

CPC**COOPERATIVE PATENT CLASSIFICATION****F03C**

POSITIVE-DISPLACEMENT ENGINES DRIVEN BY LIQUIDS (positive-displacement engines for liquids and elastic fluids [F01](#) ; positive- displacement machines for liquids [F04](#) ; fluid-pressure actuators [F15B](#) ; fluid gearing [F16H](#))

NOTE

Attention is drawn to the notes preceding class [F01](#) , especially as regards the meanings of "positive displacement", "rotary-piston machines", "oscillating-piston machines", "rotary-piston", "co-operating members", "movement of co-operating members", "teeth or tooth-equivalents", and "internal axis".

WARNING

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

[F03C 1/253](#) covered by [F03C](#)
[F03C 1/28](#) " " [F03C 1/0406](#), [F03C 1/0605](#)
[F03C 1/30](#) " " [F03C 1/0409](#), [F03C 1/0631](#), [F03C 1/0668](#)
[F03C 1/32](#) " " [F03C 1/0415](#), [F03C 1/0626](#), [F03C 1/0652](#)
[F03C 1/34](#) " " [F03C 1/0435](#), [F03C 1/0615](#), [F03C 1/0655](#)
[F03C 1/36](#) " " [F03C 1/0435](#), [F03C 1/0615](#), [F03C 1/0655](#)
[F03C 1/38](#) " " [F03C 1/0435](#), [F03C 1/0615](#), [F03C 1/0655](#)
[F03C 1/40](#) " " [F03C 1/04N](#), [F03C 1/06K](#)

F03C 1/00**Reciprocating-piston liquid engines**

- [F03C 1/001](#) . { the movement in two directions being obtained by two or more double-acting piston liquid motors }
- [F03C 1/002](#) . { details; components parts }
- [F03C 1/003](#) . { controlling }
- [F03C 1/004](#) . . { speed-control }
- [F03C 1/005](#) . . { motor piston stroke control }
- [F03C 1/007](#) . with single cylinder, double-acting piston
- [F03C 1/0073](#) . . { one side of the double-acting piston being always under the influence of the liquid under pressure }
- [F03C 1/0076](#) . . . { the liquid under pressure being continuously delivered to one cylinder chamber through a valve in the piston for actuating the return stroke }
- [F03C 1/013](#) . with single cylinder, single-acting piston
- [F03C 1/0135](#) . . { with actuation of the return stroke by gravity }
- [F03C 1/02](#) . with multiple-cylinders, characterised by the number or arrangement of cylinders (with movable cylinders [F03C 1/22](#); of flexible-wall type [F03C 5/02](#))
- [F03C 1/03](#) . . with movement in two directions being obtained by two single-acting piston liquid engines, each acting in one direction

