissions with only one speed change	.389 Worm gears of particular shape
.22	Transmissions with two to four speed changes	.4 Lantern (pinion) gears
.26	Transmissions with six or more speed changes	.5 Non-circular gears
.6	Transmissions with freewheel mechanism	.51 Elliptical gears
.7	Overdrive transmissions	.52 Hyperbolic gears
.063	Speed ranges	.6 Epicyclic gears. Hypocyclic gears. Planetary gears. Other types of gear, gear train
.1	Transmissions for low speeds	.61 Planetary gears with three coaxial shafts. Differential gears
.2	Transmissions for high speeds	.64 Planetary gears with more than three coaxial shafts
.064	Output ranges	.65 Planetary switch gear trains
.1	Transmissions for low outputs	.68 Branched variable gear trains
.2	Transmissions for high outputs	.681 Branched trains for one planetary gear train with three coaxial shafts. Variable shunt gear trains
.065	Transmissions in relation to their axial position	.684 Branched trains of more than one planetary gear train, or of one planetary gear train with more than three coaxial shafts
.1	Coaxial transmissions	
.069	Other questions	621.835 CAMS. CAMS OPERATING ON BARS AND LEVERS. DROP CAMS. SWASHPLATES
.1	Transmissions with constant mesh (synchromesh gears)	.2 Cams
.2	Transmissions with preselectors. Automatic drives	.8 Swashplates

621.836	GUIDES. SLIDE-BAR TRANSMISSIONS. LINK TRANSMISSIONS. CAMS ON LINK TRANSMISSIONS	621.838.16	Hydraulic transmission
.1	Guides using prismatic surfaces, square-section bars etc	.162	Clamping mechanisms (ready release)
.2	Straight guides. Parallel guides, slides	.164	Releasing devices (impact release)
.3	Push-pull sheathed devices, e.g. Bowden cables	.19	Other types of ratchet mechanism
.7	Maltese crosses	.2/.5	Engaging devices
621.837	DRIVES WITH ECCENTRICS, INCLINED PLANES, WEDGES, CRANKS	.2	Mechanical engaging devices
.2	Eccentric drives	.21	Devices with reciprocal engagement
.3	Inclined planes	.211	With claws, dogs, teeth
.4	Wedge transmissions	.212	With steel brushes
.5	Drives with flexible members	.214	With springs
.7	Crank mechanisms. Stop mechanisms	.215	With wedges
621.838	LOCKING MECHANISMS. ENGAGING DEVICES	.216	With ratchet and pawl
	<i>The type of control may be denoted by the -52 special auxiliaries listed under 62</i>	.22	Devices engaging by friction
.1	Locking mechanisms	.221	With friction cones
	→62-231.322.1 Locking mechanisms — Fixed and movable components of machines etc.	.222	With friction discs
	62-585.14 Devices for altering speed and motion by ratchet gears	.223	With friction cylinders, drums
.11	Locking mechanisms according to components (locking elements)	.1	With external brakes
.112	Ratchet and pawl mechanisms	.2	With expansion of the internal component
.1	Bolt or locking bar mechanisms	.225	With extensible (expanding) band. With coil springs (helical springs). With brake band
.2	Directional cog mechanisms	.226	With friction by spiral springs
.3	Arresting notch mechanisms (pressure locking mechanism position-specific)	.227	With plates, discs
	→621.837.7 Crank mechanisms. Stop mechanisms	.228	With friction by effect of centrifugal force
.113	Friction locks	.24	Devices engaging by both meshing and friction
.1	Friction ratchet brakes	.3	Electric and electromagnetic engaging devices
.2	Directional clamping devices. Free-wheel devices	.31	Bovet brakes
.3	Ratchet brakes. Band locking mechanisms (pressure locking mechanism not position-specific)	.4	Hydraulic engaging devices. Fluid couplings
621.838.12	[cancelled] see 621.838.112	.42	Hydrostatic
621.838.13	[cancelled] see 621.838.113	.43	Hydrodynamic
621.838.14/.16	Locking mechanisms according to type of use	.5	Pneumatic engaging devices
.14	Ratchet gears, ratchet mechanisms (planetary movement in the direction of the locked force)	621.838.9	[cancelled] see 62-544, 62-596, 62-599.62-783.54, 62-783.616
.142	Ratchet mechanisms	621.839	FRICION DRIVES (FRICIONALLY ENGAGED ROLLING CONTACT GEARS)
