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

F02 COMBUSTION ENGINES; HOT-GAS OR COMBUSTION-PRODUCT ENGINE PLANTS

F02N STARTING OF COMBUSTION ENGINES (starting of free-piston combustion-engines F02B 71/02; starting of gas-turbine plants F02C 7/26); STARTING AIDS FOR SUCH ENGINES, NOT OTHERWISE PROVIDED FOR

Note(s)

1. Attention is drawn to the Notes preceding class F01.
2. The starting of engines which are not explicitly stated to be combustion engines is classified in this subclass in so far as their starting is equivalent to that of combustion engines.

Subclass index

STARTING BY MUSCLE POWER.....1/00, 3/00, 5/00
STARTING OTHERWISE
With mechanical energy storage.....5/00
By fluid motor; by electric motor.....7/00, 11/00
By direct action in the working chamber: by fluid pressure; by explosives.....9/00, 13/00
By other apparatus, details, accessories.....15/00
OTHER MEANS OR AIDS FOR STARTING.....19/00, 99/00

Muscle-operated starting apparatus

1/00 Starting apparatus having hand cranks (with intermediate power storage F02N 5/00-F02N 15/00) **[1, 2006.01]**

1/02 • having safety means preventing damage caused by reverse rotation **[1, 2006.01]**

3/00 Other muscle-operated starting apparatus (with intermediate power storage F02N 5/00-F02N 15/00) **[1, 2006.01]**

3/02 • having pull-cords **[1, 2006.01]**

3/04 • having foot-actuated levers **[1, 2006.01]**

Power-operated starting apparatus; Muscle-operated starting apparatus with intermediate power storage

5/00 Starting apparatus having mechanical power storage [1, 2006.01]

5/02 • of spring type **[1, 2006.01]**

5/04 • of inertia type **[1, 2006.01]**

7/00 Starting apparatus having fluid-driven auxiliary engines or apparatus [1, 2006.01]

7/02 • the apparatus being of single-stroke piston type, e.g. pistons acting on racks or pull-cords **[1, 2006.01]**

7/04 • • the pistons acting on screw-threaded members to effect rotation **[1, 2006.01]**

7/06 • the engines being of reciprocating-piston type (of internal-combustion type F02N 7/10) **[1, 2006.01]**

7/08 • the engines being of rotary type **[1, 2006.01]**

7/10 • characterised by using auxiliary engines or apparatus of combustion type (by using explosive cartridges F02N 13/00) **[1, 2006.01]**

7/12 • • the engines being of rotary type, e.g. turbines (F02N 7/14 takes precedence) **[1, 2006.01]**

7/14 • • the starting engines being readily removable from main engines, e.g. of portable type **[1, 2006.01]**

9/00 Starting of engines by supplying auxiliary pressure fluid to their working chambers [1, 2006.01]

9/02 • the pressure fluid being generated directly by combustion (by using explosive cartridges F02N 13/00) **[1, 2006.01]**

9/04 • the pressure fluid being generated otherwise, e.g. by compressing air **[1, 2006.01]**

11/00 Starting of engines by means of electric motors (arrangement or mounting of prime-movers consisting of electric motors and internal combustion engines for mutual or common propulsion B60K 6/20) **[1, 2006.01]**

11/02 • the motors having longitudinally-shiftable rotors **[1, 2006.01]**

11/04 • the motors being associated with current generators **[1, 2006.01]**

11/06 • • and with ignition apparatus **[1, 2006.01]**

11/08 • Circuits specially adapted for starting of engines **[1, 2006.01]**

11/10 • Safety devices (F02N 11/08 takes precedence) **[1, 2006.01]**

11/12 • Starting of engines by means of mobile, e.g. portable, starting sets **[1, 2006.01]**

11/14 • Starting of engines by means of electric starters with external current supply (F02N 11/12 takes precedence) **[1, 2006.01]**

13/00 Starting of engines, or driving of starting apparatus by use of explosives, e.g. stored in cartridges [1, 2006.01]

13/02 • Cartridges specially adapted therefor (gas cartridges in general F42B 3/04) **[1, 2006.01]**

15/00 Other power-operated starting apparatus; Component parts, details, or accessories, not provided for in, or of interest apart from, groups F02N 5/00-F02N 13/00 [1, 2006.01]

15/02 • Gearing between starting-engines and started engines; Engagement or disengagement thereof **[1, 2006.01]**

15/04 • • the gearing including disengaging toothed gears **[1, 2006.01]**

15/06 • • • the toothed gears being moved by axial displacement **[1, 2006.01]**

15/08 • • the gearing being of friction type **[1, 2006.01]**

15/10 • Safety devices not otherwise provided for **[1, 2006.01]**

19/00 Starting aids for combustion engines, not otherwise provided for [2010.01]

19/02 • Aiding engine start by thermal means, e.g. using lighted wicks (using electrically-heated glowing plugs F02P 19/02) **[2010.01]**

19/04 • • by heating of fluids used in engines (heating of lubricants F01M 5/02) **[2010.01]**

19/06 • • • by heating of combustion-air by flame generating means, e.g. flame glow-plugs **[2010.01]**

19/08 • • • • Arrangement thereof **[2010.01]**

19/10 • • • by heating of engine coolants **[2010.01]**

99/00 Subject matter not provided for in the other groups of this subclass [2010.01]