

Symbol	Typ	Titel
<b>F</b>	<b>Sektion</b>	<b>MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING</b>
<b>F01</b>	<b>Untersektion</b>	<b>ENGINES OR PUMPS</b>
<b>F01</b>	<b>Klasse</b>	<b>MACHINES OR ENGINES IN GENERAL; ENGINE PLANTS IN GENERAL; STEAM ENGINES</b>
<b>F01L</b>	<b>Unterklasse</b>	<b>CYCLICALLY OPERATING VALVES FOR MACHINES OR ENGINES (valves in general F16K)</b> <b><u>Valve-gear or valve arrangements for positive-displacement machines or engines other than steam engines, e.g. for internal-combustion piston engines, without provision for variable fluid distribution</u></b>
<b>F01L 1/00</b>	<b>Hauptgruppe</b>	<b>Valve-gear or valve arrangements, e.g. lift-valve gear (lift valve and valve seat assemblies <u>per se</u> F01L 3/00; slide-valve gear F01L 5/00; actuated non-mechanically F01L 9/00; valve arrangements in working piston or piston-rod F01L 11/00; modifications of valve-gear to facilitate reversing, braking, starting, changing compression ratio, or other specific operations F01L 13/00) [1, 2006.01]</b>
F01L 1/02	1-Punkt Untergruppe	. Valve drive (transmitting-gear between valve drive and valve F01L 1/12) [1, 2006.01]
F01L 1/04	2-Punkt Untergruppe	. . by means of cams, camshafts, cam discs, eccentrics, or the like (F01L 1/10 takes precedence) [1, 2006.01]
F01L 1/047	3-Punkt Untergruppe	. . . Camshafts [6, 2006.01]
F01L 1/053	4-Punkt Untergruppe	. . . . overhead type [6, 2006.01]
F01L 1/06	3-Punkt Untergruppe	. . . the cams, or the like, rotating at a higher speed than that corresponding to the valve cycle, e.g. operating four-stroke engine valves directly from crankshaft [1, 2006.01]
F01L 1/08	3-Punkt Untergruppe	. . . Shape of cams [1, 2006.01]
F01L 1/10	2-Punkt Untergruppe	. . by means of crank- or eccentric-driven rods [1, 2006.01]
F01L 1/12	1-Punkt Untergruppe	. Transmitting-gear between valve drive and valve (simultaneously operating two or more valves F01L 1/26) [1, 2006.01]
F01L 1/14	2-Punkt Untergruppe	. . Tappets; Push-rods [1, 2006.01]
F01L 1/16	3-Punkt Untergruppe	. . . Silencing impact; Reducing wear [1, 2006.01]
F01L 1/18	2-Punkt Untergruppe	. . Rocking arms or levers [1, 2006.01]
F01L 1/20	1-Punkt Untergruppe	. Adjusting or compensating clearance, i.e. lash adjustment [1, 2006.01]
F01L 1/22	2-Punkt Untergruppe	. . automatically [1, 2006.01]
F01L 1/24	3-Punkt Untergruppe	. . . by fluid means, e.g. hydraulically [1, 2006.01]
F01L 1/245	4-Punkt Untergruppe	. . . . Hydraulic tappets [6, 2006.01]
F01L 1/25	5-Punkt Untergruppe	. . . . . between cam and valve stem [6, 2006.01]
F01L 1/255	5-Punkt Untergruppe	. . . . . between cam and rocker arm [6, 2006.01]
F01L 1/26	1-Punkt Untergruppe	. characterised by the provision of two or more valves operated simultaneously by same transmitting-gear; peculiar to machines or engines with more than two lift valves per cylinder (with coaxial valves F01L 1/28) [1, 2006.01]
F01L 1/28	1-Punkt Untergruppe	. characterised by the provision of coaxial valves; characterised by the provision of valves co-operating with both intake and exhaust ports [1, 2006.01]
F01L 1/30	1-Punkt Untergruppe	. characterised by the provision of positively opened and closed valves, i.e. desmodromic valves [1, 2006.01]

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F01L 1/32	1-Punkt Untergruppe	. characterised by the provision of means for rotating lift valves, e.g. to diminish wear [1, 2006.01]
F01L 1/34	1-Punkt Untergruppe	. characterised by the provision of means for changing the timing of the valves without changing the duration of opening [1, 2006.01]
F01L 1/344	2-Punkt Untergruppe	. . changing the angular relationship between crankshaft and camshaft, e.g. using helicoidal gear [6, 2006.01]