	→62-229.381 Clamping spanners, keys. Ratchets		→531.43 Generalities on friction — Physics
	62-514.43 Safety crankhandles		62-585.13 Friction gears — Operation and control of machines and processes
	621.883.43 Socket wrenches with ratchet drive. Ratchet spanners		621.838.22 Devices engaging by friction
	621.951.6 Engineers' ratchet braces — Drilling and allied processes		<i>Individual components may be denoted by the .059 special auxiliaries listed under 621.83</i>
.144	Gear ratchet mechanisms	621.839.1	[cancelled] use 681.839 in conjunction with the .059.1 or .059.4 special auxiliaries listed under 621.83
.146	Grip ratchet mechanisms	621.839.2	[cancelled] see 681.839
.15	Stop mechanisms (moving against the locked force)	621.839.3	Friction wheel drives with constant transmission
	→681.11.032.31 Mechanical energy distributors, e.g. lever, anchor escapement — Horology	.32	Friction wheels with external contact
		.36	Friction wheel planetary gearing
		.5	Intermittent friction wheel gears
		.53	Friction-wheel forward-reverse mechanism. Reversing mechanism with friction discs (crown gears)
		.55	Friction-wheel variable-speed transmission (step-by-step switching)
		.7	Adjusting friction wheel mechanism. Controlling friction wheel mechanism
		.72	With sliding movement
		.74	With pivoting movement

621.839.8	<i>[cancelled]</i> use 621.838.22–523.2 (–523.2 is listed under 62)	621.85.052 (cont'd)	<i>For tensioners and guides see 621.85.057/.058</i>
621.85	POWER TRANSMISSION BY FLEXIBLE ELEMENTS. FRICTION-FIT AND INTERFERENCE-FIT FLEXIBLE DRIVES. TRANSMISSIONS		<i>The material may be denoted by Table 1(k)–03</i>
	→62–886 Individual (single) drive — Coupling methods	.4	Belts according to form
	62–887 Group (coupled, multiple) drive — Coupling methods	.41	Flat belts
	621.817 Gears — Machine elements in general	.42	Conical belts. V-belts
		.43	Round belts
		.44	Synchronous belts (toothed belts)
		.49	Other forms
		.7	Belt connectors, fasteners, clasps
		.8	Belt antislip devices. Devices for improving belt efficiency
	Special auxiliary subdivisions for 621.85	.054	Cables. Ropes
621.85.01	THEORY. PRINCIPLES		621.85.054 $\cong$ 621.85.052
	<i>Further particulars may be denoted by colon combination, e.g.</i>		<i>For pulleys see 621.85.051</i>
	621.85.01:531.44 Theory and principles of sliding friction in flexible drives		<i>For tensioners and guides see 621.85.057/.058</i>
			<i>For cable and rope drives see 621.854</i>
621.85.05	ELEMENTS AND DEVICES FOR FLEXIBLE DRIVES	.055	Chains
	<i>The material may be denoted by Table 1(k)–03, e.g.</i>		<i>For chain wheels, sprockets see 621.85.051.5</i>
	621.85.051–034 Metal pulleys, chain wheels		<i>For tensioners see 621.85.058</i>
.051	Pulleys. Chain wheels. Sprockets		<i>The subdivisions of 621.85.055 may be combined using the apostrophe, to denote chains with more than one characteristic, e.g.</i>
	<i>For guide and tensioning pulleys see 621.85.057/.058</i>		621.85.055.41'27 Flat-link bushing-roller chains
	<i>The subdivisions of 621.85.051 may be combined using the apostrophe, to denote pulleys or wheels having more than one characteristic, e.g.</i>	.2	Chains according to design
	621.85.051.42'34'23 Fast, driven, parting pulleys	.22	Integral chains
	.051.5'32'22 Driving integral chain wheels, sprockets	.24	Disconnected chains
.2	Pulleys or wheels according to design	.25	Roller chains
.22	Integral pulleys or wheels	.26	Bushing chains
.23	Parting pulleys or wheels	.27	Bushing-roller chains
.24	Expanding pulleys	.4	Chains according to link form
.26	Cone pulleys. Stepped pulleys	.41	Flat-link chains. Block-link chains
.3	Pulleys or wheels according to transmission function	.44	Gear-link chains
.32	Driving pulleys or wheels	.46	Jack-link chains. Hook-link chains
.34	Driven pulleys or wheels	.7	Chain connectors. Shackles etc
.4	Pulleys according to shaft relationship	.057	Controlling and guiding devices, e.g.
