

**CPC****COOPERATIVE PATENT CLASSIFICATION****E02B****HYDRAULIC ENGINEERING** ( ship-lifting [E02C](#) ; dredging [E02F](#) )**WARNING**

[C12.08]

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[E02B 15/06](#) covered by [E02B 15/04B2](#)

[E02B 15/08](#) covered by [E02B 15/04B](#)

[E02B 15/10](#) covered by [E02B 15/04C](#) to [E02B 15/04G](#)

**E02B 1/00**

**Equipment or apparatus for, or methods of, general hydraulic engineering, { e.g. protection of constructions against ice-strains ( protection of offshore constructions against ice-loads [E02B 17/0021](#); ice-structures as artificial islands [E02B 17/028](#) ) }**

**E02B 1/003**

- . { Mechanically induced gas or liquid streams in seas, lakes or water-courses for forming weirs or breakwaters; making or keeping water surfaces free from ice, aerating or circulating water, e.g. screens of air-bubbles against sludge formation or salt water entry, pump-assisted water circulation ( moving sediments [E02B 3/023](#); for ice breakers [B63B 35/08](#); aerating or circulating water in fish-tanks [A01K 63/042](#); purification of waste water with addition of air [C02F](#) ; distributing gases in liquids in general [B01F 3/04](#) ) }

**E02B 1/006**

- . { Arresting, diverting or chasing away fish in water-courses or water intake ducts, seas or lakes, e.g. fish barrages, deterrent devices ( [E02B 8/085](#) takes precedence ); Devices for cleaning fish barriers }

**E02B 1/02**

- . Hydraulic models { towing tanks or basins for model vessels [B63B 9/02](#) }

**E02B 3/00**

**Engineering works in connection with control or use of streams, rivers, coasts, or other marine sites ( barrages or weirs [E02B 7/00](#) ); Sealing or joints for engineering works in general**

**E02B 3/02**

- . Stream regulation, e.g. breaking up subaqueous rock, cleaning the beds of waterways, directing the water flow ( { harvesting water plants [A01D 44/00](#); underwater loosening of soil or rocks for foundation construction [E02D 17/16](#) }; dredging or scraping devices [E02F 5/28](#) )

**E02B 3/023**

- .. { Removing sediments ( in barrages or reservoirs [E02B 8/02](#) ) }

**E02B 3/026**

- .. { Removing solid rocks }

**E02B 3/04**

- . Structures or apparatus for, or methods of, protecting banks, coasts, or harbours ( sealings or joints [E02B 3/16](#); { [E02B 1/003](#) takes precedence } )

**E02B 3/043**

- .. { Artificial seaweed }

**E02B 3/046**

- .. { Artificial reefs }

**E02B 3/06**

- .. Moles; Piers; Quay walls; Groynes; Breakwaters { Wave dissipating walls; Quay equipment }

**E02B 3/062**

- ... { Constructions floating in operational condition, e.g. breakwaters or wave

