

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

B66 HOISTING; LIFTING; HAULING

B66C CRANES; LOAD-ENGAGING ELEMENTS OR DEVICES FOR CRANES, CAPSTANS, WINCHES, OR TACKLES ({specially adapted for lifting invalids [A61G 7/10](#);} rope, cable, or chain winding mechanisms, braking or detent devices therefor [B66D](#); specially adapted for nuclear reactors [G21](#))

WARNINGS

- The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

B66C 23/61	covered by	B66C 23/60
B66C 23/683	covered by	B66C 23/68
B66C 23/687	covered by	B66C 23/701
B66C 23/69	covered by	B66C 23/701
B66C 23/693	covered by	B66C 23/705
B66C 23/697	covered by	B66C 23/707
- In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

Load-engaging elements or devices attached to lifting or lowering gear of cranes or adapted for connection therewith

1/08 . . . Circuits therefor (for electromagnets in general [H01F 7/18](#))

NOTE

In groups [B66C 1/00](#) and [B66C 3/00](#) the term "cranes" also covers capstans, winches, or tackles

1/00 Load-engaging elements or devices attached to lifting or lowering gear of cranes or adapted for connection therewith for transmitting lifting forces to articles or groups of articles (fastening to cables or ropes [F16G 11/00](#))

1/02 . by suction means {(suction cups for attaching purposes [F16B 47/00](#))}

1/0206 . . {for handling bulk or bags}

1/0212 . . {Circular shape}

1/0218 . . {Safety measures, e.g. sensors, duplicate functions}

1/0225 . . {Hand held}

1/0231 . . {Special lip configurations}

1/0237 . . {Multiple lifting units; More than one suction area}

1/0243 . . . {Separate cups}

1/025 . . . {Divided cups}

1/0256 . . {Operating and control devices}

1/0262 . . . {for rotation}

1/0268 . . . {Venturi effect}

1/0275 . . . {actuated by lifting action}

1/0281 . . {Rectangular or square shape}

1/0287 . . {Other shapes, e.g. triangular or oval}

1/0293 . . {Single lifting units; Only one suction cup}

1/04 . by magnetic means

1/06 . . electromagnetic

1/10 . by mechanical means

1/101 . . {for containers ([B66C 1/223](#) and [B66C 1/663](#) take precedence)}

1/102 . . . {for two or more containers end to end}

1/104 . . . {for two or more containers side by side}

1/105 . . {Lifting beam permitting to depose a load through an opening}

1/107 . . {for lifting engines}

1/108 . . {for lifting parts of wind turbines}

1/12 . . Slings comprising chains, wires, ropes, or bands; Nets (article side grippers suspended by ropes or chains from crane hooks [B66C 1/42](#))

1/122 . . . {Sling or load protectors}

1/125 . . . {Chain-type slings (chains in general [F16G](#))}

1/127 . . . {Nets}

1/14 . . . Slings with hooks

1/16 . . . Slings with load-engaging platforms or frameworks

1/18 . . . Band-type slings

1/20 . . . specially adapted for handling vehicles

1/22 . . Rigid members, e.g. L-shaped members, with parts engaging the under surface of the loads; Crane hooks