.42	Fast pulleys (pulleys fixed to shaft)		621.852.057 Belt guides
.44	Loose pulleys (idle or dead pulleys)		<i>Further particulars may be denoted by the –1/–9 special auxiliaries listed under 62, and by other .05 special auxiliaries, e.g.</i>
	<i>For guide and tensioning pulleys see 621.85.057/.058</i>		621.85.057–578 Couplings and clutches (in flexible drives and transmissions)
.5	Chain wheels. Sprockets		621.85.057–596 Automatic stopping devices (in flexible drives and transmissions)
	<i>Further particulars may be denoted by apostrophe combination (see note at 621.85.051), e.g.</i>	.057.051	Guide pulleys
	621.85.051.5'22 Integral chain wheels	.058	Tensioning, positioning devices (for belts, chains etc)
	'23 Parting chain wheels	.2	Tensioning devices, e.g.
	'32 Driving chain wheels		621.855.058.2 Chain tensioners
	'34 Driven chain wheels		<i>Further particulars may be denoted by other .05 special auxiliaries, e.g.</i>
.052	Belts		621.85.058.2.051 Tensioning pulleys
	<i>For pulleys see 621.85.051</i>	.28	Screw tensioners

621.85.058.6	Positioning and displacing devices <i>Further particulars may be denoted by other .05 auxiliaries, e.g.</i> 621.85.058.6.051.26 Cone pulley positioning devices	621.86/.87	MATERIALS-HANDLING TECHNOLOGY. CONVEYING EQUIPMENT →.002.71 Transport, handling, haulage, conveyance — Table I(i) Common auxiliaries of point of view 658.286.2 Internal transport, materials handling etc. — Management
.65	Belt forks. Strikers		
621.85.06	FLEXIBLE DRIVES ACCORDING TO PERFORMANCE, SPEED, OUTPUT 621.85.06 $\cong$ 621.83.06, e.g. 621.85.061 Speed reduction and increase. Reversal of direction of motion .061.1 Flexible drives for speed reduction .062 Speed changes .063 Speed ranges .063.1 Low-speed flexible drives .064 Output ranges .064.2 High-output (heavy-duty) flexible drives	621.86	MATERIALS HANDLING IN GENERAL <i>For fluids handling see 621.6</i> <i>For railway engineering see 625.11.5</i> <i>For transport vehicle engineering see 629</i> <i>General characteristics of machinery may be denoted by the -1 special auxiliaries listed under 62, eg.</i> 621.86–182.7 Machinery with adjustable, movable working parts
Principal divisions (continued)		Special auxiliary subdivisions for 621.86 (also applicable at 621.87)	
621.852	BELT DRIVES <i>For belts see 621.85.052</i> <i>The subdivisions of 621.852 may be combined using the apostrophe, to denote drives with more than one characteristic, e.g.</i> 621.852.64'41 Crossed flat-belt drives	621.86.01	THEORY. LOADING
.4	Belt drives according to belt form 621.852.4 $\cong$ 621.85.052.4, e.g. 621.852.41 Flat belt drives .42 Conical belt drives .43 Round belt drives .44 Synchronous belt drives (toothed belt drives)	.016	Load. Dead weight. Limit (maximum) load. Carrying, lifting capacity. Overload
.6	Belt drives according to design	.017	Machines according to the mode of action
.62	Open belt drives	.2	Acting mainly above the level on which the machine stands
.64	Crossed belt drives	.3	Acting mainly below the level on which the machine stands
.65	Semi-crossed belt drives	.4	With combined (compound) action (capable of action both above and below the standing level of machines)
.67	Angle belt drives	.018	Slack formation in cables and ropes. Prevention of slackening