F01L 1/348	3-Punkt Untergruppe	. . . by means acting on timing belts or chains [6, 2006.01]
F01L 1/352	3-Punkt Untergruppe	. . . using bevel or epicyclic gear [6, 2006.01]
F01L 1/356	3-Punkt Untergruppe	. . . making the angular relationship oscillate [6, 2006.01]
F01L 1/36	1-Punkt Untergruppe	. peculiar to machines or engines of specific type other than four-stroke cycle [1, 2006.01]
F01L 1/38	2-Punkt Untergruppe	. . for engines with other than four-stroke cycle, e.g. with two-stroke cycle (F01L 1/26, F01L 1/28 take precedence) [1, 2006.01]
F01L 1/40	2-Punkt Untergruppe	. . for engines with scavenging charge near top dead-centre position, e.g. by overlapping inlet and exhaust time (scavenging aspects F02B) [1, 2006.01]
F01L 1/42	2-Punkt Untergruppe	. . for machines or engines characterised by cylinder arrangement, e.g. star or fan [1, 2006.01]
F01L 1/44	1-Punkt Untergruppe	. Multiple-valve gear or arrangements, not provided for in preceding subgroups, e.g. with lift and different valves [1, 2006.01]
F01L 1/46	1-Punkt Untergruppe	. Component parts, details, or accessories, not provided for in preceding subgroups [1, 2006.01]
<b>F01L 3/00</b>	<b>Hauptgruppe</b>	<b>Lift valves, i.e. cut-off apparatus with closure members having at least a component of their opening and closing motion perpendicular to the closing faces; Parts or accessories thereof [1, 2006.01]</b>
F01L 3/02	1-Punkt Untergruppe	. Selecting particular materials for valve members or valve seats; Valve members or valve seats composed of two or more materials [1, 2006.01]
F01L 3/04	2-Punkt Untergruppe	. . Coated valve members or valve seats [1, 2006.01]
F01L 3/06	1-Punkt Untergruppe	. Valve members or valve seats with means for guiding or deflecting the medium controlled thereby, e.g. producing a rotary motion of the drawn-in cylinder charge (for rotating lift valves F01L 1/32) [1, 2006.01]
F01L 3/08	1-Punkt Untergruppe	. Valve guides; Sealing of valve stem, e.g. sealing by lubricant [1, 2006.01]
F01L 3/10	1-Punkt Untergruppe	. Connecting springs to valve members [1, 2006.01]
F01L 3/12	1-Punkt Untergruppe	. Cooling of valves [1, 2006.01]
F01L 3/14	2-Punkt Untergruppe	. . by means of a liquid or solid coolant, e.g. sodium, in a closed chamber in a valve [1, 2006.01]
F01L 3/16	2-Punkt Untergruppe	. . by means of a fluid flowing through or along valve, e.g. air (for sealing only F01L 3/08) [1, 2006.01]
F01L 3/18	3-Punkt Untergruppe	. . . Liquid cooling of valve [1, 2006.01]
F01L 3/20	1-Punkt Untergruppe	. Shapes or constructions of valve members, not provided for in preceding subgroups of this group [1, 2006.01]
F01L 3/22	1-Punkt Untergruppe	. Valve seats not provided for in preceding subgroups of this group; Fixing of valve seats [1, 2006.01]
F01L 3/24	1-Punkt Untergruppe	. Safety means or accessories, not provided for in preceding subgroups of this group [1, 2006.01]
<b>F01L 5/00</b>	<b>Hauptgruppe</b>	<b>Slide-valve gear or valve arrangements (with pure rotary or oscillatory movement F01L 7/00) [1, 2006.01]</b>
F01L 5/02	1-Punkt Untergruppe	. with other than cylindrical, sleeve, or part-annularly-shaped valves, e.g. with flat-type valves [1, 2006.01]
F01L 5/04	1-Punkt Untergruppe	. with cylindrical, sleeve, or part-annularly-shaped valves [1, 2006.01]

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F01L 5/06	2-Punkt Untergruppe	. . surrounding working cylinder or piston [1, 2006.01]
F01L 5/08	3-Punkt Untergruppe	. . . Arrangements with several movements or several valves, e.g. one valve inside the other (with part-annularly-shaped valves F01L 5/12) [1, 2006.01]
F01L 5/10	4-Punkt Untergruppe	. . . . with reciprocating and other movement of same valve [1, 2006.01]
