

13 Steam boilers for power generation, including accessories and steam lines

- 13a Steam boilers
 - 13b Water circulation in steam boilers, feed water preheating, mechanical treatment of feed water, boiler feed regulation, feed water storage
 - 13c Water level indicators, alarm and safety devices for steam boilers
 - 13d Steam pipes, steam drying and purification, steam superheating condensate exhaust lines
 - 13e Mechanical cleaning of boilers, boiler tubes and condensers for boiler scale, rust and sludge
 - 13f Fastening and sealing of tubes for steam boilers, preheaters and superheaters
 - 13g Special steam-generating processes, boiler firing by means of preheated materials, e.g. hot slag, liquid metals, etc., enclosed furnaces, e.g. with the flame acting directly upon the water
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13a Steam boilers (for heating 36; for special steam 14h-7)

Boiler structures in general

- 13a-1/10 Steam generating units (combined with engines 14h)
- 13a-1/20 Miscellaneous, large water chamber boilers
- 13a-1/30 Suspension and supports for boilers (24k; 37f)
- 13a-1/40 Boiler body structure (37f-3)
- 13a-1/50 Boiler casings, linings, brickwork (24k)
- 13a-1/60 Boiler flue structures (24k)

Cylinder and fire-tube boilers

Cylinder and fire-tube boilers without water tubes

- 13a-2/10 Cylinder boilers without water tubes
- 13a-2/20 Cylinder boilers without water tubes, combined with fire-tube boilers
- 13a-2/30 Fire-tube boilers without water tubes
- 13a-2/40 Fire-tube shapes

Fire-tube boilers with water tubes in the fire tube

- 13a-3/10 Fire-tube boilers with transverse water tubes in the fire tube
- 13a-3/20 Fire-tube boilers with longitudinal water tubes in the fire tube
- 13a-4 Cylinder and fire-tube boilers combined with water-tube boilers
- 13a-5 Cylinder and fire-tube boilers combined with multi-tubular boilers

Water-tube boilers

Vertical water-tube boilers

- 13a-6/10 Vertical cylinder boilers with radial water tubes
- 13a-6/20 Vertical fire-box boilers with water tubes

Vertical tube boilers

- 13a-7/10 with upper and lower drums connected by vertical tubes in circular banks
- 13a-7/11 with annular upper and lower drums

- 13a-7/12 with upper and lower drums connected by tubes in different banks
- 13a-7/20 with one upper and lower drum and straight, connecting tubes in rows
- 13a-7/21 with upper and lower drum pairs connected by straight tubes in rows
- 13a-7/22 with one upper and two or more lower drums and straight tubes, the lower drums not being connected
- 13a-7/23 with one upper drum and two or more lower drums and straight tubes, the lower drums being connected
- 13a-7/30 with two transverse upper drums one lower drum and straight tubes
- 13a-7/31 with longitudinal upper drum and straight tubes
- 13a-7/40 with one lower drum and more than two upper drums, Stirling boiler
- 13a-7/50 with curved tubes
- 13a-7/60 Miscellaneous non-specified vertical tube boilers
- 13a-8/10 Miscellaneous in vertical tube boilers
- 13a-8/11 Flue wall structures in vertical tube boilers (24k; 13a-15/20)
- 13a-8/12 Air preheating in vertical tube boilers (13b; 24k-4; 13a-15/10)
- 13a-8/13 Drums, particularly for high pressures (17g-3; 12g-2)
- 13a-8/14 Tube fastening and arrangement
- 13a-8/15 Drum protection
- 13a-8/16 Cooling of the furnace walls in vertical tube boilers (24k)
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- Water tube boilers with the following components suspended from the upper drum**
- 13a-9/10 "Field" tubes
- 13a-9/20 U-tubes
- 13a-9/30 "Field" tubes, tube shapes
- 13a-10/10 Sectional water-tube boilers with vertical tubes
- 13a-10/20 Water-tube boilers with vertical elements
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- Inclined-tube sectional boilers**
- 13a-11/10 with two flat headers
- 13a-11/11 with separate feed outlet
- 13a-11/20 with different inclined tubes
- 13a-11/21 with crossed tubes
- 13a-11/22 with angularly bent tubes
- 13a-11/30 with bent tubes
- 13a-12 Inclined-tube boilers with one flat header
- 13a-13 Inclined tube boilers with wide headers
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- Sectional chamber boilers**
- 13a-14/10 with horizontally divided headers
- 13a-14/11 with vertically divided headers
- 13a-14/12 with diversely divided headers
- 13a-14/20 Components for sectional chambers
- 13a-15/10 Preheating of combustion air in inclined tube boilers (13a-8/12; 13b; 24k)
- 13a-15/20 Wall structures for hot gas flues in inclined tube boilers (13a-8/11; 24k)
- 13a-15/30 Water chamber structures
- 13a-15/40 Miscellaneous sectional water-tube boilers
- 13a-15/50 Cleaning and manholes covers
- 13a-16 Inclined tube combined with vertical tube boilers
- 13a-17 Water-tube boilers with horizontal elements
- 13a-18 All-tube boilers (13g-1)
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- Coil-tube boilers with water supply (13g-1/01, 13g-1/06)**
- 13a-19/10 with spiral tubes

