

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>F01D</b>	<b>Unterkategorie</b>	<b>NON-POSITIVE-DISPLACEMENT MACHINES OR ENGINES, e.g. STEAM TURBINES (combustion engines F02; machines or engines for liquids F03, F04; non-positive-displacement pumps F04D)</b>
<b>F01D 1/00</b>	<b>Hauptgruppe</b>	<b>Non-positive-displacement machines or engines, e.g. steam turbines (with working-fluid flows in opposite axial directions for balancing axial thrust F01D 3/02; with other than pure rotation F01D 23/00; turbines characterised by their use in special steam systems, cycles, or processes, regulating devices therefor F01K) [1, 2006.01]</b>
F01D 1/02	1-Punkt Untergruppe	. with stationary working-fluid guiding means and bladed or like rotor (F01D 1/24 takes precedence; without working-fluid guiding means F01D 1/18) [1, 5, 2006.01]
F01D 1/04	2-Punkt Untergruppe	... traversed by the working-fluid substantially axially [1, 2006.01]
F01D 1/06	2-Punkt Untergruppe	... traversed by the working-fluid substantially radially [1, 2006.01]
F01D 1/08	3-Punkt Untergruppe	... having inward flow [1, 2006.01]
F01D 1/10	2-Punkt Untergruppe	... having two or more stages subjected to working-fluid flow without essential intermediate pressure change, i.e. with velocity stages (F01D 1/12 takes precedence) [1, 2006.01]
F01D 1/12	2-Punkt Untergruppe	... with repeated action on same blade ring [1, 2006.01]
F01D 1/14	3-Punkt Untergruppe	... traversed by the working-fluid substantially radially [1, 2006.01]
F01D 1/16	2-Punkt Untergruppe	... characterised by having both reaction stages and impulse stages [1, 2006.01]
F01D 1/18	1-Punkt Untergruppe	. without working-fluid guiding means (F01D 1/24, F01D 1/32, F01D 1/34 take precedence) [1, 5, 2006.01]
F01D 1/20	2-Punkt Untergruppe	... traversed by the working-fluid substantially axially [1, 2006.01]
F01D 1/22	2-Punkt Untergruppe	... traversed by the working-fluid substantially radially [1, 2006.01]
F01D 1/24	1-Punkt Untergruppe	. characterised by counter-rotating rotors subjected to same working-fluid stream without intermediate stator blades or the like [1, 2006.01]
F01D 1/26	2-Punkt Untergruppe	... traversed by the working-fluid substantially axially [1, 2006.01]
F01D 1/28	2-Punkt Untergruppe	... traversed by the working-fluid substantially radially [1, 2006.01]
F01D 1/30	1-Punkt Untergruppe	. characterised by having a single rotor operable in either direction of rotation, e.g. by reversing of blades (combinations of machines or engines F01D 13/00) [1, 2006.01]
F01D 1/32	1-Punkt Untergruppe	. with pressure/velocity transformation exclusively in rotor, e.g. the rotor rotating under the influence of jets issuing from the rotor [1, 2006.01]
F01D 1/34	1-Punkt Untergruppe	. characterised by non-bladed rotor, e.g. with drilled holes (F01D 1/32 takes precedence; sirens G10K 7/00) [1, 5, 2006.01]
F01D 1/36	2-Punkt Untergruppe	... using fluid friction [1, 2006.01]
F01D 1/38	2-Punkt Untergruppe	... of the screw type [5, 2006.01]
<b>F01D 3/00</b>	<b>Hauptgruppe</b>	<b>Machines or engines with axial-thrust balancing effected by working fluid [1, 2006.01]</b>
F01D 3/02	1-Punkt Untergruppe	. characterised by having one fluid flow in one axial direction and another fluid flow in the opposite direction [1, 2006.01]

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F01D 3/04	1-Punkt Untergruppe	. axial thrust being compensated by thrust-balancing dummy piston or the like [1, 2006.01]
<b>F01D 5/00</b>	<b>Hauptgruppe</b>	<b>Blades; Blade-carrying members (nozzle boxes F01D 9/02); Heating, heat-insulating, cooling, or antivibration means on the blades or the members [1, 2006.01]</b>