F01L 5/12	3-Punkt Untergruppe	. . . Arrangements with part-annularly-shaped valves [1, 2006.01]
F01L 5/14	1-Punkt Untergruppe	. characterised by the provision of valves with reciprocating and other movements (surrounding working cylinder or piston F01L 5/06) [1, 2006.01]
F01L 5/16	2-Punkt Untergruppe	. . with reciprocating and other movement of same valve, e.g. longitudinally and in cross direction of working cylinder [1, 2006.01]
F01L 5/18	2-Punkt Untergruppe	. . with reciprocatory valve and other slide valve [1, 2006.01]
F01L 5/20	1-Punkt Untergruppe	. specially for two-stroke engines (F01L 5/06, F01L 5/14 take precedence) [1, 2006.01]
F01L 5/22	1-Punkt Untergruppe	. Multiple-valve arrangements (with valves surrounding working cylinder or piston F01L 5/06; with reciprocatory and other slide valves F01L 5/18; specially for two-stroke engines F01L 5/20) [1, 2006.01]
F01L 5/24	1-Punkt Untergruppe	. Component parts, details, or accessories, not provided for in preceding subgroups of this group [1, 2006.01]
<b>F01L 7/00</b>	<b>Hauptgruppe</b>	<b>Rotary or oscillatory slide-valve gear or valve arrangements (slide valves with combined rotary and non-rotary movements, combinations of rotary and non-rotary slide valves F01L 5/00) [1, 2006.01]</b>
F01L 7/02	1-Punkt Untergruppe	. with cylindrical, sleeve, or part-annularly-shaped valves (of disc type F01L 7/06; of conical type F01L 7/08) [1, 2006.01]
F01L 7/04	2-Punkt Untergruppe	. . surrounding working cylinder or piston [1, 2006.01]
F01L 7/06	1-Punkt Untergruppe	. with disc-type valves [1, 2006.01]
F01L 7/08	1-Punkt Untergruppe	. with conically- or frusto-conically-shaped valves [1, 2006.01]
F01L 7/10	1-Punkt Untergruppe	. with valves of other specific shape, e.g. spherical [1, 2006.01]
F01L 7/12	1-Punkt Untergruppe	. specially for two-stroke engines (F01L 7/04 takes precedence) [1, 2006.01]
F01L 7/14	1-Punkt Untergruppe	. Multiple-valve arrangements (with valves surrounding working cylinder or piston F01L 7/04; specially for two-stroke engines F01L 7/12) [1, 2006.01]
F01L 7/16	1-Punkt Untergruppe	. Sealing or packing arrangements specially therefor [1, 2006.01]
F01L 7/18	1-Punkt Untergruppe	. Component parts, details, or accessories, not provided for in preceding subgroups of this group [1, 2006.01]
<b>F01L 9/00</b>	<b>Hauptgruppe</b>	<b>Valve-gear or valve arrangements actuated non-mechanically [1, 2006.01]</b>
F01L 9/02	1-Punkt Untergruppe	. by fluid means, e.g. hydraulic [1, 2006.01]
F01L 9/04	1-Punkt Untergruppe	. by electric means [1, 2006.01]
<b>F01L 11/00</b>	<b>Hauptgruppe</b>	<b>Valve arrangements in working piston or piston-rod [1, 2006.01]</b>
F01L 11/02	1-Punkt Untergruppe	. in piston [1, 2006.01]
F01L 11/04	2-Punkt Untergruppe	. . operated by movement of connecting-rod [1, 2006.01]
F01L 11/06	3-Punkt Untergruppe	. . . operating oscillatory valve [1, 2006.01]
<b>F01L 13/00</b>	<b>Hauptgruppe</b>	<b>Modifications of valve-gear to facilitate reversing, braking, starting, changing compression ratio, or other specific operations [1, 2006.01]</b>
F01L 13/02	1-Punkt Untergruppe	. for reversing [1, 2006.01]

Symbol	Typ	Titel
F01L 13/04	1-Punkt Untergruppe	. for starting by means of fluid pressure [1, 2006.01]
F01L 13/06	1-Punkt Untergruppe	. for braking [1, 2006.01]
F01L 13/08	1-Punkt Untergruppe	. for decompression, e.g. during starting; for changing compression ratio [1, 2006.01]
<b>F01L 15/00</b>	<b>Hauptgruppe</b>	<b><u>Valve-gear or valve arrangements specially adapted for steam engines, or specially adapted for other positive-displacement machines or engines with variable working-fluid distribution</u></b> <b>Valve-gear or valve arrangements, e.g. with reciprocatory slide valves, other than provided for in groups F01L 17/00-F01L 29/00 (valve drive or external valve-adjustment during operation, <u>see</u> the relevant groups, e.g. F01L 31/00; tripping-gear or tripping of valves F01L 31/00) [1, 2006.01]</b>