- 13a-19/20 with sinuous tubes
- 13a-19/30 with helical tubes
- 13a-20 Water-tube boilers with fire tubes passing through the water tubes
- Water-tube boilers combined with flue boilers
- 13a-21/10 with water and flue tubes
- 13a-21/20 with separate vertical water and flue tubes
- 13a-21/30 with separate horizontal water and flue tubes
- Flue boilers**
- Vertical flue boilers
- 13a-22/10 with vertical flues
- 13a-22/11 with return flues
- 13a-22/02 with horizontal flues
- 13a-22/30 Miscellaneous apparatus
- Locomotive boilers
- 13a-23/10 without water tubes
- 13a-23/20 with water tubes in fire box
- 13a-23/30 with water-tube fire box and longitudinal flue boiler
- 13a-23/31 with water-tube fire box and water-tube boiler
- 13a-23/32 with indirectly heated water-tube fire box
- 13a-23/40 Locomotive multiple-pressure boiler
- 13a-23/50 Miscellaneous locomotive boilers
- 13a-23/60 Locomobile boilers
- 13a-23/70 Structural details, reinforcement
- 13a-23/71 Elastic stay bolts
- 13a-23/72 Articulated stay bolts
- 13a-23/73 Miscellaneous stay bolts
- Marine-type flue boilers
- 13a-24/10 with fire tube, reversing chamber and heating tubes
- 13a-24/20 with returning flame, without water tubes
- 13a-24/30 with water tubes
- 13a-24/40 with double flame return
- 13a-24/50 Details
- Miscellaneous, not previously specified
- 13a-25/10 with intersecting heating tubes
- 13a-25/20 with horizontal flue tubes
- 13a-25/21 with horizontal return flues
- 13a-25/30 Miscellaneous
- Miscellaneous steam boilers**
- 13a-26 Steam boilers with two or more superposed water layers
- Steam boilers, pulverised-coal fired
- 13a-27/10 Vertical tube boiler, water-cooled pulverised-coal preliminary firing (13a-7; 13a-8)
- 13a-27/11 with pulverised-coal internal firing
- 13a-27/12 with pulverised-coal internal firing and tubes arranged in a ring
- 13a-27/20 Inclined-tube sectional chamber boilers water-cooled pulverised-coal preliminary firing (13a-11 – 13a-15)
- 13a-27/21 with coal-pulverised internal firing (13a-11 – 13a-15)
- 13a-27/30 Miscellaneous steam boilers, un-cooled pulverised-coal preliminary firing
- 13a-27/31 with water-cooled, pulverised-coal preliminary firing

- 13a-27/32 with pulverised-coal internal firing
- 13a-27/40 Miscellaneous
- 13a-28 Waste heat boilers
- 13a-29 Miscellaneous, previously non-specified, steam boilers

Steam boiler tubes

- 13a-30/10 Tube shapes
- 13a-30/02 Water tubes with inserted elements
- 13a-30/03 Flue tubes with inserted elements (24k)
- 13a-30/04 Protection of walls and tubes from burning (13a-8/06)

13b Water circulation in steam boilers, feed water preheating, mechanical treatment of feed water, boiler feed regulation, feed water storage

Devices for increasing the water circulation in steam boilers (for hot-water heating systems 36c-4/01 – 36c-4/03)

- 13b-1/01 by means of steam domes
- 13b-1/02 by means of circulation jackets and baffle plates
- 13b-1/03 by water or steam jet injection
- 13b-1/04 by means of pure mechanical devices, such as agitators, etc.
- 13b-1/05 by means of circulation pumps mounted within the boiler
- 13b-1/06 by means of circulation pumps installed outside of the boiler
- 13b-1/07 Circulation devices for locomotive boilers
- 13b-1/08 Regulating devices

