

Symbol	Typ	Titel
F	Sektion	SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
F01	Untersektion	ENGINES OR PUMPS
F01	Klasse	MACHINES OR ENGINES IN GENERAL (combustion engines F02; machines for liquids F03, F04); ENGINE PLANTS IN GENERAL; STEAM ENGINES
F01B	Unterklasse	MACHINES OR ENGINES, IN GENERAL OR OF POSITIVE-DISPLACEMENT TYPE, e.g. STEAM ENGINES (of rotary-piston or oscillating-piston type F01C; of non-positive-displacement type F01D; internal-combustion aspects of reciprocating-piston engines F02B 57/00, F02B 59/00; crankshafts, crossheads, connecting-rods F16C; flywheels F16F; gearings for interconverting rotary motion and reciprocating motion in general F16H; pistons, piston-rods, cylinders, for engines in general F16J)
F01B 1/00	Hauptgruppe	Reciprocating-piston machines or engines characterised by number or relative disposition of cylinders or by being built-up from separate cylinder-crankcase elements (F01B 3/00, F01B 5/00 take precedence) [2]
F01B 1/01	1-Punkt Untergruppe	. with one single cylinder [2]
F01B 1/02	1-Punkt Untergruppe	. with cylinders all in one line
F01B 1/04	1-Punkt Untergruppe	. with cylinders in V-arrangement
F01B 1/06	1-Punkt Untergruppe	. with cylinders in star or fan arrangement
F01B 1/08	1-Punkt Untergruppe	. with cylinders arranged oppositely relative to main shaft and of "flat" type
F01B 1/10	1-Punkt Untergruppe	. with more than one main shaft, e.g. coupled to common output shaft (combinations of two or more machines or engines F01B 21/00)
F01B 1/12	1-Punkt Untergruppe	. Separate cylinder-crankcase elements coupled together to form a unit
F01B 3/00	Hauptgruppe	Reciprocating-piston machines or engines with cylinder axes coaxial with, or parallel or inclined to, main shaft axis
F01B 3/02	1-Punkt Untergruppe	. with wobble-plate
F01B 3/04	1-Punkt Untergruppe	. the piston motion being transmitted by curved surfaces
F01B 3/06	2-Punkt Untergruppe	. . by multi-turn helical surfaces and automatic reversal
F01B 3/08	3-Punkt Untergruppe	. . . the helices being arranged on the pistons
F01B 3/10	1-Punkt Untergruppe	. Control of working-fluid admission or discharge peculiar thereto (suitable for more general application F01L)
F01B 5/00	Hauptgruppe	Reciprocating-piston machines or engines with cylinder axes arranged substantially tangentially to a circle centred on main shaft axis
F01B 7/00	Hauptgruppe	Machines or engines with two or more pistons reciprocating within same cylinder or within essentially coaxial cylinders (in opposite arrangement relative to main shaft F01B 1/08)
F01B 7/02	1-Punkt Untergruppe	. with oppositely reciprocating pistons
F01B 7/04	2-Punkt Untergruppe	. . acting on same main shaft
F01B 7/06	3-Punkt Untergruppe	. . . using only connecting-rods for conversion of reciprocatory into rotary motion or <u>vice versa</u>
F01B 7/08	4-Punkt Untergruppe with side rods
F01B 7/10	4-Punkt Untergruppe having piston-rod of one piston passed through other piston
F01B 7/12	3-Punkt Untergruppe	. . . using rockers and connecting-rods

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F01B 7/14	2-Punkt Untergruppe	. . acting on different main shafts
F01B 7/16	1-Punkt Untergruppe	. with pistons synchronously moving in tandem arrangement
F01B 7/18	1-Punkt Untergruppe	. with differential piston (F01B 7/20 takes precedence)
F01B 7/20	1-Punkt Untergruppe	. with two or more pistons reciprocating one within another, e.g. one piston forming cylinder of the other
F01B 9/00	Hauptgruppe	Reciprocating-piston machines or engines characterised by connections between pistons and main shafts and not specific to groups F01B 1/00-F01B 7/00 (connections disengageable during idling F01B 31/24)
F01B 9/02	1-Punkt Untergruppe	. with crankshaft
F01B 9/04	1-Punkt Untergruppe	. with rotary main shaft other than crankshaft
F01B 9/06	2-Punkt Untergruppe	. . the piston motion being transmitted by curved surfaces
F01B 9/08	2-Punkt Untergruppe	. . with ratchet and pawl