F03C 1/035	...	{ one single-acting piston being always under the influence of the liquid under pressure }
F03C 1/04	..	with cylinders in star or fan arrangement { F03C 1/22 takes precedence }
F03C 1/0403	...	{ Details, component parts specially adapted of such engines }
F03C 1/0406	....	{ Pistons }
F03C 1/0409	....	{ Cams }
F03C 1/0412	.....	{ consisting of several cylindrical elements e.g. rollers }
F03C 1/0415	....	{ Cylinders }
F03C 1/0419	....	{ Arrangements for pressing or connecting the pistons against the actuated cam }
F03C 1/0422	.....	{ hydraulically }
F03C 1/0425	....	{ Disconnecting the pistons from the actuated cam (in general F01B 31/24) }
F03C 1/0428	....	{ Supporting and guiding means for the pistons }
F03C 1/0431	....	{ Draining of the engine housing; arrangements dealing with leakage fluid }
F03C 1/0435	....	{ Particularities relating to the distribution members (F03C 1/0472 , F03C 1/0531 , and F03C 1/0538 take precedence) }
F03C 1/0438	.....	{ to cylindrical distribution members }
F03C 1/0441	.....	{ to conical distribution members }
F03C 1/0444	.....	{ to plate-like distribution members }
F03C 1/0447	...	{ Controlling }
F03C 1/045	....	{ by using a valve in a system with several pump or motor chambers, wherein the flow path through the chambers can be changed, e.g. series-parallel }
F03C 1/0454	....	{ by changing the effective cross sectional piston working surface }
F03C 1/0457	....	{ by changing the effective piston stroke }
F03C 1/046	.....	{ by changing the excentricity of one element relative to another element }
F03C 1/0463	....	{ by changing the phase relationship between two actuated cams }
F03C 1/0466	....	{ by changing the phase relationship between the actuated cam and the distributing means }
F03C 1/047	...	the pistons co-operating with an actuated element at the outer ends of the cylinders
F03C 1/0472	....	{ with cam-actuated distribution members }
F03C 1/0474	....	{ with two or more radial piston/cylinder units in series }
F03C 1/0476	.....	{ directly located side by side }
F03C 1/0478	.....	{ having several cylinder barrels coupled together }
F03C 1/053	...	the pistons co-operating with an actuated element at the inner ends of the cylinders
F03C 1/0531	....	{ with cam-actuated distribution members }
F03C 1/0533	.....	{ each piston being provided with channels coacting with the cylinder and being used as a distribution member for another cylinder }
F03C 1/0535	....	{ with two or more radial piston/cylinder units in series }
F03C 1/0536	.....	{ directly located side by side }
F03C 1/0538	....	{ the piston-driven cams being provided with inlets or outlets }
F03C 1/06	..	with cylinder axes generally coaxial with, or parallel or inclined to, main shaft axis

F03C 1/0602	...	{ Component parts, details }
F03C 1/0605	....	{ Adaptations of pistons (pump pistons F04B 1/124 , F04B 53/14) }
F03C 1/0607	....	{ Driven means }
F03C 1/061	...	{ having stationary cylinders }
F03C 1/0613	....	{ having two or more sets of cylinders or pistons }
F03C 1/0615	....	{ distributing members }
F03C 1/0618	.....	{ cylindrical distribution members }
F03C 1/0621	.....	{ conical distribution members }
F03C 1/0623	....	{ Details, component parts }
F03C 1/0626	.....	{ Cylinders }
F03C 1/0628	.....	{ Casings, housings }
F03C 1/0631	.....	{ Wobbler or actuated element }
F03C 1/0634	.....	{ Actuated element bearing means or driven axis bearing means }
F03C 1/0636	...	{ having rotary cylinder block }
F03C 1/0639	....	{ having two or more sets of cylinders or pistons }
F03C 1/0642	.....	{ inclined on main shaft axis }
F03C 1/0644	....	{ Component parts }
F03C 1/0647	.....	{ Particularities in the contacting area between cylinder barrel and valve plate }
F03C 1/0649	.....	{ Bearing means }
F03C 1/0652	....	{ Cylinders }
F03C 1/0655	.....	{ Valve means }
F03C 1/0657	.....	{ Cylindrical valve means }
F03C 1/066	.....	{ Conical valve means }
F03C 1/0663	.....	{ Casings, housings }
F03C 1/0665	.....	{ Cylinder barrel bearing means }
F03C 1/0668	.....	{ Swash or actuated plate }
F03C 1/0671	.....	{ Swash or actuated plate bearing means or driven axis bearing means }
F03C 1/0673	....	{ Connection between rotating cylinder and rotating inclined swash plate }
F03C 1/0676	....	{ Arrangement for pressing the cylinder barrel against the valve plate }
F03C 1/0678	...	{ Control }
F03C 1/0681	....	{ using a valve in a system with several motor chambers, wherein the flow path through the chambers can be changed }
F03C 1/0684	....	{ using a by-pass valve }
F03C 1/0686	....	{ by changing the inclination of the swash plate }
F03C 1/0689	.....	{ using wedges }
F03C 1/0692	....	{ by changing the phase relationship between the actuated element and the distribution means, e.g. turning the valve plate; turning the swash plate }
F03C 1/0694	....	{ by changing the inclination of the axis of the cylinder barrel in relation to the axis of the actuated element }
F03C 1/0697	....	{ responsive to the speed }
F03C 1/08	.	Distributing valve-gear peculiar thereto (for engines with positive-displacement in general F01L); { F03C 1/06 takes precedence }