Feed water preheaters

Flue gas preheaters with grouped water tubes

- 13b-2/01 with smooth vertical tubes
- 13b-2/02 with smooth horizontal tubes
- 13b-2/03 with vertical ribbed tubes
- 13b-2/04 with horizontal ribbed tubes
- 13b-2/05 Control devices
- 13b-2/06 Special preheater arrangements and flue gas guiding
- 13b-2/07 Safety and ventilation devices

Flue gas preheaters with water tubes of various shape

- 13b-3/01 Indirectly heated
- 13b-3/02 with circulation tubes
- 13b-3/03 Connected with boiler
- 13b-4 Feed water preheaters with flue gases circulating through heating tubes
- 13b-5 Tubeless feed water heaters in which water is isolated from the heating medium
- 13b-6 Preheaters with heating medium injected into water, mixed preheaters, excepting multiple stages, pans etc. (steam jet pumps 59c-11 – 59c-15)
- 13b-7 Mixed preheaters with multiple stages or pans and the like

Surface preheaters with heating tube

- 13b-8/01 Vertical surface preheaters
- 13b-8/02 Horizontal surface preheaters
- 13b-8/03 Control devices
- 13b-8/04 Structural details

Locomotive feed water preheaters

- 13b-9/01 Flue gas preheaters and operation
- 13b-9/02 Steam preheaters and operation

- 13b-9/03 Combined flue gas and steam preheaters and operation
13b-9/04 Special devices in locomotive preheaters
13b-10 Preheaters for intermediate or extraction steam bleeding (influencing the steam-extraction engine 14h-2)
Miscellaneous feed water preheaters
13b-11/01 Combined water and air preheaters (air preheaters 24k-4/01 – 24k-4/03)
13b-11/02 Arrangement of water and air preheaters
13b-11/03 Combined steam and flue gas preheaters
13b-11/04 Other types of feed water preheaters
- Mechanical feed-water treatment**
- Purely mechanical feed-water purifiers
13b-12/01 Filters and settling tanks (general purpose filters 12d)
13b-12/02 Oil separators for feed water (for steam 13d-30, 14g-8; recovery of oil and grease 23a-4)
13b-13 Feed-water treatment by heating
Feed-water treatment by evaporation and condensation, recovery of additional feed water (vaporisers directly connected with the power engine 14c-13/02)
13b-14/01 Recovery of additional feed water from waste steam
13b-14/02 Recovery of additional feed water from hot waste water
13b-14/03 Feed-water vaporiser structure types (vaporisers, general 12a-4; sea water evaporators 65f2-1)
De-aerating and degassing of feed water, also of additional water (degassing of consumption water 85b-1/20)
13b-15/01 Degasser structures and degassing processes
13b-15/02 Degassing in connection with the condenser
13b-16 Boiler water purification within the boiler
13b-17 Boiler water treatment by circulation with settling tanks, outside the boiler
13b-18 Purification of feed water and boiler element by electric processes (electrolysis 85b-1/30)
13b-19 Mechanical feed-water purifiers with devices for the addition of chemical substances (chemicals only 85b-1/35, 85b-1/36, 85b-1/40; mechanical water purification for general use 85b-1/01, 85b-2/01)
13b-20 Devices for the introduction of chemicals into the boiler (into water purifiers 85b-3/02, 85b-3/03)
13b-21 Feed-water treatment with addition of sludge-containing boiler water: regeneration processes
- Boiler feed control including feed-water storage** (regulators, in general 42q; 42r)
13b-22 Automatic float-control feeders and regulators
13b-23 Automatic float-control feeders and regulators for pressure pipes
13b-24 Float-control feeders and regulators with piston or diaphragm
13b-25 Condensation water return into the boiler (exhaust steam return into the boiler 14h-1/09; condensation water lift pumps 59c-3)
13b-26 Feed control without float, with standpipe or hand-controlled valves
13b-27 Feed control with float and standpipe, piston or diaphragm
13b-28 Feed regulators with control of pumping process, with float, without piston or diaphragm
13b-29 Feed-regulators with control of pumping process without float, with piston or diaphragm