- dissipating walls ( floating oil barriers [E02B 15/04B](#); floating stream regulating devices [E02B 3/02](#) ) }
- E02B 3/064 . . . . { Floating landing-stages ( construction of pontoons [B63B 35/34](#); landing bridges [E01D 15/14](#) ) }
- E02B 3/066 . . . { Quays ( bulkheads [E02D 5/00](#); caissons [E02D 23/00](#); retaining walls [E02D 29/00](#) ) }
- E02B 3/068 . . . { Landing stages for vessels ( floating landing-stages [E02B 3/064](#); landing bridges [E01D 15/14](#) ) }
- E02B 3/08 . . . Structures of loose stones with or without piles ( piles [E02D 5/00](#) )
- E02B 3/10 . . Dams; Dykes; Sluice ways or other structures for dykes, dams, or the like ( making embankments or dams in general [E02D 17/18](#) )
- E02B 3/102 . . . { Permanently installed raisable dykes }
- E02B 3/104 . . . . { with self-activating means }
- E02B 3/106 . . . { Temporary dykes }
- E02B 3/108 . . . . { with a filling, e.g. filled by water or sand }
- E02B 3/12 . . Revetment of banks, dams, water-courses, or the like, { e.g. the sea-floor } ( of slopes in general [E02D 17/20](#) )
- E02B 3/121 . . . { Devices for applying linings on banks or the water bottom ( for lining canals [E02B 5/02](#) ) }
- E02B 3/122 . . . { Flexible prefabricated covering elements, e.g. mats, strips }
- E02B 3/123 . . . . { mainly consisting of stone, concrete or similar stony material }
- E02B 3/124 . . . . { mainly consisting of metal }
- E02B 3/125 . . . . { mainly consisting of vegetable material, e.g. wood, reeds }
- E02B 3/126 . . . . { mainly consisting of bituminous material or synthetic resins }
- E02B 3/127 . . . . { bags filled at the side }
- E02B 3/128 . . . { Coherent linings made on the spot, e.g. cast in situ, extruded on the spot ( for canal linings [E02B 5/02](#) ) }
- E02B 3/129 . . . { Polyhedrons, tetrapods or similar bodies, whether or not threaded on strings }
- E02B 3/14 . . . Preformed blocks { or slabs for forming essentially continuous surfaces }; Arrangements thereof { ( preassembled to constitute flexible mats [E02B 3/122](#); pavements [E01C 5/00](#) ) }
- E02B 3/16 . Sealings or joints ( { [E02B 3/12](#) takes precedence; sealings for specific structural foundation elements, see the relevant groups for those elements; sealings for barrage or lock gates [E02B 7/54](#) }; joints for foundation structures [E02D 29/16](#); sealing joints not restricted to hydraulic engineering work [E04B 1/68](#) )
- E02B 3/18 . Reclamation of land from water { or marshes } ( drainage of soil [E02B 11/00](#) )
- E02B 3/20 . Equipment for shipping on coasts, in harbours or on other fixed marine structures, e.g. bollards ( tying-up, anchoring [B63B 21/00](#), e.g. bollards for shipping [B63B 21/06](#); buoys [B63B 22/00](#); { equipment specially adapted for use in locks or dry docks [E02C 1/10](#) } )
- E02B 3/24 . . Mooring posts
- E02B 3/26 . . Fenders ( { fenders for protecting offshore constructions [E02B 17/003](#) }; fenders integral with waterborne vessels or specially adapted therefor [B63B 59/02](#) )
- E02B 3/28 . . Fender piles
- E02B 5/00** **Artificial water canals, { e.g. irrigation canals } ( for water-power plants [E02B 9/02](#); irrigation of soil [E02B 13/00](#) )**

- E02B 5/005 . { Canals entirely situated above ground level, e.g. on piers ( canal bridges [E01D 18/00](#) ) }
  - E02B 5/02 . Making or lining canals { ( linings in general [E02B 13/02](#); digging canals [E02F](#) ) }
  - E02B 5/04 . Navigable canals
  - E02B 5/06 . . . Operating equipment in connection with canals ( ship-lifting devices [E02C](#) )
  - E02B 5/08 . Details, e.g. gates, screens
- NOTE**
- This subdivision is limited to closures, devices for arresting waterborne materials and divisors
- E02B 5/082 . . { Closures ( for irrigation conduits [E02B 13/02](#) ) }
  - E02B 5/085 . . { Arresting devices for waterborne materials, e.g. gratings ( fish barrages [E02B 1/006](#); removing sediments [E02B 3/023](#); arresting oil or similar pollutants [E02B 15/04B](#); for waste water purification [E02F](#) ; in sewers [E03F 5/14](#) ) }
  - E02B 5/087 . . { Divisors }
- E02B 7/00 Barrages or weirs; Layout, construction, methods of, or devices for, making same**  
( for protecting banks, coasts, or harbours [E02B 3/04](#); sealings or joints [E02B 3/16](#); handling building or like materials for hydraulic engineering [E02D 15/00](#); foundations in general [E02D 27/00](#) )
- E02B 7/005 . { Deformable barrages or barrages consisting of permanently deformable elements, e.g. inflatable, with flexible walls ( closures [E02B 7/54](#); floating oil barrages [E02B 15/04B](#) ) }
  - E02B 7/02 . Fixed barrages
  - E02B 7/04 . . Dams across vallies
  - E02B 7/06 . . . Earth-fill dams; Rock-fill dams
  - E02B 7/08 . . . Wall dams
  - E02B 7/10 . . . . Gravity dams, i.e. those in which the weight of the structure prevents overturning
  - E02B 7/12 . . . . Arch dams
  - E02B 7/14 . . . . Buttress dams
  - E02B 7/16 . Fixed weirs; Superstructures or flash-boards therefor
  - E02B 7/18 . . Siphon weirs { ( syphons in hydraulic engineering in general [E02D 29/08](#) ) }
  - E02B 7/20 . Movable barrages; Lock { or dry-dock } gates
  - E02B 7/205 . . { Barrages controlled by the variations of the water level; automatically functioning barrages ( level regulators [G05D 9/00](#); the documents are filed in this subdivision and the relevant subdivision [E02B 7/26](#) to [E02B 7/50](#) ) }
  - E02B 7/22 . . Stop log dams; Emergency gates
  - E02B 7/24 . . Needle weirs
  - E02B 7/26 . . Vertical-lift gates