- F03C 1/10 . . . actuated by piston or piston-rod
- F03C 1/12 mechanically ([F03C 1/18](#) takes precedence)
- F03C 1/14 . . . by driving liquid of engine ([F03C 1/18](#) takes precedence)
- F03C 1/16 . . . Speed controlling, equalising or cushioning
- F03C 1/20 . . . specially adapted for engines generating vibration only

- F03C 1/22 . . with movable cylinders { or cylinder }
- F03C 1/223 . . . { having cylinders in star or fan arrangement, the connection of the pistons with an actuated element being at the inner ends of the cylinders }
- F03C 1/226 { with cam actuated distribution members }
- F03C 1/24 . . . in which the liquid exclusively displaces one or more pistons reciprocating in rotary cylinders { ([F03C 1/0636](#) takes precedence) }
- F03C 1/2407 { having cylinders in star or fan arrangement, the connection of the pistons with an actuated element being at the outer ends of the cylinders }
- F03C 1/2415 { cylinder block and actuated cam both rotating ([F03C 1/2431](#) and [F03C 1/2446](#) take precedence) }
- F03C 1/2423 { with two or more series radial piston-cylinder units }
- F03C 1/2431 { cylinder block and actuated cam both rotating ([F03C 1/2446](#) takes precedence) }
- F03C 1/2438 { directly located side by side }
- F03C 1/2446 { cylinder block and actuated cam both rotating }
- F03C 1/2454 . . . { having cylinders in star or fan arrangement, the connection of the pistons with an actuated element being at the inner ends of the cylinders }
- F03C 1/2462 . . . { the rotary cylinder being provided with only one piston reciprocating within this cylinder }
- F03C 1/247 . . . with cylinders in star- or fan-arrangement, { the connection of the pistons with an actuated element being at the outer ends of the cylinders }

- F03C 1/26 . . . adapted for special use or combined with apparatus driven thereby (aspects predominantly concerning the driven apparatus see the relevant classes for such apparatus)

F03C 2/00 **Rotary-piston engines** (in which the liquid exclusively displaces one or more piston reciprocating in rotary cylinders [F03C 1/24](#))

NOTE

Group [F03C 2/30](#) takes precedence over groups [F03C 2/02](#) to [F03C 2/24](#).

- F03C 2/02 . . of arcuate-engagement type, i.e. with circular translatory movement of co-operating members, each member having the same number of teeth or tooth-equivalents
- F03C 2/08 . . of intermeshing-engagement type, i.e. with engagement of co- operating members similar to that of toothed gearing
- F03C 2/22 . . of internal-axis type with equidirectional movement of co-operating members at the points of engagement, or with one of the co-operating members being stationary, the inner member having more teeth or tooth- equivalents than the outer member
- F03C 2/24 . . of counter-engagement type, i.e. the movement of co-operating members at the points

of engagement being in opposite directions

- F03C 2/30 . having the characteristics covered by two or more of groups [F03C 2/02](#), [F03C 2/08](#), [F03C 2/22](#), [F03C 2/24](#) or having the characteristics covered by one of these groups together with some other type of movement between co-operating members
- F03C 2/302 . . { having both the movements defined in sub-groups [F03C 2/02](#) and relative reciprocation between members }
- F03C 2/304 . . { having both the movements defined in sub-group [F03C 2/08](#) or [F03C 2/22](#) and relative reciprocation between members }
- F03C 2/306 . . { having both the movements defined in sub-groups [F03C 2/22](#) and [F03C 2/24](#) }
- F03C 2/308 . . { having the movement defined in [F03C 2/08](#) and having a hinged member }

F03C 4/00 Oscillating-piston engines

F03C 7/00 Engines of flexible-wall type

F03C 99/00 Subject matter not provided for in other groups of this subclass

- F03C 99/005 . { Free-piston type engines }