F01B 11/00	Hauptgruppe	Reciprocating-piston machines or engines without rotary main shaft, e.g. of free-piston type
F01B 11/02	1-Punkt Untergruppe	. Equalising or cushioning devices
F01B 11/04	1-Punkt Untergruppe	. Engines combined with reciprocatory driven devices, e.g. hammers (with pumps F01B 23/08; predominating aspects of driven devices, <u>see</u> the relevant classes for the devices)
F01B 11/06	2-Punkt Untergruppe	. . for generating vibration only
F01B 11/08	1-Punkt Untergruppe	. with direct fluid transmission link (F01B 11/02 takes precedence)
F01B 13/00	Hauptgruppe	Reciprocating-piston machines or engines with rotating cylinders in order to obtain the reciprocating-piston motion (machines or engines of flexible-wall type F01B 19/00) [2]
F01B 13/02	1-Punkt Untergruppe	. with one cylinder only
F01B 13/04	1-Punkt Untergruppe	. with more than one cylinder
F01B 13/06	2-Punkt Untergruppe	. . in star arrangement
F01B 15/00	Hauptgruppe	Reciprocating-piston machines or engines with movable cylinders other than provided for in group F01B 13/00 (with movable cylinder sleeves for working-fluid control F01L)
F01B 15/02	1-Punkt Untergruppe	. with reciprocating cylinders (with one piston within another F01B 7/20)
F01B 15/04	1-Punkt Untergruppe	. with oscillating cylinder
F01B 15/06	2-Punkt Untergruppe	. . Control of working-fluid admission or discharge peculiar thereto
F01B 17/00	Hauptgruppe	Reciprocating-piston machines or engines characterised by use of uniflow principle
F01B 17/02	1-Punkt Untergruppe	. Engines
F01B 17/04	2-Punkt Untergruppe	. . Steam engines
F01B 19/00	Hauptgruppe	Positive-displacement machines or engines of flexible-wall type
F01B 19/02	1-Punkt Untergruppe	. with plate-like flexible members
F01B 19/04	1-Punkt Untergruppe	. with tubular flexible members
F01B 21/00	Hauptgruppe	Combinations of two or more machines or engines (F01B 23/00 takes precedence; combinations of two or more pumps F04; fluid gearing F16H; regulating or controlling, <u>see</u> the relevant groups)
F01B 21/02	1-Punkt Untergruppe	. the machines or engines being all of reciprocating-piston type

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F01B 21/04	1-Punkt Untergruppe	. the machines or engines being not all of reciprocating-piston type, e.g. of reciprocating steam engine with steam turbine
F01B 23/00	Hauptgruppe	Adaptations of machines or engines for special use; Combinations of engines with devices driven thereby (F01B 11/00 takes precedence; fluid gearing F16H; aspects predominantly concerning driven devices, <u>see</u> the relevant classes for these devices; regulating or controlling, <u>see</u> the relevant groups)
F01B 23/02	1-Punkt Untergruppe	. Adaptations for driving vehicles, e.g. locomotives (arrangements in vehicles, <u>see</u> the relevant classes for vehicles)
F01B 23/04	2-Punkt Untergruppe	. . the vehicles being waterborne vessels
F01B 23/06	1-Punkt Untergruppe	. Adaptations for driving, or combinations with, hand-held tools or the like
F01B 23/08	1-Punkt Untergruppe	. Adaptations for driving, or combinations with, pumps
F01B 23/10	1-Punkt Untergruppe	. Adaptations for driving, or combinations with, electric generators
F01B 23/12	1-Punkt Untergruppe	. Adaptations for driving rolling mills or other heavy reversing machinery
F01B 25/00	Hauptgruppe	Regulating, controlling, or safety means (regulating or controlling in general G05)
F01B 25/02	1-Punkt Untergruppe	. Regulating or controlling by varying working-fluid admission or exhaust, e.g. by varying pressure or quantity (distributing or expansion valve gear F01L)
F01B 25/04	2-Punkt Untergruppe	. . Sensing elements
F01B 25/06	3-Punkt Untergruppe	. . . responsive to speed
F01B 25/08	2-Punkt Untergruppe	. . Final actuators
F01B 25/10	3-Punkt Untergruppe	. . . Arrangements or adaptations of working-fluid admission or discharge valves (valves in general F16K)