F01L 15/02	1-Punkt Untergruppe	. with valves other than cylindrical, sleeve, or part-annularly-shaped, e.g. flat D-valves [1, 2006.01]
F01L 15/04	2-Punkt Untergruppe	. . main valve being combined with auxiliary valve (of drag-valve type F01L 15/10) [1, 2006.01]
F01L 15/06	3-Punkt Untergruppe	. . . of Meyer or Rider type, i.e. in which the expansion is varied at the expansion valve itself [1, 2006.01]
F01L 15/08	1-Punkt Untergruppe	. with cylindrical, sleeve, or part-annularly-shaped valves; Such main valves combined with auxiliary valves [1, 2006.01]
F01L 15/10	1-Punkt Untergruppe	. with main slide valve and auxiliary valve dragged thereby [1, 2006.01]
F01L 15/12	1-Punkt Untergruppe	. characterised by having means for effecting pressure equilibrium between two different cylinder spaces at idling [1, 2006.01]
F01L 15/14	1-Punkt Untergruppe	. Arrangements with several co-operating main valves, e.g. reciprocatory and rotary [1, 2006.01]
F01L 15/16	2-Punkt Untergruppe	. . with reciprocatory slide valves only [1, 2006.01]
F01L 15/18	1-Punkt Untergruppe	. Valve arrangements not provided for in preceding subgroups of this group [1, 2006.01]
F01L 15/20	1-Punkt Untergruppe	. Component parts, details, or accessories, not provided for in preceding subgroups of this group [1, 2006.01]
<b>F01L 17/00</b>	<b>Hauptgruppe</b>	<b>Slide-valve gear or valve arrangements with cylindrical, sleeve, or part-annularly-shaped valves surrounding working cylinder or piston [1, 2006.01]</b>
F01L 17/02	1-Punkt Untergruppe	. Drive, or adjustment during operation, peculiar thereto, e.g. for reciprocating and oscillating movements or for several valves one inside the other [1, 2006.01]
<b>F01L 19/00</b>	<b>Hauptgruppe</b>	<b>Slide-valve gear or valve arrangements with reciprocatory and other movement of same valve, other than provided for in group F01L 17/00, e.g. longitudinally and in cross direction of working cylinder [1, 2006.01]</b>
F01L 19/02	1-Punkt Untergruppe	. Drive, or adjustment during operation, peculiar thereto [1, 2006.01]
<b>F01L 21/00</b>	<b>Hauptgruppe</b>	<b>Use of working pistons or piston-rods as fluid-distributing valves or as valve-supporting elements, e.g. in free-piston machines [1, 2006.01]</b>
F01L 21/02	1-Punkt Untergruppe	. Piston or piston-rod used as valve member [1, 2006.01]
F01L 21/04	1-Punkt Untergruppe	. Valves arranged in or on piston or piston-rod [1, 2006.01]
<b>F01L 23/00</b>	<b>Hauptgruppe</b>	<b>Valves controlled by impact of piston, e.g. in free-piston machines [1, 2006.01]</b>
<b>F01L 25/00</b>	<b>Hauptgruppe</b>	<b>Drive, or adjustment during operation, of distribution or expansion valves by non-mechanical means [1, 2006.01]</b>
F01L 25/02	1-Punkt Untergruppe	. by fluid means [1, 2006.01]
F01L 25/04	2-Punkt Untergruppe	. . by working fluid of machine or engine, e.g. free-piston machine [1, 2006.01]
F01L 25/06	3-Punkt Untergruppe	. . . Arrangements with main and auxiliary valves, at least one of them being fluid-driven [1, 2006.01]
F01L 25/08	1-Punkt Untergruppe	. by electric or magnetic means [1, 2006.01]
<b>F01L 27/00</b>	<b>Hauptgruppe</b>	<b>Distribution or expansion-valve gear peculiar to free-piston machines or engines and not provided</b>

Symbol	Typ	Titel
<b>for in groups F01L 21/00-F01L 25/00 [1, 2006.01]</b>		
F01L 27/02	1-Punkt Untergruppe	. the machine or engine having rotary or oscillatory valves [1, 2006.01]