1/223 . . . {for containers}

1/226 . . . {for flexible intermediate bulk containers [FIBC]}

1/24 . . . Single members engaging the loads from one side only

1/26 with means for releasing the loads

1/28 . . . Duplicate, e.g. pivoted, members engaging the loads from two sides

- 1/30 and also arranged to grip the sides of the loads
- 1/32 of piled or stacked articles
- 1/34 . . . Crane hooks
- 1/36 with means, e.g. spring-biased detents, for preventing inadvertent disengagement of loads
- 1/38 adapted for automatic disengagement from loads on release of cable tensions (for [parachutes B64D 17/00](#))
- 1/40 formed or fitted with load measuring or indicating devices
- 1/42 . . Gripping members engaging only the external or internal surfaces of the articles (for [handling or stripping castings or ingots during manufacture B22D 29/00](#))
- 1/422 . . . {[actuated by lifting force B66C 1/44, B66C 1/58 take precedence](#)}
- 1/425 . . . {[motor actuated B66C 1/44, B66C 1/58 take precedence](#)}
- 1/427 {[by hydraulic or pneumatic motors](#)}
- 1/44 . . . and applying frictional forces
- 1/442 {[actuated by lifting force](#)}
- 1/445 {[motor actuated](#)}
- 1/447 {[by hydraulic or pneumatic motors](#)}
- 1/46 by inflatable elements
- 1/48 to vertical edge portions of sheets, tubes, or like thin or thin-walled articles ([internally-expanding grippers B66C 1/54](#))
- 1/485 {[Coil lifting devices](#)}
- 1/54 Internally-expanding grippers for handling hollow articles ([B66C 1/46 takes precedence](#))
- 1/56 for handling tubes
- 1/58 . . . and deforming the articles, e.g. by using gripping members such as tongs or grapples
- 1/585 {[Log grapples](#)}
- 1/59 Tongs for sacks
- 1/62 . . comprising article-engaging members of a shape complementary to that of the articles to be handled
- 1/625 . . . {[for gripping drums or barrels](#)}
- 1/64 . . . for T- or I-section beams or girders
- 1/66 . . . for engaging holes, recesses, or abutments on articles specially provided for facilitating handling thereof
- 1/663 {[for containers \(fastening of containers on vehicles B60P 7/13, B60P 7/132\)](#)}
- 1/666 {[for connection to anchor inserts embedded in concrete structures](#)}
- 1/68 . . mounted on, or guided by, jibs ([jibs B66C 23/64](#))
- 3/00** **Load-engaging elements or devices attached to lifting or lowering gear of cranes or adapted for connection therewith and intended primarily for transmitting lifting forces to loose materials; Grabs (buckets and other containers B65D, e.g. pallets B65D 19/00; dredges equipped with grabs E02F)**
- 3/005 . . {[Grab supports, e.g. articulations; Oscillation dampers; Orientation B66C 3/16 takes precedence](#)}
- 3/02 . . Bucket grabs
- 3/04 . . Tine grabs
- 3/06 . . Grabs actuated by a single rope or chain

- 3/08 . . and having tipping rings
- 3/10 . . and having buckets opening automatically upon the grab being lowered on to the dump of material
- 3/105 . . . {[Devices for control](#)}
- 3/12 . Grabs actuated by two or more ropes
- 3/125 . . {[Devices for control](#)}
- 3/14 . Grabs opened or closed by driving motors thereon
- 3/16 . . by fluid motors
- 3/18 . . by electric motors
- 3/20 . . mounted on, or guided by, jibs ([jibs B66C 23/64](#))

Other common features; Details

- 5/00** **Base supporting structures with legs**
- 5/02 . . Fixed or travelling bridges or gantries, i.e. elongated structures of inverted L or of inverted U shape ([or tripods](#))
- 5/025 . . . {[Tripods](#)}
- 5/04 . . with runways or tracks supported for movements relative to bridge or gantry
- 5/06 . . with runways or tracks supported for lateral swinging movements
- 5/08 . . with vertically inclinable runways or tracks
- 5/10 . Portals, i.e. essentially circular or square platforms with three or more legs specially adapted for supporting slewing jib cranes
- 6/00** **Girders, or track-supporting structures, specially adapted for cranes (base supporting structures with legs B66C 5/00; girders in general E04C 3/02)**
- 7/00** **Runways, tracks or trackways for trolleys or cranes**
- 7/02 . . for underhung trolleys or cranes
- 7/04 . . Trackway suspension
- 7/06 . . . on supports constructed for easy erection, e.g. transportable
- 7/08 . . Constructional features of runway rails or rail mountings ([of general application E01B](#))
- 7/10 . . Arrangements or devices for extending runways or tracks
- 7/12 . . Devices for changing direction of travel or for transferring from one runway to another; Crossings; Combinations of tracks of different gauges ([transfer devices of general application E01B](#))
- 7/14 . . Runway interlocking devices
- 7/16 . . Devices specially adapted for limiting trolley or crane travel; Arrangements of buffer-stops ([buffer-stops of interest apart from this application B61K 7/18; limit-switch arrangements, limit circuits B66D 1/56](#))
- 9/00** **Travelling gear incorporated in or fitted to trolleys or cranes ({for floor-to-roof stacking devices B66F 9/072}; for dredgers E02F)**
- 9/02 . . for underhung trolleys or cranes
- 9/04 . . to facilitate negotiation of curves
- 9/06 . . for more than one rail gauge
- 9/08 . . Runners; Runner bearings ([wheels for railbound vehicles B60B](#))
- 9/10 . . Undercarriages or bogies, e.g. end carriages, end bogies
- 9/12 . . with load-distributing means for equalising wheel pressure