F01B 25/12	2-Punkt Untergruppe	. . Devices dealing with sensing elements or final actuators or transmitting means between them, e.g. power-assisted (sensing elements alone F01B 25/04; final actuators alone F01B 25/08)
F01B 25/14	2-Punkt Untergruppe	. . peculiar to particular kinds of machines or engines
F01B 25/16	1-Punkt Untergruppe	. Safety means responsive to specific conditions (against water hammer or the like in steam engines F01B 31/34)
F01B 25/18	2-Punkt Untergruppe	. . preventing rotation in wrong direction
F01B 25/20	1-Punkt Untergruppe	. Checking operation of safety devices
F01B 25/22	1-Punkt Untergruppe	. Braking by redirecting working fluid
F01B 25/24	2-Punkt Untergruppe	. . thereby regenerating energy
F01B 25/26	1-Punkt Untergruppe	. Warning devices
F01B 27/00	Hauptgruppe	Starting of machines or engines (starting combustion engines F02N)
F01B 27/02	1-Punkt Untergruppe	. of reciprocating-piston engines
F01B 27/04	2-Punkt Untergruppe	. . by directing working-fluid supply, e.g. by aid of by-pass steam conduits
F01B 27/06	3-Punkt Untergruppe	. . . specially for compound engines
F01B 27/08	2-Punkt Untergruppe	. . Means for moving crank off dead-centre (turning-gear in general F16H)
F01B 29/00	Hauptgruppe	Machines or engines with pertinent characteristics other than those provided for in main groups F01B 1/00-F01B 27/00

Symbol	Typ	Titel
F01B 29/02	1-Punkt Untergruppe	. Atmospheric engines, i.e. atmosphere acting against vacuum
F01B 29/04	1-Punkt Untergruppe	. characterised by means for converting from one type to a different one
F01B 29/06	2-Punkt Untergruppe	. . from steam engine into combustion engine
F01B 29/08	1-Punkt Untergruppe	. Reciprocating-piston machines or engines not otherwise provided for
F01B 29/10	2-Punkt Untergruppe	. . Engines (refrigeration machines F25B)
F01B 29/12	3-Punkt Untergruppe	. . . Steam engines (toy steam engines A63H 25/00)
F01B 31/00	Hauptgruppe	Component parts, details, or accessories not provided for in, or of interest apart from, other groups (machine or engine casings, other than those peculiar to steam engines, F16M)
F01B 31/02	1-Punkt Untergruppe	. De-icing means for engines having icing phenomena
F01B 31/04	1-Punkt Untergruppe	. Means for equalising torque in reciprocating-piston machines or engines (compensation of inertial forces, suppression of vibration in systems F16F)
F01B 31/06	1-Punkt Untergruppe	. Means for compensating relative expansion of component parts
F01B 31/08	1-Punkt Untergruppe	. Cooling of steam engines (cooling of fluid machines or engines in general F01P); Heating; Heat insulation (heat insulation in general F16L 59/00)
F01B 31/10	1-Punkt Untergruppe	. Lubricating arrangements of steam engines (of fluid machines or engines in general F01M)
F01B 31/12	1-Punkt Untergruppe	. Arrangements of measuring or indicating devices (warning apparatus F01B 25/26; measuring instruments or the like <u>per se</u> G01)
F01B 31/14	1-Punkt Untergruppe	. Changing of compression ratio
F01B 31/16	1-Punkt Untergruppe	. Silencers specially adapted for steam engines (arrangements of exhaust pipes or tubes on steam engines F01B 31/30; gas-flow silencers or exhaust silencers for machines or engines in general F01N)
F01B 31/18	1-Punkt Untergruppe	. Draining
F01B 31/20	2-Punkt Untergruppe	. . of cylinders
F01B 31/22	1-Punkt Untergruppe	. Idling devices, e.g. having by-passing valves
F01B 31/24	2-Punkt Untergruppe	. . Disengagement of connections between pistons and main shafts
F01B 31/26	1-Punkt Untergruppe	. Other component parts, details, or accessories, peculiar to steam engines
F01B 31/28	2-Punkt Untergruppe	. . Cylinders or cylinder covers
F01B 31/30	2-Punkt Untergruppe	. . Arrangements of steam conduits
F01B 31/32	2-Punkt Untergruppe	. . Arrangements or adaptations of vacuum breakers
F01B 31/34	2-Punkt Untergruppe	. . Safety means against water hammer or against the penetration of water (steam traps F16T)
F01B 31/36	3-Punkt Untergruppe	. . . automatically cutting-off steam supply