- E02B 7/28 . . . with sliding gates
- E02B 7/30 . . . with guide wheels or rollers for the gates
- E02B 7/32 . . . Cylindrical or tubular gates
- E02B 7/34 . . . Flash- boards for vertical-lift gates
- E02B 7/36 . . . Elevating mechanisms for vertical-lift gates
- E02B 7/38 . . Rolling gates { or gates moving horizontally in their own plane, e.g. by sliding }
- E02B 7/40 . . Swinging or turning gates
- E02B 7/42 . . . Gates of segmental or sector-like shape with horizontal axis
- E02B 7/44 . . . Hinged-leaf gates
- E02B 7/46 . . . Gates turning round a horizontal axis arranged midway of the flap
- E02B 7/48 . . . Roof or double shutter gates
- E02B 7/50 . . Floating gates
- E02B 7/52 . . Equipment preventing vibration of gates
- E02B 7/54 . . Sealings for gates
  
- E02B 8/00** **Details of barrages or weirs ( cleaning or keeping clear the surface of open water [E02B 15/00](#) ); { Energy dissipating devices carried by lock or dry-dock gates }**
  
- E02B 8/02 . Sediment base gates; Sand sluices; Structures for retaining arresting waterborne material
- E02B 8/023 . . { Arresting devices for waterborne materials ( [E02B 1/003](#) takes precedence; in artificial watercourses [E02B 5/085](#); arresting oil or the like [E02B 15/04B](#); sieving devices for waste water purification [C02F](#) ; in sewers [E03F 5/14](#) ) }
- E02B 8/026 . . . { Cleaning devices ( for fish barrages [E02B 1/006](#) ) }
  
- E02B 8/04 . Valves, slides, or the like; Submerged sluice gates
- E02B 8/045 . . { automatically movable }
  
- E02B 8/06 . Spillways; Devices for dissipation of energy, e.g. for reducing eddies { also for lock or dry-dock gates }
  
- E02B 8/08 . Fish passes { or other means providing for migration of fish }; Passages for rafts or boats
- E02B 8/085 . . { Devices allowing fish migration, e.g. fish traps ( arresting or diverting fish exclusively [E02B 1/006](#) ) }
  
- E02B 9/00** **Water-power plants; Layout, construction or equipment, methods of, or apparatus for, making same**
  
- E02B 9/02 . Water-ways
- E02B 9/022 . . { Closures }
- E02B 9/025 . . . { automatically movable }
- E02B 9/027 . . . { Sliding closures ( [E02B 9/025](#) takes precedence ) }
- E02B 9/04 . . Free-flow canals or flumes; Intakes ( gratings or screens therefor [E02B 5/08](#) )
- E02B 9/06 . . Pressure galleries or pressure conduits; Galleries specially adapted to house pressure conduits; Means specially adapted for use therewith, e.g. housings, valves, gates ( driving inclined galleries [E21D 9/02](#); valves in general [F16K](#) ;

conduits in general [F16L](#) )

E02B 9/08 . Tide or wave power plants ( [water-pressure machines](#), tide or wave motors [E03B](#) )

**E02B 11/00** **Drainage of soil, e.g. for agricultural purposes** { ( [draining sports grounds](#) [E01C 13/083](#); for consolidating foundation soil, e.g. sand drain piles [E02D 3/10](#) ) }

E02B 11/005 . { [Drainage conduits](#) }

E02B 11/02 . Drainage device- laying apparatus, e.g. drainage ploughs

#### **NOTE**

Group [E02B 11/02](#) is incomplete, see also [E02F 3/00](#) and [E02F 5/00](#), dredgers and soil-shifting machines

**E02B 13/00** **Irrigation ditches, i.e. gravity flow, open channel water distribution systems** ( { [retaining waterborne material in irrigation canals](#) [E02B 5/085](#) }; [other distribution systems for watering or spraying gardens, fields, sports grounds, or the like](#), [A01G 25/00](#); { [built-in irrigation means for sports grounds](#) [E01C 13/083](#) } )

E02B 13/02 . Closures for irrigation conduits

**E02B 15/00** **Cleaning or keeping clear the surface of open water; Apparatus therefor** ( [construction of ships or other waterborne vessels](#) [B63B](#) , e.g. vessels specially adapted for collecting pollution from open water [B63B 35/32](#); in swimming or splash baths or pools [E04H 4/16](#) )

