

| Symbol | Typ | Titel |
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| E | Sektion | SECTION E — FIXED CONSTRUCTIONS |
| E02 | Klasse | HYDRAULIC ENGINEERING; FOUNDATIONS; SOIL-SHIFTING |
| E02D | Unterklasse | FOUNDATIONS; EXCAVATIONS; EMBANKMENTS (specially adapted for hydraulic engineering E02B); UNDERGROUND OR UNDERWATER STRUCTURES [6] |
| E02D 1/00 | Hauptgruppe | Investigation of foundation soil <u>in situ</u> (investigation involving boring or specially adapted to earth drilling E21B 25/00, E21B 49/00; investigating or analysing materials by determining their chemical or physical properties, in general G01N, e.g. sampling G01N 1/00) |
| E02D 1/02 | 1-Punkt Untergruppe | . before construction work |
| E02D 1/04 | 2-Punkt Untergruppe | . . Sampling of soil |
| E02D 1/06 | 2-Punkt Untergruppe | . . Sampling of ground water |
| E02D 1/08 | 1-Punkt Untergruppe | . after finishing the foundation structure |
| E02D 3/00 | Hauptgruppe | Improving or preserving soil or rock, e.g. preserving permafrost soil (securing of slopes or inclines E02D 17/20; damming or interrupting passage of underground water E02D 19/12; improving soil for agricultural purposes A01; soil stabilisation for road building or like purposes E01C 21/00, E01C 23/10; setting rock anchoring bolts E21D) |
| E02D 3/02 | 1-Punkt Untergruppe | . Improving by compacting (E02D 3/11 takes precedence; compacting soil locally before or while forming foundations E02D 27/26, E02D 27/28) [3] |
| E02D 3/026 | 2-Punkt Untergruppe | . . by rolling with rollers usable only for or specially adapted for soil compaction, e.g. sheepsfoot rollers (rollers for soil working in agriculture A01B 29/00; rollers for road paving, such rollers usable also for compacting soil E01C 19/23) [3] |
| E02D 3/032 | 3-Punkt Untergruppe | . . . Trench rollers [3] |
| E02D 3/039 | 3-Punkt Untergruppe | . . . Slope rollers [3] |
| E02D 3/046 | 2-Punkt Untergruppe | . . by tamping or vibrating, e.g. with auxiliary watering of the soil (E02D 3/026, E02D 3/08 take precedence; tamping or vibrating apparatus for working ballast on railways E01B 27/00, for consolidating paving materials E01C 19/30, for consolidating concrete in general E04G 21/06) [3] |
| E02D 3/054 | 3-Punkt Untergruppe | . . . involving penetration of the soil, e.g. vibroflotation [3] |
| E02D 3/061 | 3-Punkt Untergruppe | . . . Tampers with directly acting explosion chambers (pile drivers with explosion chambers E02D 7/12) [3] |
| E02D 3/068 | 3-Punkt Untergruppe | . . . Vibrating apparatus operating with systems involving reciprocating masses (E02D 3/054, E02D 3/061 take precedence) [3] |
| E02D 3/074 | 3-Punkt Untergruppe | . . . Vibrating apparatus operating with systems involving rotary unbalanced masses (E02D 3/054 takes precedence) [3] |
| E02D 3/08 | 2-Punkt Untergruppe | . . by inserting stones or lost bodies, e.g. compaction piles (sand drains for soil compaction E02D 3/10; stressing soil while forming foundations E02D 27/28) |
| E02D 3/10 | 2-Punkt Untergruppe | . . by watering, draining, de-aerating or blasting, e.g. by installing sand or wick drains (E02D 3/11 takes precedence; soil-penetrating vibrators with auxiliary watering E02D 3/054; drainage of soil in general E02B 11/00) [3] |
| E02D 3/11 | 1-Punkt Untergruppe | . by thermal, electrical or electro-chemical means (freezing soil for interrupting passage of underground water E02D 19/14) [3] |
| E02D 3/115 | 2-Punkt Untergruppe | . . by freezing [3] |
