Symbol	Typ	Titel
F	**Sektion**	**SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING**
F22	**Klasse**	**STEAM GENERATION (chemical or physical apparatus for generating gases B01J; chemical generation of gas, e.g. under pressure, Section C; removal of combustion products or residues, e.g. cleaning of the combustion contaminated surfaces of tubes of boilers, F23J; generating combustion products of high pressure or high velocity F23R; water heaters not for steam generation F24H, F28; cleaning of internal or external surfaces of heat-transfer conduits, e.g. water tubes of boilers, F28G)**
F22D	**Unterklasse**	**PREHEATING, OR ACCUMULATING PREHEATED, FEED-WATER; FEED-WATER SUPPLY; CONTROLLING WATER LEVEL; CIRCULATING WATER WITHIN BOILERS (chemical treatment of water, e.g. purification, C02F; enclosed heat-exchange apparatus in general F28D; controlling in general G05)**
F22D 1/00	**Hauptgruppe**	**Feed-water heaters, e.g. preheaters**
F22D 1/02	1-Punkt Untergruppe	. with water tubes arranged in the boiler furnace, fire tubes, or flue ways (heat-exchange tubes in general F28F)
F22D 1/04	2-Punkt Untergruppe	. . the tubes having plain outer surfaces, e.g. in vertical arrangement
F22D 1/06	3-Punkt Untergruppe	. . . in horizontal arrangement
F22D 1/08	2-Punkt Untergruppe	. . the tubes having fins, ribs, gills, corrugations, or the like on their outer surfaces, e.g. in vertical arrangement
F22D 1/10	3-Punkt Untergruppe	. . . in horizontal arrangement (hollow fire-bars, grates, or the like used as water tubes F23H 3/02)
F22D 1/12	2-Punkt Untergruppe	. . Control devices, e.g. for regulating steam temperature
F22D 1/14	2-Punkt Untergruppe	. . Safety or venting devices (safety devices for boilers in general F22B 37/42)
F22D 1/16	1-Punkt Untergruppe	. with water tubes arranged otherwise than in the boiler furnace, fire tubes, or flue ways
F22D 1/18	2-Punkt Untergruppe	. . and heated indirectly
F22D 1/20	2-Punkt Untergruppe	. . and directly connected to boilers
F22D 1/22	2-Punkt Untergruppe	. . and provided for rotary movement
F22D 1/24	1-Punkt Untergruppe	. with fire tubes or flue ways traversing feed-water vessels
F22D 1/26	1-Punkt Untergruppe	. with means, other than tubes, to separate water and heating medium, e.g. bulk heaters without internal flues or tubes, jacketted smoke-boxes or flues
F22D 1/28	1-Punkt Untergruppe	. for direct heat transfer, e.g. by mixing water and steam
F22D 1/30	2-Punkt Untergruppe	. . with stages, steps, baffles, dishes, circular troughs, or other means to cause interrupted or cascading fall of water
F22D 1/32	1-Punkt Untergruppe	. arranged to be heated by steam, e.g. bled from turbines
F22D 1/34	2-Punkt Untergruppe	. . and returning condensate to boiler with main feed supply
F22D 1/36	1-Punkt Untergruppe	. Water and air preheating systems
F22D 1/38	2-Punkt Untergruppe	. . Constructional features of water and air preheating systems
F22D 1/40	1-Punkt Untergruppe	. Combinations of exhaust-steam and smoke-gas preheaters (for locomotives F22D 1/42)

Symbol	Typ	Titel
F22D 1/42	1-Punkt Untergruppe	. specially adapted for locomotives
F22D 1/44	2-Punkt Untergruppe	. . Smoke-gas preheaters
F22D 1/46	2-Punkt Untergruppe	. . Exhaust-steam preheaters
F22D 1/48	2-Punkt Untergruppe	. . Details
F22D 1/50	1-Punkt Untergruppe	. incorporating thermal de-aeration of feed-water (de-aeration produced in the course of direct heat transfer F22D 1/28; thermal de-aeration of water per seB01D 19/00, C02F 1/20; valves for venting F16K 24/04) [3]