E02B 15/02 . from ice { [otherwise than according to](#) [E02B 1/003](#) } ( [construction of ships](#) [B63B](#) ; { [ice-breakers or amphibious vehicles](#) [B63B 35/08](#); [protecting hydraulic engineering structures against ice-load](#) [E02B 1/00](#) } )

E02B 15/04 . Devices for cleaning or keeping clear the surface of open water from oil or like floating materials by separating or removing these materials ( { [stopping water-borne material in artificial water canals](#) [E02B 5/085](#); [stopping water-borne material at barrages or weirs](#) [E02B 8/023](#) }; [other treatment of water, waste water or sewage](#) [C02F](#) ; [materials for treating liquid pollutants](#); e.g. oil, gasoline, fat, [C09K 3/32](#); { [separation of oil in sewage conduits](#) [E03F 5/16](#) } )

E02B 15/041 .. { [Devices for distributing materials](#), e.g. absorbed or magnetic particles over a surface of open water to remove the oil, with or without means for picking up the treated oil ( [E02B 15/042](#) takes precedence ) }

E02B 15/042 .. { [Devices for removing the oil by combustion](#) with or without means for picking up the oil }

E02B 15/043 .. { [Devices or methods for removing oil by means of freezing](#) }

E02B 15/045 .. { [Separating means for recovering oil floating on a surface of open water](#); [E02B 15/048](#) takes precedence ( [separation in general](#) [B01D](#) ) }

E02B 15/046 .. { [Collection of oil using vessels](#), i.e. boats, barges }

E02B 15/047 ... { [provided with an oil collecting boom arranged on at least one side of the hull](#) }

E02B 15/048 .. { [Oil collectors moved over the water skimming the water surface](#) }

E02B 15/06 .. [Barriers therefor](#) ( [E02B 15/08](#) takes precedence ) { [construed for applying](#)

- processing agents or for collecting pollutants, e.g. absorbent }
- E02B 15/08     ..     Devices for reducing the polluted area { with or } without { additional devices for } removing the material
- E02B 15/0807     ...     { with stabilising elements }
- E02B 15/0814     ...     { with underwater curtains }
- E02B 15/0821     ...     { adapted for protection against fire or extreme heat }
- E02B 15/0828     ...     { fixed to the side of a boat for containing small leaks in the hull }
- E02B 15/0835     ...     { fixed to permanent structure, e.g. harbour wall or river bank }
- E02B 15/0842     ...     { adapted to be towed for operation }
- E02B 15/085     ...     { Details of connectors }
- E02B 15/0857     ...     { Buoyancy material }
- E02B 15/0864     ....     { Air ( [E02B 15/0878](#) takes precedence ) }
- E02B 15/0871     .....     { self-inflating barriers }
- E02B 15/0878     ....     { Air and water }
- E02B 15/0885     ....     { Foam }
- E02B 15/0892     .....     { using expanded polystyrene foam }
- E02B 15/10     ..     Devices for removing the material from the surface { ( [E02B 15/041](#), [E02B 15/042](#), [E02B 15/06](#) take precedence ) }
- E02B 15/101     ...     { Means floating loosely on the water absorbing the oil ( absorbing materials [C02F](#) ) }
- E02B 15/102     ...     { Discs }
- E02B 15/103     ...     { Rotary drums }
- E02B 15/104     ...     { Conveyors; Paddle wheels; Endless belts ( [E02B 15/101](#) takes precedence ) }
- E02B 15/105     ...     { Archimedian screws }
- E02B 15/106     ...     { Overflow skimmers with suction heads; suction heads }
- E02B 15/107     ...     { Whirling means forming a vortex in the water; cyclones }
- E02B 15/108     ...     { Ejection means }
  
- E02B 17/00**     **Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs**  
{ or offshore constructions }; **construction methods therefor** ( { construction methods for floating platforms [B63B 9/065](#) }; anchoring floating platforms [B63B 21/00](#); floating platforms, e.g. anchored, [B63B 35/44](#); { underwater reservoirs [B65D 88/78](#) } )
- E02B 17/0004     .     { Nodal points }
- E02B 17/0008     .     { Methods for grouting offshore structures; apparatus therefor ( cementing boreholes [E21B 33/13](#) ) }
- E02B 17/0013     .     { Tube closures for releasable sealing hollow tubes }
- E02B 17/0017     .     { Means for protecting offshore constructions }
- E02B 17/0021     ..     { against ice-loads }
- E02B 17/0026     ..     { against corrosion }
- E02B 17/003     ..     { Fenders }
- E02B 17/0034     .     { Maintenance, repair or inspection of offshore constructions }