F01D 5/02	1-Punkt Untergruppe	. Blade-carrying members, e.g. rotors (rotors of non-bladed type F01D 1/34; stators F01D 9/00) [1, 2006.01]
F01D 5/03	2-Punkt Untergruppe	.. Annular blade-carrying members having blades on the inner periphery of the annulus and extending inwardly radially, i.e. inverted rotors [6, 2006.01]
F01D 5/04	2-Punkt Untergruppe	.. for radial-flow machines or engines [1, 2006.01]
F01D 5/06	2-Punkt Untergruppe	.. Rotors for more than one axial stage, e.g. of drum or multiple-disc type; Details thereof, e.g. shafts, shaft connections [1, 2006.01]
F01D 5/08	2-Punkt Untergruppe	.. Heating, heat-insulating, or cooling means [1, 2006.01]
F01D 5/10	2-Punkt Untergruppe	.. Antivibration means [1, 2006.01]
F01D 5/12	1-Punkt Untergruppe	. Blades (blade roots F01D 5/30; rotors with blades adjustable in operation F01D 7/00; stator blades F01D 9/02) [1, 2006.01]
F01D 5/14	2-Punkt Untergruppe	.. Form or construction (selecting particular materials, measures against erosion or corrosion F01D 5/28) [1, 2006.01]
F01D 5/16	3-Punkt Untergruppe	... for counteracting blade vibration [1, 2006.01]
F01D 5/18	3-Punkt Untergruppe	... Hollow blades; Heating, heat-insulating, or cooling means on blades [1, 2006.01]
F01D 5/20	3-Punkt Untergruppe	... Specially-shaped blade tips to seal space between tips and stator [1, 2006.01]
F01D 5/22	2-Punkt Untergruppe	.. Blade-to-blade connections, e.g. by shrouding [1, 2006.01]
F01D 5/24	3-Punkt Untergruppe	... using wire or the like [1, 2006.01]
F01D 5/26	2-Punkt Untergruppe	.. Antivibration means not restricted to blade form or construction or to blade-to-blade connections [1, 2006.01]
F01D 5/28	2-Punkt Untergruppe	.. Selecting particular materials; Measures against erosion or corrosion [1, 2006.01]
F01D 5/30	1-Punkt Untergruppe	. Fixing blades to rotors; Blade roots [1, 2006.01]
F01D 5/32	2-Punkt Untergruppe	.. Locking, e.g. by final locking-blades or keys [1, 2006.01]
F01D 5/34	1-Punkt Untergruppe	. Rotor-blade aggregates of unitary construction [1, 2006.01]
<b>F01D 7/00</b>	<b>Hauptgruppe</b>	<b>Rotors with blades adjustable in operation; Control thereof (for reversing F01D 1/30) [1, 2006.01]</b>
F01D 7/02	1-Punkt Untergruppe	. having adjustment responsive to speed [1, 2006.01]
<b>F01D 9/00</b>	<b>Hauptgruppe</b>	<b>Stators (non-fluid guiding aspects of casings, regulating, controlling, or safety aspects, <u>see the relevant groups</u>) [1, 2006.01]</b>
F01D 9/02	1-Punkt Untergruppe	. Nozzles; Nozzle boxes; Stator blades; Guide conduits [1, 2006.01]
F01D 9/04	2-Punkt Untergruppe	.. forming ring or sector [1, 2006.01]
F01D 9/06	1-Punkt Untergruppe	. Fluid supply conduits to nozzles or the like [1, 2006.01]
<b>F01D 11/00</b>	<b>Hauptgruppe</b>	<b>Preventing or minimising internal leakage of working fluid, e.g. between stages (sealings in general F16j) [1, 2006.01]</b>
F01D 11/02	1-Punkt Untergruppe	. by non-contact sealings, e.g. of labyrinth type (for sealing space between rotor blade tips and stator F01D 11/08) [1, 2006.01]
F01D 11/04	2-Punkt Untergruppe	.. using sealing fluid, e.g. steam [1, 2006.01]

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F01D 11/06	3-Punkt Untergruppe	... Control thereof [1, 2006.01]
F01D 11/08	1-Punkt Untergruppe	. for sealing space between rotor blade tips and stator (specially-shaped blade tips therefor F01D 5/20) [1, 2006.01]
F01D 11/10	2-Punkt Untergruppe	... using sealing fluid, e.g. steam [1, 2006.01]
F01D 11/12	2-Punkt Untergruppe	... using a rubstrip, e.g. erodible, deformable or resiliently biased part [6, 2006.01]
F01D 11/14	2-Punkt Untergruppe	... Adjusting or regulating tip-clearance, i.e. distance between rotor-blade tips and stator casing (rotors with blades adjustable in operation F01D 7/00) [6, 2006.01]