.9	Friction (anti-slip) belt drives	621.86.03	MACHINES ACCORDING TO THE SYSTEM OF PROPULSION 621.86.03 $\cong$ 629.03, e.g. 621.86.032 Mounted on wheels. Wheeled .033 Mounted on endless belts or tracks. Tracklaying, crawler, caterpillar machines
621.854	CABLE DRIVES. ROPE DRIVES <i>For cables and ropes see 621.85.054</i>	621.86.05	FLEXIBLE TRANSMISSION ELEMENTS, E.G. PULLEYS, BELTS, CHAINS 621.86.05 $\cong$ 621.85.05, e.g. 621.86.051 Pulleys →621.861 Pulley lifting tackle. Block and tackle .057 Controlling and guiding .058 Tensioning, positioning
621.855	CHAIN DRIVES <i>For chains see 621.85.054</i> .2 Chain drives according to chain design 621.855.2 $\cong$ 621.85.055.2, e.g. 621.855.22 Integral chain drives .24 Disconnected chain drives .25 Roller chain drives .26 Bushing chain drives	621.86.06	LOAD-BEARING (LOAD-CARRYING) DEVICES. LIFTING TACKLE. FILLING, DISCHARGING DEVICES
.4	Chain drives according to link form 621.855.4 $\cong$ 621.85.055.4, i.e. 621.855.41 Flat-link chain drives. Block-link chain drives .44 Gear-link chain drives .46 Jack-link chain drives. Hook-link chain drives	.061	Lifting hooks. Ufting loops (eyes). Tongs. Traverses .1 Lifting, loading, suspension hooks and loops (eyes) .3 Tongs. Grabbing tongs .5 Traverses (lifting beams with claws, hooks etc for long objects)

621.86.062	Adhesion devices. Lifting magnets. Suction (pneumatic) lifting devices →621.318.38 Electromagnets	621.86.078.3	Lift doors, gates. Gate and shaft closures, locking devices
.063	Grabs, buckets etc (suspended from cables or ropes, e.g. for cranes, aerial ropeways) →621.85.054 Cables. Ropes — Flexible drives 621.86.064.3 Scoops. Shovels. Dippers 621.86.078.2 Lift cages	.32	Hinged doors, gates
.2	Grabs (self-loading, self-discharging buckets)	.321	Single-leaf hinged doors etc
.23	Monocable grabs	.322	Double-leaf hinged doors etc
.24	Multicable grabs	.323	Multi-leaf hinged doors etc
.25	Motor grabs	.33	Sliding doors, gates
.26	Grabs with rigid closures	.331	Horizontally moving single-leaf sliding doors etc
.3	Hinged or trap buckets	.332	Horizontally moving double-leaf sliding doors etc
.4	Bottom-discharging buckets	.333	Horizontally moving multi-leaf sliding doors etc (telescopic)
.5	Tilting skips. Tipping or dumping buckets	.334	Vertically moving single-leaf sliding doors etc
.7	Special buckets, carriers etc	.335	Vertically moving double-leaf sliding doors etc (one half of the door being a counterweight to the other)
.064	Buckets. Scoops. Shovels. Dippers. Cutter heads. Suction heads. Dozer blades	.336	Vertically moving multi-leaf sliding doors etc (telescopic)
.2	Elevator buckets	.34	Lattice gates. Articulated grilles
.3	Scoops. Shovels. Dippers	.35	Landing gates or doors. Barriers
.4	Leveller blades. Dozer blades	.36	Shaft covers
.7	Cutter heads. Suction heads	.361	Vertically sliding covers
.065	Suspension lines. Sling ropes. Sling chains. Sling belts →672.6 Chains. Anchors 677.7 Cable industry	.362	Single-leaf hinged covers
.3	Suspension ropes (sling ropes). Suspension belts (sling belts)	.363	Double-leaf hinged covers
.4	Suspension chains (sling chains)	.37	Other shaft closures