- E02B 17/02 . placed by lowering the supporting construction to the bottom, e.g. with subsequent fixing thereto
- E02B 17/021 .. { with relative movement between supporting construction and platform }
- E02B 17/022 ... { adapted to travel on the bottom ( walking gears moving dredgers forward step-by-step [E02F 9/04](#) ) }
- E02B 17/024 ... { shock absorbing means for the supporting construction }
- E02B 17/025 .. { Reinforced concrete structures ( [E02B 17/021](#) takes precedence ) }
- E02B 17/027 .. { steel structures ( [E02B 17/021](#) takes precedence ) }
- E02B 17/028 .. { Ice-structures }
  
- E02B 17/04 . Equipment specially adapted for raising, lowering, or immobilising the working platform relative to the supporting construction ( platform lifts in general [B66F 7/00](#) )
- E02B 17/06 .. for immobilising, e.g. using wedges or clamping rings { ( as elements of the raising or lowering means [E02B 17/08](#) ) }
- E02B 17/08 .. for raising or lowering
- E02B 17/0809 ... { the equipment being hydraulically actuated ( outriggers for cranes [B66C 23/80](#) ) }
- E02B 17/0818 ... { with racks actuated by pinions ( lifting jacks [B66F 3/02](#) to [B66F 3/06](#) ) }
- E02B 17/0827 ... { with screws and nuts mechanism ( climbing jacks with following nut [E02B 17/0881](#); lifting jacks [B66C 3/08](#) ) }
- E02B 17/0836 ... { with climbing jacks ( climbing cranes [B66C 23/32](#); hydraulic lifting jacks [B66F 3/24](#) and subgroups ) }
- E02B 17/0845 .... { with inflatable clamping rings }
- E02B 17/0854 .... { with clamping wedges, eccentric clamping devices and so on ( catch devices for elevators [B66B 5/20](#), [B66B 5/24](#), [B66B 5/26](#) ) }
- E02B 17/0863 .... { with rack and pawl mechanism }
- E02B 17/0872 .... { with locking pins engaging holes or cam surfaces }
- E02B 17/0881 .... { with following nuts }
- E02B 17/089 .... { with subtentation blocks, feet and so on }
  
- E02B 2015/00** **Cleaning or keeping clear the surface of open water; Apparatus therefor**  
( construction of ships or other waterborne vessels [B63B](#) , e.g. vessels specially adapted for collecting pollution from open water [B63B 35/32](#); in swimming or splash baths or pools [E04H 4/16](#) )
  
- E02B 2015/005 . Tent-like structures for dealing with pollutant emissions below the water surface
  
- E02B 2017/00** **Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs**  
{ or offshore constructions }; **construction methods therefor** ( { construction methods for floating platforms [B63B 9/065](#) }; anchoring floating platforms [B63B 21/00](#); floating platforms, e.g. anchored, [B63B 35/44](#); { underwater reservoirs [B65D 88/78](#) } )
  
- E02B 2017/0039 . Methods for placing the offshore structure
- E02B 2017/0043 .. Placing the offshore structure on a pre-installed foundation structure
- E02B 2017/0047 .. using a barge
  
- E02B 2017/0052 . Removal or dismantling of offshore structures from their offshore location

- E02B 2017/0056 . Platforms with supporting legs
- E02B 2017/006 . . with lattice style supporting legs
- E02B 2017/0065 . . Monopile structures
- E02B 2017/0069 . . Gravity structures
- E02B 2017/0073 . . Details of sea bottom engaging footing
- E02B 2017/0078 . . . Suction piles, suction cans
- E02B 2017/0082 . . . Spudcans, skirts or extended feet
- E02B 2017/0086 . . . Large footings connecting several legs or serving as a reservoir for the storage of oil or gas
  
- E02B 2017/0091 . Offshore structures for wind turbines
  
- E02B 2017/0095 . Connections of subsea risers, piping or wiring with the offshore structure
  
- E02B 2201/00      Devices, constructional details or methods of hydraulic engineering not otherwise provided for**
  
- E02B 2201/02 . Devices and methods for creating a buffer zone in the water to separate e.g. salt and sweet water
  
- E02B 2201/04 . using old tires for hydraulic engineering
  
- E02B 2201/50 . Devices for sequentially discharging constant liquid quantities, e.g. into different irrigation channels