| E02D 3/12 | 1-Punkt Untergruppe | . Consolidating by placing solidifying or pore-filling substances in the soil (making piles E02D 5/46; soil-conditioning or soil-stabilising materials C09K 17/00) |

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| E02D 5/00 | Hauptgruppe | Bulkheads, piles, or other structural elements specially adapted to foundation engineering (engineering elements in general F16) |
| E02D 5/02 | 1-Punkt Untergruppe | . Sheet piles or sheet pile bulkheads |
| E02D 5/03 | 2-Punkt Untergruppe | . . Prefabricated parts |
| E02D 5/04 | 3-Punkt Untergruppe | . . . made of steel |
| E02D 5/06 | 4-Punkt Untergruppe | Fitted piles or other elements specially adapted for closing gaps between two sheet piles or between two walls of sheet piles |
| E02D 5/08 | 4-Punkt Untergruppe | Locking forms; Edge joints; Pile crossings; Branch pieces |
| E02D 5/10 | 3-Punkt Untergruppe | . . . made of concrete or reinforced concrete |
| E02D 5/12 | 4-Punkt Untergruppe | Locking forms; Edge joints; Pile crossings; Branch pieces |
| E02D 5/14 | 2-Punkt Untergruppe | . . Sealing joints between adjacent piles (sealing joints not restricted to foundation piles E04B 1/68) |
| E02D 5/16 | 2-Punkt Untergruppe | . . Auxiliary devices rigidly or detachably arranged on sheet piles for facilitating assembly |
| E02D 5/18 | 1-Punkt Untergruppe | . Bulkheads or similar walls made solely of concrete <u>in situ</u> |
| E02D 5/20 | 1-Punkt Untergruppe | . Bulkheads or similar walls made of prefabricated parts and concrete, including reinforced concrete, <u>in situ</u> |
| E02D 5/22 | 1-Punkt Untergruppe | . Piles (sheet piles E02D 5/02) |
| E02D 5/24 | 2-Punkt Untergruppe | . . Prefabricated piles |
| E02D 5/26 | 3-Punkt Untergruppe | . . . made of timber with or without reinforcement; Means affording protection against spoiling of the wood (cases E02D 5/60; impregnating agents B27K 3/16); Self-cleaning of piles placed in water |
| E02D 5/28 | 3-Punkt Untergruppe | . . . made of steel |
| E02D 5/30 | 3-Punkt Untergruppe | . . . made of concrete or reinforced concrete or made of steel and concrete |
| E02D 5/32 | 3-Punkt Untergruppe | . . . with arrangements for setting in position by fluid jets |
| E02D 5/34 | 2-Punkt Untergruppe | . . Concrete or concrete-like piles cast in position |
| E02D 5/36 | 3-Punkt Untergruppe | . . . making without use of mould-pipes or other moulds |
| E02D 5/38 | 3-Punkt Untergruppe | . . . making by use of mould-pipes or other moulds |
| E02D 5/40 | 4-Punkt Untergruppe | in open water |
| E02D 5/42 | 4-Punkt Untergruppe | by making use of pressure liquid or pressure gas for compacting the concrete |
| E02D 5/44 | 4-Punkt Untergruppe | with enlarged footing or enlargements at the bottom of the pile |
| E02D 5/46 | 3-Punkt Untergruppe | . . . making <u>in situ</u> by forcing bonding agents into gravel fillings or the soil (consolidating soil in general E02D 3/12) |
| E02D 5/48 | 2-Punkt Untergruppe | . . Piles varying in construction along their length |
| E02D 5/50 | 2-Punkt Untergruppe | . . Piles comprising both precast concrete portions and concrete portions cast <u>in situ</u> |
| E02D 5/52 | 2-Punkt Untergruppe | . . Piles composed of separable parts, e.g. telescopic tubes |
| E02D 5/54 | 2-Punkt Untergruppe | . . Piles with prefabricated supports or anchoring parts; Anchoring piles |

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| E02D 5/56 | 2-Punkt Untergruppe | . . Screw piles |
| E02D 5/58 | 2-Punkt Untergruppe | . . Prestressed concrete piles |