.067	Loading devices such as chutes, funnels, hoppers. Bulk loading devices (including closures, feeders) →621.869.44 Intermittent loaders. Batch, unit loaders 621.869.46 Continuous loaders 621.878.4 Loaders	.38	Automatic locking devices for shaft closures
.2	Feeders, e.g. bucket wheel, roller, plate, push, vibrating, belt, worm feeders	.381	Generalities on locking devices
.068	Discharging devices, e.g. stripper belts, dump cars	.382	Locking devices for preventing lift gates from opening without the lift being in position
621.86.07	MECHANISMS OF HANDLING EQUIPMENT. COMPONENTS OF LIFTS ETC.	.383	Locking devices for preventing the lift from starting until all the gates are shut
.071	Curves and bends of transfer lines or routes	.384	Locking devices requiring the lift to be stopped before any of its gates can be opened
.072	Crossover points in transfer lines	.39	Automatic opening and closing devices for lift gates
.073	Parallel arrangements of several belts, straps etc	.391	Operated by the lift cage
.074	Series arrangements of several belts, straps etc	.392	Operated by compressed air
.075	Variable-length transfer equipment. Extensible, telescopic devices	.393	Electrically operated
.076	Mechanisms for changing the positions of materials handling devices, for moving them closer together etc	.5	Controls, signalling devices, indicators etc
.078	Guide rails. Lift cages. Lift shaft equipment	.52	Control devices at each floor
.1	Guide rails. Shafts. Basements	.53	Signalling devices
.2	Lift cages	.54	Level, depth or floor indicators for lifts and hoists
		.6	King-bolts. Support, holding devices. Safety brakes
		.62	King-bolts
		.64	Support, holding devices. Safety brakes
		.66	Fixed supports during loading and unloading
		.7	Various other safety devices
		.72	Safety devices against overloading
		.74	Safety devices against overtravel, overshooting
		.8	Reinforcements of cage or platform
		621.86.08	WEIGHING AND DISPENSING EQUIPMENT <i>Further particulars may be denoted by colon combination with the subdivisions of 681.26</i>

Principal divisions (continued)			
621.861	PULLEY LIFTING TACKLE. BLOCK AND TACKLE	621.866.14	Screw jacks (lifting screws). Push-and-pull jacks
	<i>The type of drive may be denoted by the –8 special auxiliaries listed under 62, e.g.</i>	.15	Friction-operated jacks
	621.861–83 Electrically driven lifting tackle	.2	Autolifters. Lifting platforms
	–85 Pneumatically driven lifting tackle	.24	Differential thrustors
		.3	Air-cushion bellows. Lifting cushions
.1	Simple pulley suspensions	621.867	CONTINUOUS TRANSFER EQUIPMENT. CONVEYORS. ELEVATORS. CHUTES
.2	Rope tackle (normal block and tackle)	.1/.3	Continuous conveyors with traction mechanism. Chain, belt and bucket conveyors
.3	Spur gear blocks (block and tackle with spur gears)	.1	Chain conveyors with single or multiple lines
.4	Differential blocks	.13	Chain conveyors for pushed materials
.5	Worm blocks (worm block and tackle)	.133	Scraper conveyors. Raker-type chain conveyors
.8	Multi-purpose lifting tackle (combined hauling and lifting equipment)	.135	Double and triple chain conveyors (armoured conveyors). Sack or bag conveyors
621.863	WINDING, HOISTING OR LIFTING GEAR. HOISTS	.137	Chain trough conveyors
	→622.673 Winding gear — Mining	.15	Chain conveyors for carried materials