F22D 3/00	**Hauptgruppe**	**Accumulators for preheated water**
F22D 3/02	1-Punkt Untergruppe	. arranged within combustion chambers
F22D 3/04	1-Punkt Untergruppe	. combined with steam accumulators
F22D 3/06	1-Punkt Untergruppe	. directly connected to boilers
F22D 3/08	1-Punkt Untergruppe	. specially adapted for locomotives (locomotive boilers F22B 13/06)
F22D 3/10	2-Punkt Untergruppe	. . Control devices (controlling water feed to boilers, or water level F22D 5/00)
F22D 5/00	**Hauptgruppe**	**Controlling water feed or water level; Automatic water feeding or water-level regulators (steam traps F16T; measuring or indicating instruments G01; for indicating water level G01F; level control in general G05D 9/00)**
F22D 5/02	1-Punkt Untergruppe	. with an intermediate compartment from which the water is fed by gravity after mechanically moving the compartment, the movement being controlled according to water level
F22D 5/04	1-Punkt Untergruppe	. with pivoting buckets
F22D 5/06	1-Punkt Untergruppe	. with receptacles external to, but in free communication with, the boilers and adapted to move up and down in accordance with change in water level
F22D 5/08	1-Punkt Untergruppe	. with float-actuated valves
F22D 5/10	2-Punkt Untergruppe	. . and with pistons or membranes unitary with the feed inlet valves
F22D 5/12	2-Punkt Untergruppe	. . and with dipping tubes
F22D 5/14	1-Punkt Untergruppe	. responsive to thermal expansion and contraction, e.g. of solid elements
F22D 5/16	2-Punkt Untergruppe	. . of fluids
F22D 5/18	1-Punkt Untergruppe	. for varying the speed or delivery pressure of feed pumps
F22D 5/20	2-Punkt Untergruppe	. . without floats
F22D 5/22	2-Punkt Untergruppe	. . with floats
F22D 5/24	1-Punkt Untergruppe	. with electric switches
F22D 5/26	1-Punkt Untergruppe	. Automatic feed-control systems (automatic safety devices F22B 37/42; controlling in general G05)
F22D 5/28	2-Punkt Untergruppe	. . responsive to amount of steam withdrawn; responsive to steam pressure
F22D 5/30	2-Punkt Untergruppe	. . responsive to both water level and amount of steam withdrawn or steam pressure
F22D 5/32	2-Punkt Untergruppe	. . influencing the speed or delivery pressure of the feed pumps
F22D 5/34	2-Punkt Untergruppe	. . Applications of valves (valves per seF16K)

Symbol	Typ	Titel
F22D 5/36	2-Punkt Untergruppe	. . for feeding a number of steam boilers designed for different ranges of temperature and pressure
F22D 7/00	**Hauptgruppe**	**Auxiliary devices or apparatus for promoting water circulation**
F22D 7/02	1-Punkt Untergruppe	. Saddles or like directing plates fitted to furnace tubes
F22D 7/04	1-Punkt Untergruppe	. Injectors for water or steam
F22D 7/06	1-Punkt Untergruppe	. Rotary devices, e.g. propellers
F22D 7/08	2-Punkt Untergruppe	. . Arrangements of pumps, e.g. outside the boilers
F22D 7/10	3-Punkt Untergruppe	. . . within the boilers
F22D 7/12	1-Punkt Untergruppe	. Control devices
F22D 7/14	1-Punkt Untergruppe	. specially adapted for locomotive boilers
F22D 11/00	**Hauptgruppe**	**Feed-water supply not provided for in other main groups**
F22D 11/02	1-Punkt Untergruppe	. Arrangements of feed-water pumps (F22D 11/06 takes precedence; pumps per seF04)
F22D 11/04	2-Punkt Untergruppe	. . with means to eliminate steam formation
F22D 11/06	2-Punkt Untergruppe	. . for returning condensate to boiler