9/14	• Trolley or crane travel drives (rope, cable, or chain drives for loads or trolleys B66C 11/16 ; control B66C 13/18)	13/16	• Applications of indicating, registering, or weighing devices (in crane hooks B66C 1/40 ; in safety gear B66C 15/00 ; weighing-apparatus G01G ; remote indicating in general G08)
9/16	• with means for maintaining alignment between wheels and track	13/18	• Control systems or devices (exclusively for rope, cable, or chain winding mechanisms B66D 1/40)
9/18	• with means for locking trolleys or cranes to runways or tracks to prevent inadvertent movements	13/20	• . . . for non-electric drives (transmitting control pulses B66C 13/40)
11/00	Trolleys or crabs, e.g. operating above runways (runways, tracks or trackways therefor B66C 7/00; winch mechanisms B66D)	13/22	• . . . for electric drives (transmitting control pulses B66C 13/40 ; systems or devices of general application H02P)
11/02	• with operating gear or operator's cabin suspended, or laterally offset, from runway or track	13/23	• . . . Circuits for controlling the lowering of the load
11/04	• . . . Underhung trolleys (power-operated hoists with driving motor and drum or barrel contained in a common housing B66D 3/20)	13/24	• by dc motors
11/06	• . . . running on monorails (overhead railway systems B61B)	13/26	• by ac motors
11/08	• with turntables	13/28	• utilising regenerative braking for controlling descent of heavy loads and having means for preventing rotation of motor in the hoisting direction when load is released
11/10	• . . . equipped with jibs (jib-cranes B66C 23/00)	13/30	• . . . Circuits for braking, traversing, or slewing motors
11/12	• having hoisting gear adapted to special load-engaging elements and not otherwise provided for	13/32	• . . . for operating grab bucket hoists by means of one or more electric motors used both for hoisting and lowering the loads and for opening and closing the bucket jaws (other aspects or rope, cable, or chain winding mechanisms specially adapted for actuating grab buckets B66D 1/62)
11/14	• adapted to operate on crane or bridge structure of particular configuration, e.g. on reinforced concrete girders of rectangular cross-section		
11/16	• Rope, cable, or chain drives for trolleys; Combinations of such drives with hoisting gear		
11/18	• . . . comprising endless ropes or cables		
11/20	• . . . Arrangements, e.g. comprising differential gears, enabling simultaneous or selective operation of travelling and hoisting gear; Arrangements using the same rope or cable for both travelling and hoisting, e.g. in Temperley cranes (power transmissions between driving motors and winch drums B66D 1/14)	13/34	• through differential or planetary gearing
		13/36	• Single-motor-drive control systems
		13/38	• Systems controlling independent motors
		13/40	• . . . Applications of devices for transmitting control pulses; Applications of remote control devices (control in general G05)
11/22	• . . . actuated pneumatically or hydraulically	13/42	• Hydraulic transmitters
11/24	• . . . with means for locating or sustaining the loads or trolleys in predetermined positions; Hay hoists	13/44	• Electrical transmitters
11/26	• . . . Abutments; Stop blocks; End stops	13/46	• . . . Position indicators for suspended loads or for crane elements
13/00	Other constructional features or details	13/48	• . . . Automatic control of crane drives for producing a single or repeated working cycle; Programme control
13/005	• { Cranes carrying advertisements or the like }		
13/02	• Devices for facilitating retrieval of floating objects, e.g. for recovering crafts from water (handling live-boats B63B ; salvaging, or hauling-out on slipways, waterborne vessels B63C ; winding mechanism controls B66D 1/52)	13/50	• . . . Applications of limit circuits or of limit-switch arrangements (for winding mechanisms B66D 1/56)
13/04	• Auxiliary devices for controlling movements of suspended loads, or preventing cable slack	13/52	• Details of compartments for driving engines or motors or of operator's stands or cabins
13/06	• . . . for minimising or preventing longitudinal or transverse swinging of loads	13/54	• . . . Operator's stands or cabins
13/063	• . . . { electrical }	13/56	• Arrangements of handles or pedals
13/066	• . . . { for minimising vibration of a boom }	15/00	Safety gear (for rope, cable, or chain winding mechanisms B66D 1/54)
13/08	• . . . for depositing loads in desired attitudes or positions	15/02	• for retaining load-engaging elements in the event of rope or cable breakage
13/085	• . . . { electrical }	15/04	• for preventing collisions, e.g. between cranes or trolleys operating on the same track
13/10	• . . . for preventing cable slack (control devices for rope, cable, or chain winding mechanisms, e.g. for controlling tensions, B66D 1/40)	15/045	• . . { electrical }
13/105	• . . . { electrical }	15/06	• Arrangements or use of warning devices
13/12	• Arrangements of means for transmitting pneumatic, hydraulic, or electric power to movable parts of devices	15/065	• . . { electrical }
13/14	• . . . to load-engaging elements or motors associated therewith		