F01L 27/04	1-Punkt Untergruppe	. Delayed-action controls, e.g. of cataract- or dash-pot-type [1, 2006.01]
<b>F01L 29/00</b>	<b>Hauptgruppe</b>	<b>Reversing-gear (equally usable for control of degree of working fluid admission, and reversing being of secondary importance F01L 31/00) [1, 2006.01]</b>
F01L 29/02	1-Punkt Untergruppe	. by displacing eccentric [1, 2006.01]
F01L 29/04	1-Punkt Untergruppe	. by links or guide rods [1, 2006.01]
F01L 29/06	1-Punkt Untergruppe	. by interchanging inlet and exhaust ports [1, 2006.01]
F01L 29/08	1-Punkt Untergruppe	. specially for rotary or oscillatory valves [1, 2006.01]
F01L 29/10	1-Punkt Untergruppe	. Details, e.g. drive [1, 2006.01]
F01L 29/12	2-Punkt Untergruppe	. . Powered reverse gear [1, 2006.01]
<b>F01L 31/00</b>	<b>Hauptgruppe</b>	<b>Valve drive, valve adjustment during operation, or other valve control, not provided for in groups F01L 15/00-F01L 29/00 (sensing elements measuring the variable or condition to be controlled or regulated F01B) [1, 2006.01]</b>
F01L 31/02	1-Punkt Untergruppe	. with tripping-gear (for oscillatory valves F01L 31/06); Tripping of valves [1, 2006.01]
F01L 31/04	2-Punkt Untergruppe	. . with positively-driven trip levers [1, 2006.01]
F01L 31/06	1-Punkt Untergruppe	. with tripping-gear specially for oscillatory valves; Oscillatory tripping-valves, e.g. of Corliss type [1, 2006.01]
F01L 31/08	1-Punkt Untergruppe	. Valve drive or valve adjustment, apart from tripping aspects; Positively-driven gear [1, 2006.01]
F01L 31/10	2-Punkt Untergruppe	. . the drive being effected by eccentrics (F01L 31/14 takes precedence) [1, 2006.01]
F01L 31/12	3-Punkt Untergruppe	. . . Valve adjustment by displacing eccentric [1, 2006.01]
F01L 31/14	2-Punkt Untergruppe	. . Valve adjustment by links or guide rods, e.g. in valve-gears with eccentric drive [1, 2006.01]
F01L 31/16	2-Punkt Untergruppe	. . the drive being effected by specific means other than eccentric, e.g. cams; Valve adjustment in connection with such drives [1, 2006.01]
F01L 31/18	2-Punkt Untergruppe	. . specially for rotary or oscillatory valves [1, 2006.01]
F01L 31/20	3-Punkt Untergruppe	. . . Valve adjustment [1, 2006.01]
F01L 31/22	2-Punkt Untergruppe	. . specially for lift valves [1, 2006.01]
F01L 31/24	3-Punkt Untergruppe	. . . Valve adjustment [1, 2006.01]
<b><u>Rotary or oscillatory slide-valve gear or lift-valve gear or such valve arrangements specially adapted for steam engines, or specially adapted for other positive-displacement machines or engines with variable working-fluid distribution</u></b>		
<b>F01L 33/00</b>	<b>Hauptgruppe</b>	<b>Rotary or oscillatory slide-valve gear or valve arrangements, specially adapted for machines or engines with variable fluid distribution (drive, adjustment during operation, tripping-gear, reversing-gear, use of working pistons or piston-rods as valves or as valve-supporting elements, valve-gear or valve arrangements peculiar to free-piston machines or engines F01L 15/00-F01L 31/00) [1, 2006.01]</b>
F01L 33/02	1-Punkt Untergruppe	. rotary [1, 2006.01]
F01L 33/04	1-Punkt Untergruppe	. oscillatory [1, 2006.01]
<b>F01L 35/00</b>	<b>Hauptgruppe</b>	<b>Lift-valve gear or valve arrangements specially adapted for machines or engines with variable fluid distribution (drive, adjustment during operation, tripping-gear, reversing-gear, use of working pistons or piston-rods as valves or as valve-supporting elements, valve-gear or valve arrangements peculiar to free-piston machines or engines F01L 15/00-F01L 31/00) [1, 2006.01]</b>

Symbol	Typ	Titel
F01L 35/02	1-Punkt Untergruppe	. Valves [1, 2006.01]
F01L 35/04	1-Punkt Untergruppe	. Arrangements of valves in the machine or engine, e.g. relative to working cylinder [1, 2006.01]