| E02D 5/60 | 2-Punkt Untergruppe | . . Piles with protecting cases |
| E02D 5/62 | 2-Punkt Untergruppe | . . Compacting the soil at the footing or in a casing by forcing cement or like material through tubes |
| E02D 5/64 | 2-Punkt Untergruppe | . . Repairing piles |
| E02D 5/66 | 1-Punkt Untergruppe | . Mould-pipes or other moulds |
| E02D 5/68 | 2-Punkt Untergruppe | . . for making bulkheads |
| E02D 5/70 | 2-Punkt Untergruppe | . . for making sheet piles |
| E02D 5/72 | 1-Punkt Untergruppe | . Pile shoes |
| E02D 5/74 | 1-Punkt Untergruppe | . Means for anchoring structural elements or bulkheads (anchoring piles E02D 5/54) |
| E02D 5/76 | 2-Punkt Untergruppe | . . Anchorings for bulkheads or sections thereof |
| E02D 5/80 | 2-Punkt Untergruppe | . . Ground anchors |
| E02D 7/00 | Hauptgruppe | Methods or apparatus for placing sheet pile bulkheads, piles, mould-pipes, or other moulds (for both placing and removing E02D 11/00) |
| E02D 7/02 | 1-Punkt Untergruppe | . Placing by driving |
| E02D 7/04 | 2-Punkt Untergruppe | . . Hand pile-drivers |
| E02D 7/06 | 2-Punkt Untergruppe | . . Power-driven drivers |
| E02D 7/08 | 3-Punkt Untergruppe | . . . Drop drivers with free-falling hammer |
| E02D 7/10 | 3-Punkt Untergruppe | . . . with pressure-operated hammer |
| E02D 7/12 | 3-Punkt Untergruppe | . . . Drivers with explosion chambers |
| E02D 7/14 | 3-Punkt Untergruppe | . . . Components for drivers |
| E02D 7/16 | 4-Punkt Untergruppe | Scaffolds for drivers |
| E02D 7/18 | 1-Punkt Untergruppe | . Placing by vibrating |
| E02D 7/20 | 1-Punkt Untergruppe | . Placing by pressure or pulling power |
| E02D 7/22 | 1-Punkt Untergruppe | . Placing by screwing down |
| E02D 7/24 | 1-Punkt Untergruppe | . Placing by using fluid jets |
| E02D 7/26 | 1-Punkt Untergruppe | . Placing by using several means simultaneously |
| E02D 7/28 | 1-Punkt Untergruppe | . Placing of hollow piles or mould-pipes by means arranged inside the piles or pipes |
| E02D 7/30 | 2-Punkt Untergruppe | . . by driving cores |
| E02D 9/00 | Hauptgruppe | Removing sheet pile bulkheads, piles, mould-pipes, or other moulds (for both placing and removing E02D 11/00) |
| E02D 9/02 | 1-Punkt Untergruppe | . by withdrawing |
| E02D 9/04 | 1-Punkt Untergruppe | . by cutting-off under water |
| E02D 11/00 | Hauptgruppe | Methods or apparatus for both placing and removing sheet pile bulkheads, piles, or mould-pipes (|

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| | | features relating to placing only E02D 7/00, to removing only E02D 9/00) |
| E02D 13/00 | Hauptgruppe | Accessories for placing or removing piles or bulkheads |
| E02D 13/02 | 1-Punkt Untergruppe | . specially adapted for placing or removing bulkheads |
| E02D 13/04 | 1-Punkt Untergruppe | . Guide devices; Guide frames |
| E02D 13/06 | 1-Punkt Untergruppe | . for observation while placing |
| E02D 13/08 | 1-Punkt Untergruppe | . Removing obstacles |
| E02D 13/10 | 1-Punkt Untergruppe | . Follow-blocks of pile-drivers or like devices |
| E02D 15/00 | Hauptgruppe | Handling building or like materials for hydraulic engineering or foundations (conveying or working-up concrete or similar masses in general E04G 21/02) |
| E02D 15/02 | 1-Punkt Untergruppe | . Handling of bulk concrete specially for foundation purposes |
| E02D 15/04 | 2-Punkt Untergruppe | . . Placing concrete in mould-pipes, pile tubes, boreholes, or narrow shafts |
| E02D 15/06 | 2-Punkt Untergruppe | . . Placing concrete under water |