		21/10	. . travelling
		23/00	Cranes comprising essentially a beam, boom, or triangular structure acting as a cantilever and mounted for translatory or swinging movements in vertical or horizontal planes or a combination of such movements, e.g. jib-cranes, derricks, tower cranes (base supporting structures with legs B65C 5/00)
17/00	Overhead travelling cranes comprising one or more substantially horizontal girders the ends of which are directly supported by wheels or rollers running on tracks carried by spaced supports		
17/04	. with lifting beams, e.g. slewable beams, carrying load-engaging elements, e.g. magnets, hooks (constructions of load-engaging elements B66C 1/00, B66C 3/00)	23/005	. {with balanced jib, e.g. pantograph arrangement, the jib being moved manually}
17/06	. specially adapted for particular purposes, e.g. in foundries, forges; combined with auxiliary apparatus serving particular purposes (B66C 17/04 takes precedence)	23/02	. with non-adjustable and non-inclinable jibs mounted solely for slewing movements
17/08	. . for charging treatment chambers, e.g. furnaces, kilns, ovens (charging furnaces in general F27D 3/00)	23/022	. . {Pivot axis common with column}
17/10	. . for transporting ladles	23/025	. . {with particular mounting for base of column}
17/12	. . for handling workpieces, e.g. ingots, which require to be supported temporarily within, or withdrawn from, a treatment chamber, e.g. tong cranes, soaking-pit cranes, stripper cranes (for manipulating ingots during forging B66C 17/18; grippers for handling or stripping castings or ingots during manufacture B22D 29/00)	23/027	. . {Pivot axis separated from column axis}
17/14	. . . Tong cranes with means for moving article-pushers relative to the tongs	23/04	. with jibs the effective length of which is variable in operation, e.g. longitudinally displaceable, extensible
17/16	. . . Tong cranes with means for turning the tongs about a vertical axis	23/06	. with jibs mounted for jibbing or luffing movements
17/18	. . for manipulating workpieces during forging operations (work-pieces manipulators in forging machines B21J 13/10)	23/08	. . and adapted to move the loads in predetermined paths
17/20	. . for hoisting or lowering heavy load carriers, e.g. freight containers, railway wagons	23/10	. . . the paths being substantially horizontal; Level-luffing jib-cranes
17/22	. . for hoisting or lowering locomotives	23/12 with means for automatically varying the effective length of the hoisting rope or cable
17/24	. . for building ships on slipways	23/14 with means, e.g. pantograph arrangements, for varying jib configuration
17/26	. . combined with auxiliary apparatus, e.g. log saws, pushers for unloading vehicles, means for shunting railway vehicles	23/16	. with jibs supported by columns, e.g. towers having their lower end mounted for slewing movements
19/00	Cranes comprising trolleys or crabs running on fixed or movable bridges or gantries (B66C 17/00 takes precedence; base supporting structures with legs B66C 5/00; jib cranes B66C 23/00)	23/163	. . {where only part of the column rotates, i.e. at least the bottom part is fixed}
19/002	. {Container cranes (B66C 19/007 takes precedence)}	23/166	. . {Simple cranes with jibs which may be fixed or can slew or luff}
19/005	. {Straddle carriers (B66C 19/007 takes precedence)}	23/18	. specially adapted for use in particular purposes
19/007	. {for containers}	23/185	. . {for use erecting wind turbines (B66C 23/207 takes precedence)}
19/02	. collapsible (B66C 19/002, B66C 19/005 takes precedence)}	23/20	. . with supporting couples provided by walls of buildings or like structures
21/00	Cable cranes, i.e. comprising hoisting devices running on aerial cable-ways (rope or cable drives for trolleys, combinations of such drives with hoisting gear B66C 11/16; railway systems B61B; rope or cable winding mechanisms B66D 1/00)	23/201	. . . {with supporting couples provided from above, e.g. by ceilings of buildings}
21/02	. with cable-ways supported on framework swingably connected to groundengaging elements	23/202	. . . {with supporting couples provided from below, e.g. by floors of buildings}
21/04	. with cable-ways supported at one end or both ends on bodily movable framework, e.g. framework mounted on rail track	23/203	. . . {with supporting couples provided by posts, e.g. scaffolding, trees or masts}
21/06	. . with one end supported on a framework movable in a curved, e.g. circular, path and the other end by a column rotatable around a vertical axis	23/205	. . . {for use on top of roofs}
21/08	. Sag carriers or rope trolleys, suspended or not, e.g. fixed but offering clearance for travelling gear	23/206	. . . {with supporting couples provided by iso containers}
		23/207	. . . {with supporting couples provided by wind turbines}
		23/208	. . . {with supporting couples provided from the side, e.g. by walls of buildings}
		23/22	. . . Window cranes, i.e. adapted to be supported in window openings
		23/24	. . . Mobile wall cranes
		23/26	. . for use on building sites; constructed, e.g. with separable parts, to facilitate rapid assembly or dismantling, for operation at successively higher levels, for transport by road or rail (with supporting couples provided by walls or buildings B66C 23/20 ; mounted on vehicles B66C 23/36 ; jib constructions B66C 23/64)
		23/28	. . . constructed to operate at successively higher levels