.2	Drum winding gear	.151	Carrying chain conveyors. Stackers
.21	Single-drum winding gear	621.867.152/.152.5	[cancelled] see 621.867.25/.255
.25	Multiple-drum winding gear	621.867.154	Circular conveyors
.6	Driving-pulley winding gear. Hoists with Koepe sheaves	.2	Single-track circular conveyors (removal of load during operation not possible)
.61	Single-pulley winding gear	.6	Double-track circular conveyors. Drag-type circular conveyors (Removal of load hooks on special track possible. “Power and free”)
.65	Multiple-pulley winding gear	.155	Table conveyors. Slat conveyors
621.864	WINCHES. WINDLASSES. CAPSTANS	.156	Fixed tray conveyors. Continuous compartmented conveyors
621.865	MANHANDLING EQUIPMENT. HANDLERS		→621.876.3 Continuously operating lifting installations
.1	Implements for removal, shovelling, scooping	.157	Swing, jiggling or rocker conveyors (two-track). Single-chain conveyors (single-track swing conveyors)
.11	Implements not designed for transfer in a specific direction, e.g. rakes, pokers, fire hooks	.17	Drag chain conveyors
.12	Implements for pushing. Pushers, brooms etc	.173	For sliding material (sliding chain conveyors)
.13	Implements for separating, cutting. Spades	.175	For rolling material
621.865.14	[cancelled] see 621.86.061.3, 621.881.4	.177	For driven material (rolling trucks)
621.865.15	Implements for lifting. Shovels. Forks	.1	With chain below floor
.16	Funnels, hoppers, strickle boards etc	.2	With chain above floor
.17	Distributing or spreading implements	.4	With overhead chain
.2	Levering implements. Crowbars. Pinchbars	.2	Belt conveyors. Conveyor belts
.4	Crossbars. Scissor levers		→622.647.2 Belt conveyors — Mining
.6	Ladders and outriggers with lifting devices.		<i>The material may be denoted by the Table I(h)-03; type of movement by the –182.3 special auxiliaries listed under 62, e.g.</i>
.8	Handlers. Industrial robots		621.867.21–036.482 Balata belt conveyors
621.866	SHORT-LIFT RAISING DEVICES		621.867.24–182.35 Wheeled wire mesh conveyors
	→621.869.35 Loading platforms, bridges. Lifting stages etc.	.21	Web conveyors (webbing belt conveyors)
	<i>The type of drive may be denoted by the –8 special auxiliaries listed under 62, e.g.</i>	.212	Straight webbing conveyors
	621.866–82 Hydraulic short-lift raising devices	.3	With smooth belt surface
	–85 Pneumatic short-lift raising devices	.5	With profiled belt surface
.1	Short-lift jacks	.7	With ribbed belt surface. High angle (inclined) conveyors
.12	Lever jacks	.214	Shaker belt conveyors
.13	Rack-and-pinion jacks	.216	Curved webbing belt conveyors, e.g. folded belt conveyors
		.217	Tubular belt conveyors

621.867.218	High-edge belt conveyors, e.g. document conveyors	621.867.5	Chutes, slides. Oscillating conveyors. Gravity tubes
.22	Steel band conveyors	.51	Chutes, slides
.223	With uncoated surface	.511	Single-track chutes
.225	With rubber-coated surface	.513	Multi-track chutes
.23	Belt conveyors with cable or rope traction.	.517	Spiral slides (helter-skelters)
	Strap conveyors. Rope conveyors	.52	Shaking oscillating, vibrating conveyors
.24	Wire mesh conveyors (mesh or netting belt conveyors)	.522	With linear movement of the material
.25	Apron conveyors	.2	On the sliding principle, e.g. shaker chutes