| E02D 15/08 | 1-Punkt Untergruppe | . Sinking workpieces into water or soil |
| E02D 15/10 | 1-Punkt Untergruppe | . Placing gravel or like material under water |
| E02D 17/00 | Hauptgruppe | Excavations; Bordering of excavations; Making embankments (soil shifting apparatus E02F; earth drilling E21) |
| E02D 17/02 | 1-Punkt Untergruppe | . Foundation pits |
| E02D 17/04 | 2-Punkt Untergruppe | . . Bordering or stiffening the sides of foundation pits |
| E02D 17/06 | 1-Punkt Untergruppe | . Foundation ditches or narrow shafts |
| E02D 17/08 | 2-Punkt Untergruppe | . . Bordering or stiffening the sides of ditches or narrow shafts for foundations |
| E02D 17/10 | 2-Punkt Untergruppe | . . Covering trenches for foundations |
| E02D 17/12 | 2-Punkt Untergruppe | . . Back-filling of foundation trenches or ditches |
| E02D 17/13 | 1-Punkt Untergruppe | . Foundation slots; Implements for making these slots |
| E02D 17/16 | 1-Punkt Untergruppe | . Loosening of soil or rock, under water (for correcting streams E02B 3/02; by dredgers or excavators E02F) |
| E02D 17/18 | 1-Punkt Untergruppe | . Making embankments (E02D 17/20 takes precedence) |
| E02D 17/20 | 1-Punkt Untergruppe | . Securing of slopes or inclines |
| E02D 19/00 | Hauptgruppe | Keeping dry foundation sites or other areas in the ground (sheet piles or bulkheads E02D 5/02) |
| E02D 19/02 | 1-Punkt Untergruppe | . Restraining of open water |
| E02D 19/04 | 2-Punkt Untergruppe | . . by coffer-dams |
| E02D 19/06 | 1-Punkt Untergruppe | . Restraining of underground water |
| E02D 19/08 | 2-Punkt Untergruppe | . . by employing open ditches arranged below the level of the water |
| E02D 19/10 | 2-Punkt Untergruppe | . . by lowering level of ground water |
| E02D 19/12 | 2-Punkt Untergruppe | . . by damming or interrupting the passage of underground water |
| E02D 19/14 | 3-Punkt Untergruppe | . . . by freezing the soil (in connection with sinking shafts E21D 1/12) |

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| E02D 19/16 | 3-Punkt Untergruppe | . . . by placing or applying sealing substances (consolidating by placing solidifying or pore-filling substances in the soil E02D 3/12) |
| E02D 19/18 | 3-Punkt Untergruppe | . . . by making use of sealing aprons (sealings or joints for engineering work E02B 3/16) |
| E02D 19/20 | 3-Punkt Untergruppe | . . . by displacing the water, e.g. by compressed air |
| E02D 19/22 | 1-Punkt Untergruppe | . Lining sumps in trenches |
| E02D 23/00 | Hauptgruppe | Caissons; Construction or placing of caissons (tunnels submerged into or built in open water E02D 29/063) [6] |
| E02D 23/02 | 1-Punkt Untergruppe | . Caissons able to be floated on water and to be lowered into water <u>in situ</u> |
| E02D 23/04 | 1-Punkt Untergruppe | . Pneumatic caissons |
| E02D 23/06 | 2-Punkt Untergruppe | . . Bringing persons or material into, or out of, compressed air caissons |
| E02D 23/08 | 1-Punkt Untergruppe | . Lowering or sinking caissons |
| E02D 23/10 | 2-Punkt Untergruppe | . . Caissons filled with compressed air |
| E02D 23/12 | 2-Punkt Untergruppe | . . Inclined lowering |
| E02D 23/14 | 2-Punkt Untergruppe | . . Decreasing the skin friction while lowering |
| E02D 23/16 | 1-Punkt Untergruppe | . Jointing caissons to the foundation soil, specially to uneven foundation soil |
| E02D 25/00 | Hauptgruppe | Joining caissons or like sunk units to each other under water |
| E02D 27/00 | Hauptgruppe | Foundations as substructures |
| E02D 27/01 | 1-Punkt Untergruppe | . Flat foundations |