- 23/283 {with frameworks composed of assembled elements}
- 23/286 {with locking devices}
- 23/30 with frameworks composed of telescopic elements
- 23/305 {with locking devices}
- 23/32 Self-erecting cranes
- 23/34 . . . Self-erecting cranes, i.e. with hoisting gear adapted for crane erection purposes
- 23/342 {with telescopic elements}
- 23/344 {adapted for transport purposes}
- 23/346 {with locking devices}
- 23/348 {the erection being operated by jacks}
- 23/36 . . . mounted on road or rail vehicles; Manually-movable jib-cranes for use in workshops; Floating cranes (with pneumatic or hydraulic motors [B66C 23/54](#); vehicle or ship aspects [B60 - B63](#))
- 23/365 . . . {dismantable into smaller units for transport purposes}
- 23/38 . . . with separate prime movers for crane and vehicle
- 23/40 . . . with a single prime mover for both crane and vehicle
- 23/42 . . . with jibs of adjustable configuration, e.g. foldable
- 23/44 . . . Jib-cranes adapted for attachment to standard vehicles, e.g. agricultural tractors
- 23/46 . . . Mobile jib-cranes with non-slewing jibs
- 23/48 . . . Manually-movable jib cranes for use in workshops
- 23/485 {for lifting and moving engines, e.g. car or aero engines or parts thereof}
- 23/50 . . . mounted on railway vehicles, e.g. breakdown cranes
- 23/52 . . . Floating cranes (floating dredgers [E02F](#))
- 23/525 {Double slewing cranes on ships}
- 23/53 including counterweight or means to compensate for list, trim, or skew of the vessel or platform (counterweights or supports for balancing lifting couples [B66C 23/72](#); equipment to decrease unwanted vessel movements [B63B 39/00](#))
- 23/54 . . {with pneumatic or hydraulic motors, e.g. for actuating jib-cranes on tractors}
- 23/545 . . {with arrangements for avoiding dead centre problems during cylinder motion}
- 23/56 . . {of the reciprocating type}
- 23/58 . . arranged to carry out a desired sequence of operations automatically, e.g. hoisting followed by luffing and slewing
- 23/585 . . {electrical}
- 23/60 . . Derricks
- 23/605 . . {employing ships' masts ([B66C 23/525](#) takes precedence)}
- 23/62 . . Constructional features or details (of dredgers [E02F](#))
- 23/64 . . Jibs
- 23/66 . . . Outer or upper end constructions
- 23/68 . . . foldable or otherwise adjustable in configuration
- 23/70 . . . constructed of sections adapted to be assembled to form jibs or various lengths
- 23/701 {telescopic}
- 23/702 {with a jib extension boom}
- 23/703 {telescoped by flexible elements, e.g. cables, chains or bands}
- 23/705 {telescoped by hydraulic jacks}
- 23/706 {telescoped by other means}
- 23/707 {guiding devices for telescopic jibs}
- 23/708 {locking devices for telescopic jibs}
- 23/72 . . . Counterweights or supports for balancing lifting couples
- 23/74 . . . separate from jib
- 23/76 and movable to take account of variations of load or of variations of length of jib
- 23/78 . . . Supports, e.g. outriggers, for mobile cranes
- 23/80 hydraulically actuated
- 23/82 . . . Luffing gear
- 23/821 . . . {Bracing equipment for booms (Abspannstütze)}
- 23/823 {Bracing equipment acting in vertical direction}
- 23/825 {Bracing equipment acting in horizontal direction}
- 23/826 {Bracing equipment acting at an inclined angle to vertical and horizontal directions}
- 23/828 {where the angle is adjustable}
- 23/84 . . . Slewing gear (anti-friction bearings [F16C](#))
- 23/86 . . . hydraulically actuated
- 23/88 . . . Safety gear (for cranes in general [B66C 15/00](#); for rope, cable, or chain winding mechanisms [B66D 1/54](#))
- 23/90 . . . Devices for indicating or limiting lifting moment
- 23/905 . . . {electrical}
- 23/92 . . . Snubbers or dashpots for preventing backwards swinging of jibs, e.g. in the event of cable or tackle breakage
- 23/94 . . . for limiting slewing movements
- 25/00** **Cranes not provided for in groups [B66C 17/00 - B66C 23/00](#)**
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- 2700/00** **Cranes**
- 2700/01 . . General aspects of mobile cranes, overhead travelling cranes, gantry cranes, loading bridges, cranes for building ships on slipways, cranes for foundries or cranes for public works
- 2700/011 . . Cable cranes
- 2700/012 . . Trolleys or runways
- 2700/014 . . . Devices for trolleys running on monorails
- 2700/015 Arrangements which are easily displaceable or dismountable
- 2700/017 . . . Installations characterised by their destination or by the load-engaging element for as far as the trolley is essential
- 2700/018 . . . Construction details related to the trolley movement
- 2700/03 . . Cranes with arms or jibs; Multiple cranes
- 2700/0307 . . Cranes in which it is essential that the load is moving horizontally during the luffing movement of the arm or jib
- 2700/0314 . . . in combination with the movement of the counterweight
- 2700/0321 . . Travelling cranes
- 2700/0328 . . . Cranes on rails or on rail vehicles
- 2700/0335 with a slewing arm