F01D 11/16	3-Punkt Untergruppe	... by self-adjusting means (F01D 11/12 takes precedence) [6, 2006.01]
F01D 11/18	4-Punkt Untergruppe	.... using stator or rotor components with predetermined thermal response, e.g. selective insulation, thermal inertia, differential expansion [6, 2006.01]
F01D 11/20	3-Punkt Untergruppe	... Actively adjusting tip-clearance [6, 2006.01]
F01D 11/22	4-Punkt Untergruppe	.... by mechanically actuating the stator or rotor components, e.g. moving shroud sections relative to the rotor [6, 2006.01]
F01D 11/24	4-Punkt Untergruppe	.... by selectively cooling or heating stator or rotor components [6, 2006.01]
<b>F01D 13/00</b>	<b>Hauptgruppe</b>	<b>Combinations of two or more machines or engines (F01D 15/00 takes precedence; combinations of two or more pumps F04; fluid gearing F16H; regulating or controlling, <u>see</u> the relevant groups) [1, 2006.01]</b>
F01D 13/02	1-Punkt Untergruppe	. Working-fluid interconnection of machines or engines [1, 2006.01]
<b>F01D 15/00</b>	<b>Hauptgruppe</b>	<b>Adaptations of machines or engines for special use; Combinations of engines with devices driven thereby (regulating or controlling, <u>see</u> the relevant groups; aspects predominantly concerning driven devices, <u>see</u> the relevant classes for the devices) [1, 2006.01]</b>
F01D 15/02	1-Punkt Untergruppe	. Adaptations for driving vehicles, e.g. locomotives (arrangement in vehicles, <u>see</u> the relevant vehicle classes) [1, 2006.01]
F01D 15/04	2-Punkt Untergruppe	... the vehicles being waterborne vessels [1, 2006.01]
F01D 15/06	1-Punkt Untergruppe	. Adaptations for driving, or combinations with, hand-held tools or the like [1, 2006.01]
F01D 15/08	1-Punkt Untergruppe	. Adaptations for driving, or combinations with, pumps [1, 2006.01]
F01D 15/10	1-Punkt Untergruppe	. Adaptations for driving, or combinations with, electric generators [1, 2006.01]
F01D 15/12	1-Punkt Untergruppe	. Combinations with mechanical gearing (driven by multiple engines F01D 13/00) [1, 2006.01]
<b>F01D 17/00</b>	<b>Hauptgruppe</b>	<b>Regulating or controlling by varying flow (for reversing F01D 1/30; by varying rotor blade position F01D 7/00; specially for starting F01D 19/00; shutting-down F01D 21/00; regulating or controlling in general G05) [1, 2006.01]</b>
F01D 17/02	1-Punkt Untergruppe	. Arrangement of sensing elements (sensing elements <u>per se</u> , <u>see</u> the relevant subclasses) [1, 2006.01]
F01D 17/04	2-Punkt Untergruppe	... responsive to load [1, 2006.01]
F01D 17/06	2-Punkt Untergruppe	... responsive to speed [1, 2006.01]
F01D 17/08	2-Punkt Untergruppe	... responsive to condition of working fluid, e.g. pressure [1, 2006.01]
F01D 17/10	1-Punkt Untergruppe	. Final actuators (valves in general F16K) [1, 2006.01]
F01D 17/12	2-Punkt Untergruppe	... arranged in stator parts [1, 2006.01]

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F01D 17/14	3-Punkt Untergruppe	... varying effective cross-sectional area of nozzles or guide conduits [1, 2006.01]
F01D 17/16	4-Punkt Untergruppe	.... by means of nozzle vanes [1, 2006.01]
F01D 17/18	3-Punkt Untergruppe	... varying effective number of nozzles or guide conduits [1, 2006.01]
F01D 17/20	1-Punkt Untergruppe	. Devices dealing with sensing elements or final actuators or transmitting means between them, e.g. power-assisted (sensing elements alone F01D 17/02; final actuators alone F01D 17/10) [1, 2006.01]
F01D 17/22	2-Punkt Untergruppe	... the operation or power assistance being predominantly non-mechanical [1, 2006.01]
F01D 17/24	3-Punkt Untergruppe	... electrical [1, 2006.01]
F01D 17/26	3-Punkt Untergruppe	... fluid, e.g. hydraulic [1, 2006.01]