| E02D 27/02 | 2-Punkt Untergruppe | . . Flat foundations without substantial excavation (E02D 27/04, E02D 27/08 take precedence) |
| E02D 27/04 | 2-Punkt Untergruppe | . . in water or on quicksand |
| E02D 27/06 | 3-Punkt Untergruppe | . . . Floating caisson foundations |
| E02D 27/08 | 2-Punkt Untergruppe | . . Reinforcements for flat foundations |
| E02D 27/10 | 1-Punkt Untergruppe | . Deep foundations |
| E02D 27/12 | 2-Punkt Untergruppe | . . Pile foundations |
| E02D 27/14 | 3-Punkt Untergruppe | . . . Pile framings |
| E02D 27/16 | 3-Punkt Untergruppe | . . . Foundations formed of separate piles |
| E02D 27/18 | 2-Punkt Untergruppe | . . Foundations formed by making use of caissons |
| E02D 27/20 | 2-Punkt Untergruppe | . . Caisson foundations combined with pile foundations |
| E02D 27/22 | 2-Punkt Untergruppe | . . Caisson foundations made by starting from fixed or floating artificial islands by using protective bulkheads |
| E02D 27/24 | 1-Punkt Untergruppe | . Foundations constructed by making use of diving-bells (equipment for dwelling or working under water B63C 11/00) |
| E02D 27/26 | 1-Punkt Untergruppe | . Compacting soil locally before forming foundations; Construction of foundation structures by forcing binding substances into gravel fillings (consolidating foundation soil in general E02D 3/02-E02D 3/12) |
| E02D 27/28 | 1-Punkt Untergruppe | . Stressing the soil or the foundation structure while forming foundations |
| E02D 27/30 | 1-Punkt Untergruppe | . Foundations made with permanent use of sheet pile bulkheads, walls of planks, or sheet piling boxes |

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| E02D 27/32 | 1-Punkt Untergruppe | . Foundations for special purposes |
| E02D 27/34 | 2-Punkt Untergruppe | . . Foundations for sinking or earthquake territories (building constructions with protection arrangements against earthquakes E04H 9/02) |
| E02D 27/35 | 2-Punkt Untergruppe | . . Foundations formed in frozen ground, e.g. in permafrost soil [3] |
| E02D 27/36 | 2-Punkt Untergruppe | . . Foundations formed in moors or bogs |
| E02D 27/38 | 2-Punkt Untergruppe | . . Foundations for large tanks, e.g. oil tanks |
| E02D 27/40 | 2-Punkt Untergruppe | . . Foundations for dams across valleys or for dam constructions |
| E02D 27/42 | 2-Punkt Untergruppe | . . Foundations for poles, masts, or chimneys |
| E02D 27/44 | 2-Punkt Untergruppe | . . Foundations for machines, engines, or ordnance (special layout of foundations with respect to machinery to be supported F16M 9/00) |
| E02D 27/46 | 2-Punkt Untergruppe | . . Foundations for supply conduits or other canals |
| E02D 27/48 | 2-Punkt Untergruppe | . . Foundations inserted underneath existing buildings or constructions |
| E02D 27/50 | 2-Punkt Untergruppe | . . Anchored foundations |
| E02D 27/52 | 2-Punkt Untergruppe | . . Submerged foundations |
| E02D 29/00 | Hauptgruppe | Underground or underwater structures (underground tanks B65D 88/76; hydraulic engineering, e.g. sealings or joints, E02B; underground garages E04H 6/00; underground air-raid shelters E04H 9/12; burial vaults E04H 13/00); Retaining walls [6] |
| E02D 29/02 | 1-Punkt Untergruppe | . Retaining or protecting walls (piers or quay walls E02B 3/06) |
| E02D 29/045 | 1-Punkt Untergruppe | . Underground structures, e.g. tunnels or galleries, built in the open air or by methods involving disturbance of the ground surface all along the location line; Methods of making them [6] |