.253	Slat, plate conveyors	.6	On the projection principle, e.g. rocking troughs, swing tubes
.255	Pan conveyors	.523	With rotary movement of the material, e.g. spiral shaker troughs, spiral swing tubes
.257	Apron conveyors with closed pans	.53	Slide rod conveyors
.26	Moving walkways. Travelators, moving footpaths	.56	Gravity tubes. Fall pipes
.3	Bucket conveyors. Bucket elevators	.561	Single gravity tubes
	→621.649.41 Chain with buckets — Fluids handling	.563	Multiple gravity tubes
	621.649.6 Bucket wheels with fixed or movable buckets — Fluids handling	.565	Telescopic gravity tubes
	621.878.46 Continuous loaders	.6	Roller conveyors. Rollerways. Ball tables
	621.879.4 Machines acting continuously — Digging, excavating, dredging machinery		<i>Type of adjustment may be denoted by the -182.7 or -219.1 special auxiliaries, motive power may be denoted by the -8 special auxiliaries, all listed under 62</i>
.31	Bucket conveyors with chain and fixed buckets		→62-182.34 (Machines) on rolling elements. On balls, rollers — Engineering, technology in general
.312	With discharge by centrifugal force	.61	Rollerways (without drive or with group drive).
.316	With discharge by gravity		Spiral rollerways
.2	With free gravity discharge	621.867.611	[cancelled] see 621.867.61
.4	With controlled (directed) gravity discharge	621.867.611.7	[cancelled] use 621.867.61-219.12
.32	Chain bucket conveyors with swing buckets (tipping pails)	621.867.612	[cancelled] use 621.867.61-182.78
	<i>Further particulars may be denoted by special auxiliaries listed under 621.86, e.g.</i>	621.867.612.3	[cancelled] use 621.867.61-182.78
	621.867.32.068 Bucket discharging devices	621.867.63	Live roller trains (rollers individually driven)
.321	Oscillating bucket conveyors (pendulum bucket conveyors)	.64	Castor conveyors
.322	Transportable bucket conveyors	.65	Ball tables
.33	Bucket conveyors with belt and rigidly attached buckets	.7/.8	Flow conveyors. Hydraulic conveyors
.332	With discharge by centrifugal force		→621.643 Fluid distribution and transport devices
.336	With discharge by gravity	.7	Hydraulic conveyors, elevators
.36	Drag-bucket conveyors with rigidly attached drag buckets		→621.695 Raising of liquids by mixing with compressed air. Air lifts
.4/.6	Continuous conveyors without traction mechanism. Gravity conveyors	.71	Trough-type
.4	Worm (screw) conveyors. Worm tube conveyors	.72	Tube-type
	<i>For worm (screw) excavators etc see 621.879.41</i>	.74	Devices for discharging by water flow
.42	Worm (screw) conveyors in fixed troughs or tubes	.8	Pneumatic conveyors, elevators
.423	With solid worm	.81/.85	Pneumatic conveyors for bulk materials
.425	With band worm	.81	Suction conveyors. Vacuum tubes
.427	With worm with paddles (paddle or segmental worms, spiral stirrers)		Special auxiliary subdivisions for 621.867.81
.46	Worm (screw) conveyors in revolving tubes. Worm tube conveyors	621.867.81.068	Discharging devices
	621.867.46 ≅ 621.867.42	.3	Suction nozzles
		.4	Collectors. Containers
		.5	Discharging drums. Cellular wheels
		.6	Dry-air filters
		.7	Wet-air filters
			Principal divisions (continued)
		621.867.82	Pressure, air-pressure conveyors
		.83	Pneumatic conveyors with suction and/or pressure