<b>F01D 19/00</b>	<b>Hauptgruppe</b>	<b>Starting of machines or engines; Regulating, controlling, or safety means in connection therewith (warming-up before starting F01D 25/10; turning or inching gear F01D 25/34) [1, 2006.01]</b>
F01D 19/02	1-Punkt Untergruppe	. dependent on temperature of component parts, e.g. of turbine casing [1, 2006.01]
<b>F01D 21/00</b>	<b>Hauptgruppe</b>	<b>Shutting-down of machines or engines, e.g. in emergency; Regulating, controlling, or safety means not otherwise provided for [1, 2006.01]</b>
F01D 21/02	1-Punkt Untergruppe	. Shutting-down responsive to overspeed [1, 2006.01]
F01D 21/04	1-Punkt Untergruppe	. responsive to undesired position of rotor relative to stator, e.g. indicating such position [1, 2006.01]
F01D 21/06	2-Punkt Untergruppe	... Shutting-down [1, 2006.01]
F01D 21/08	2-Punkt Untergruppe	... Restoring position [1, 2006.01]
F01D 21/10	1-Punkt Untergruppe	. responsive to unwanted deposits on blades, in working-fluid conduits, or the like [1, 2006.01]
F01D 21/12	1-Punkt Untergruppe	. responsive to temperature [1, 2006.01]
F01D 21/14	1-Punkt Untergruppe	. responsive to other specific conditions [1, 2006.01]
F01D 21/16	1-Punkt Untergruppe	. Trip gear [1, 2006.01]
F01D 21/18	2-Punkt Untergruppe	... involving hydraulic means [1, 2006.01]
F01D 21/20	1-Punkt Untergruppe	. Checking operation of shut-down devices [1, 2006.01]
<b>F01D 23/00</b>	<b>Hauptgruppe</b>	<b>Non-positive-displacement machines or engines with movement other than pure rotation, e.g. of endless-chain type [1, 2006.01]</b>
<b>F01D 25/00</b>	<b>Hauptgruppe</b>	<b>Component parts, details, or accessories, not provided for in, or of interest apart from, other groups [1, 2006.01]</b>
F01D 25/02	1-Punkt Untergruppe	. De-icing means for engines having icing phenomena [1, 2006.01]
F01D 25/04	1-Punkt Untergruppe	. Antivibration arrangements [1, 2006.01]
F01D 25/06	2-Punkt Untergruppe	... for preventing blade vibration (means on blade-carrying members or blades F01D 5/00) [1, 2006.01]
F01D 25/08	1-Punkt Untergruppe	. Cooling (of machines or engines in general F01P); Heating; Heat insulation (of blade-carrying members, of blades F01D 5/00) [1, 2006.01]
F01D 25/10	2-Punkt Untergruppe	... Heating, e.g. warming-up before starting [1, 2006.01]
F01D 25/12	2-Punkt Untergruppe	... Cooling [1, 2006.01]
F01D 25/14	2-Punkt Untergruppe	... Casings modified therefor (double casings F01D 25/26) [1, 2006.01]
F01D 25/16	1-Punkt Untergruppe	. Arrangement of bearings; Supporting or mounting bearings in casings (bearings <u>per se</u> F16C) [1, 2006.01]

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F01D 25/18	1-Punkt Untergruppe	. Lubricating arrangements (of machines or engines in general F01M) [1, 2006.01]
F01D 25/20	2-Punkt Untergruppe	... using lubrication pumps [1, 2006.01]
F01D 25/22	2-Punkt Untergruppe	... using working fluid or other gaseous fluid as lubricant [1, 2006.01]
F01D 25/24	1-Punkt Untergruppe	. Casings (modified for heating or cooling F01D 25/14); Casing parts, e.g. diaphragms, casing fastenings ( casings for rotary machines or engines in general F16M) [1, 2006.01]
F01D 25/26	2-Punkt Untergruppe	... Double casings; Measures against temperature strain in casings [1, 2006.01]
F01D 25/28	1-Punkt Untergruppe	. Supporting or mounting arrangements, e.g. for turbine casing [1, 2006.01]
F01D 25/30	1-Punkt Untergruppe	. Exhaust heads, chambers, or the like [1, 2006.01]
F01D 25/32	1-Punkt Untergruppe	. Collecting of condensation water; Drainage [1, 2006.01]
F01D 25/34	1-Punkt Untergruppe	. Turning or inching gear [1, 2006.01]
F01D 25/36	2-Punkt Untergruppe	... using electric motors [1, 2006.01]