B66C

- 2700/0342 on a turntable
- 2700/035 Construction details related to the travelling, to the supporting of the crane or to the blocking of the axles; Outriggers; Coupling of the travelling mechanism to the crane mechanism
- 2700/0357 . . . Cranes on road or off-road vehicles, on trailers or towed vehicles; Cranes on wheels or crane-trucks
- 2700/0364 with a slewing arm
- 2700/0371 on a turntable
- 2700/0378 Construction details related to the travelling, to the supporting of the crane or to the blocking of the axles; Outriggers; Coupling of the travelling mechanism to the crane mechanism
- 2700/0385 . . Cranes with trolleys movable along adjustable or slewable arms
- 2700/0392 . . Movement of the crane arm; Coupling of the crane arm with the counterweights; Safety devices for the movement of the arm
- 2700/06 . . Cranes in which the lifting movement is done with a hydraulically controlled plunger
- 2700/062 . . . mounted on motor vehicles
- 2700/065 . . . with a slewable jib
- 2700/067 on a turntable
- 2700/08 . . Electrical assemblies or electrical control devices for cranes, winches, capstans or electrical hoists
- 2700/081 . . with ac motors
- 2700/082 . . Control of the secondary movements, e.g. travelling, slewing, luffing of the jib, changing of the range
- 2700/084 . . Protection measures
- 2700/085 . . Control actuators
- 2700/087 . . Electrical assemblies or electrical control devices for electrically actuated grabs
- 2700/088 . . Remote control of electric cranes