| E02D 29/05 | 2-Punkt Untergruppe | . . at least part of the cross-section being constructed in an open excavation or from the ground surface, e.g. assembled in a trench [6] |
| E02D 29/055 | 3-Punkt Untergruppe | . . . further excavation of the cross-section proceeding underneath an already installed part of the structure, e.g. the roof of a tunnel [6] |
| E02D 29/063 | 1-Punkt Untergruppe | . Tunnels submerged into, or built in, open water (construction or placing of caissons in general E02D 23/00; joining caissons to each other under water, in general E02D 25/00) [6] |
| E02D 29/067 | 2-Punkt Untergruppe | . . Floating tunnels; Submerged bridge-like tunnels, i.e. tunnels supported by piers or the like above the water-bed (pontoon or floating bridges E01D 15/14) [6] |
| E02D 29/07 | 2-Punkt Untergruppe | . . Tunnels or shuttering therefor preconstructed as a whole or continuously made, and moved into place on the water-bed, e.g. into a preformed trench [6] |
| E02D 29/073 | 2-Punkt Untergruppe | . . Tunnels or shuttering therefor assembled from sections individually sunk onto, or laid on, the water-bed, e.g. in a preformed trench (caisson-type sections lowered onto the water-bed E02D 29/077) [6] |
| E02D 29/077 | 2-Punkt Untergruppe | . . Tunnels at least partially built beneath the water-bed characterised by being made by methods involving disturbance thereof all along the location line, e.g. by cut-and-cover or caisson methods [6] |
| E02D 29/09 | 1-Punkt Untergruppe | . Constructions or methods of constructing, in water, not otherwise provided for [6] |
| E02D 29/12 | 1-Punkt Untergruppe | . Manhole shafts; Other inspection or access chambers; Accessories therefor (for underground tanks B65D 90/10; for sewerage E03F 5/02) [6] |
| E02D 29/14 | 2-Punkt Untergruppe | . . Covers for manholes or the like; Frames for covers [6] |

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| E02D 29/16 | 1-Punkt Untergruppe | . Arrangement or construction of joints in foundation structures (sealing joints not restricted to foundation structures E04B 1/68) |
| E02D 31/00 | Hauptgruppe | Protective arrangements for foundations or foundation structures; Ground foundation measures for protecting the soil or the subsoil water, e.g. preventing or counteracting oil pollution (spillage retaining means for tanks B65D 90/24) |
| E02D 31/02 | 1-Punkt Untergruppe | . against ground humidity or ground water |
| E02D 31/04 | 2-Punkt Untergruppe | . . Watertight packings for use under hydraulic pressure |
| E02D 31/06 | 1-Punkt Untergruppe | . against corrosion by soil or water |
| E02D 31/08 | 1-Punkt Untergruppe | . against transmission of vibrations or movements in the foundation soil |
| E02D 31/10 | 1-Punkt Untergruppe | . against soil pressure or hydraulic pressure |
| E02D 31/12 | 2-Punkt Untergruppe | . . against upward hydraulic pressure |
| E02D 31/14 | 2-Punkt Untergruppe | . . against frost heaves in soil [3] |
| E02D 33/00 | Hauptgruppe | Testing foundations or foundation structures (testing methods or apparatus, <u>see</u> the relevant subclasses of class G01; testing structures or apparatus as regards function, in general, G01M; investigating or analysing materials by determining their chemical or physical properties, in general G01N) |
| E02D 35/00 | Hauptgruppe | Straightening, lifting, or lowering of foundation structures or of constructions erected on foundations |
| E02D 37/00 | Hauptgruppe | Repair of damaged foundations or foundation structures |