SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

F03 MACHINES OR ENGINES FOR LIQUIDS; WIND, SPRING, OR WEIGHT MOTORS; PRODUCING MECHANICAL POWER OR A REACTIVE PROPULSIVE THRUST, NOT OTHERWISE PROVIDED FOR

F03B **MACHINES OR ENGINES FOR LIQUIDS** (machines or engines for liquids and elastic fluids F01; positive-displacement engines for liquids F03C; positive-displacement machines for liquids F04)

Note(s)

1. This subclass covers:
   - engines, other than of positive-displacement type, driven by liquids;
   - machines, other than of positive-displacement type, for liquids.
2. Attention is drawn to the Notes preceding class F01, especially as regards the definition of "reaction type".

Subclass index

TURBINES: IMPULSE; REACTION.....1/00, 3/00
MACHINES OR ENGINES: NON-BLADED ROTOR TYPE; WATER WHEELS; ENDLESS-CHAIN TYPE.....5/00, 7/00, 9/00
PARTS OR DETAILS OF ABOVE KINDS.....1/00, 3/00, 11/00
ADAPTATIONS OR COMBINATIONS.....13/00
CONTROLLING.....15/00
OTHER MACHINES OR ENGINES.....17/00

1/00 **Engines of impulse type, i.e. turbines with jets of high-velocity liquid impinging on bladed or like rotors, e.g. Pelton wheels; Parts or details peculiar thereto [1, 2006.01]**

1/02 • Buckets; Bucket-carrying rotors **[1, 2006.01]**

1/04 • Nozzles (in general B05B); Nozzle-carrying members **[1, 2006.01]**

3/00 **Machines or engines of reaction type; Parts or details peculiar thereto [1, 2006.01]**

3/02 • with radial flow at high-pressure side and axial flow at low-pressure side of rotors, e.g. Francis turbines **[1, 2006.01]**

3/04 • with substantially axial flow throughout rotors, e.g. propeller turbines **[1, 2006.01]**

3/06 • • with adjustable blades, e.g. Kaplan turbines **[1, 2006.01]**

3/08 • with pressure/velocity transformation exclusively in rotors **[1, 2006.01]**

3/10 • characterised by having means for functioning alternatively as pumps or turbines **[1, 2006.01]**

3/12 • Blades; Blade-carrying rotors **[1, 2006.01]**

3/14 • • Rotors having adjustable blades **[1, 2006.01]**

3/16 • Stators **[1, 2006.01]**

3/18 • • Stator blades; Guide conduits or vanes, e.g. adjustable **[1, 2006.01]**

5/00 **Machines or engines characterised by non-bladed rotors, e.g. serrated, using friction [1, 2006.01]**

7/00 **Water wheels [1, 2006.01]**

9/00 **Endless-chain type machines or engines [1, 2006.01]**

11/00 **Parts or details not provided for in, or of interest apart from, groups F03B 1/00-F03B 9/00** (controlling F03B 15/00) **[1, 2006.01]**

11/02 • Casings **[1, 2006.01]**

11/04 • for diminishing cavitation or vibration, e.g. balancing **[1, 2006.01]**

11/06 • Bearing arrangements **[1, 2006.01]**

11/08 • for removing foreign matter, e.g. mud **[1, 2006.01]**

13/00 **Adaptations of machines or engines for special use; Combinations of machines or engines with driving or driven apparatus** (if the apparatus aspects are predominant, see the relevant places for such apparatus, e.g. H02K 7/18)**; Power stations or aggregates** (hydraulic-engineering aspects E02B; incorporating only machines or engines of positive-displacement type F03C) **[1, 2006.01]**

13/02 • Adaptations for drilling wells **[1, 2006.01]**

13/04 • Adaptations for use in dentistry **[1, 2006.01]**

13/06 • Stations or aggregates of water-storage type (turbines characterised by having means for functioning alternatively as pumps F03B 3/10) **[1, 2006.01]**

13/08 • Machine or engine aggregates in dams or the like; Conduits therefor **[1, 2006.01]**

13/10 • Submerged units incorporating electric generators or motors **[1, 2006.01]**

13/12 • characterised by using wave or tide energy **[1, 2006.01]**

13/14 • • using wave energy **[4, 2006.01]**

13/16 • • • using the relative movement between a wave-operated member and another member **[4, 2006.01]**

13/18 • • • • wherein the other member is fixed, at least at one point, with respect to the sea bed or shore **[4, 2006.01]**

13/20 • • • • wherein both members are movable relative to the sea bed or shore **[4, 2006.01]**

13/22 • • • using the flow of water resulting from wave movements, e.g. to drive a hydraulic motor or turbine **[4, 2006.01]**

13/24 • • • to produce a flow of air, e.g. to drive an air turbine **[4, 2006.01]**

13/26 • • using tide energy **[4, 2006.01]**

15/00 Controlling (controlling in general G05) **[1, 2006.01]**

15/02 • by varying liquid flow **[1, 2006.01]**

15/04 • • of turbines (rotors having adjustable blades F03B 3/06, F03B 3/14; adjustable guide vanes F03B 3/18; specially adapted for turbines with jets of high-velocity liquid impinging on bladed or like rotors F03B 15/20) **[1, 2006.01]**

15/06 • • • Regulating, i.e. acting automatically **[1, 2006.01]**

15/08 • • • • by speed, e.g. by measuring electric frequency or liquid flow **[1, 2006.01]**

15/10 • • • • • without retroactive action **[1, 2006.01]**

15/12 • • • • • with retroactive action **[1, 2006.01]**

15/14 • • • • by or of water level **[1, 2006.01]**

15/16 • • • • by power output **[1, 2006.01]**

15/18 • • • • for safety purposes, e.g. preventing overspeed **[1, 2006.01]**

15/20 • • specially adapted for turbines with jets of high-velocity liquid impinging on bladed or like rotors (nozzles F03B 1/04) **[1, 2006.01]**

15/22 • • • for safety purposes **[1, 2006.01]**

17/00 Other machines or engines [1, 2006.01]

17/02 • using hydrostatic thrust **[1, 2006.01]**

17/04 • • Alleged perpetua mobilia **[1, 2006.01]**

17/06 • using liquid flow, e.g. of swinging-flap type **[1, 2006.01]**