- Feed-water pumps (piston pumps 59a-2; centrifugal pumps 59b; condensate pumps 14g-13)
- 13b-30/01 Structure of components, e.g. preventing steam generation
- 13b-30/02 Introduction of steam or condensate into the feed-water pump
- 13b-30/03 Feed pump drives
- 13b-30/04 Control, starting, and combined operation of feed-water pumps (electric devices for starting and regulating electric motors for pumps 21c-59/60, 21c-59/65)
- 13b-31 Boiler feeder with mechanically moved feed space
- 13b-32 Boiler feeder and feed regulators with oscillating containers
- 13b-33 Electric boiler feeder (remote water-level variation indicators 74b-1; control of electric motors according to water level, floats, 21c-59/33)
- Boiler feed regulators with expansion of solids
- 13b-34/01 with expansion tube water level
- 13b-34/02 with expansion tube mounted as above water level
- 13b-34/03 Other types of feed regulators with expansion tubes
- 13b-35 Boiler feed regulators with expansion of liquids
- Miscellaneous devices for boiler feeding
- 13b-36/01 Special boiler feed regulators
- 13b-36/02 Special boiler feed regulators with control of pump operation
- 13b-36/03 Boiler feed regulators responsive to steam pressure, water-level variations or steam extraction
- 13b-36/04 Safety and checking devices for feed regulators
- 13b-36/05 pressure-regulating devices for feed lines, pressure relief valves and check valves
- 13b-36/06 Feed of multi-pressure boilers
- 13b-36/07 Feed valves
- 13b-36/08 Miscellaneous devices for boiler feeding
- Feed water storage (constant-pressure accumulators and accumulators with steam extraction for equalising steam consumption variations in power plant 14h-3/01, 14h-3/02)
- 13b-37/01 Feed-water accumulators with steam preheaters
- 13b-37/02 Feed-water accumulators with flue gas preheaters
- 13b-37/03 Feed-water accumulators with steam and flue gas preheaters
- 13b-37/04 Feed-water accumulators for locomotives
- 13b-37/05 Accumulators directly connected with the boiler, boiler water accumulators (gravity accumulators for live steam 13g-3/05)
- 13b-37/06 Miscellaneous regulating devices for feed-water accumulators, such as water-level, intake and outlet regulators
- 13b-37/07 Other components of feed-water accumulators
- 13c Water level indicators, alarm and safety devices for steam boilers**
(liquid-level indicators, 42e-30 – 42e-36; remote water level variation 74b-1)
- Steam boiler water-level indicators and accessories**
- 13c-1 Water level indicators with self-closing ball valves
- 13c-2 Water level indicators with self-closing cocks
- 13c-3 Water level indicators with self-closing valves in the transverse passages
- 13c-4 Water level indicators with self-closing valves mounted coaxially with glass tube
- 13c-5 Cocks, valves and slide valves for water level indicators (47g)
- 13c-6 Fixing and waterproofing of glass tubes for water level indicators
- 13c-7 Optical display of water level in water level indicators
- 13c-8 Cleaning of water passages in water level indicators

- 13c-9 Float water level indicators (42e-31/01 – 42e-31/03; 74b-1)
- 13c-10 Protection devices for water level indicators
- 13c-11 Electric water level indicators (42e-31/02)
- 13c-12/01 Water level indicators with pressure variation measurement
- 13c-12/02 Water level indicators responsive to heat transfer variations in steam and water
- 13c-12/03 Water level indicators with provision for measuring and observing continuously escaping steam or water
- 13c-12/04 Water level indicators with oscillating container
- 13c-12/05 Miscellaneous water level indicators
- 13c-13 Miscellaneous devices for water level indicators

Alarm and safety devices for steam boilers, e.g. low water alarms (safety valves, general 47g-47)

- 13c-14 Test valves and cocks for steam boilers
- 13c-15 Magnetic low water alarms
- 13c-16 Float low water alarms
- 13c-17 Electric low water alarms
- 13c-18 Low water alarms responsive to expansion of solids or liquids
- 13c-19 Steam boiler safety devices with fusible plugs
- 13c-20 Fire-extinguishing steam-boiler safety devices
- 13c-21 Steam-boiler safety devices against excess pressure
- 13c-22 Steam-boiler safety devices against retardation of boiling
- 13c-23 Miscellaneous safety and checking devices for steam boilers (13b-36/04)
- 13c-24 Loading and lever arrangements for safety valves of steam boilers
- 13c-25 Overload protection for safety valves of steam boilers
- 13c-26 Piston or metal diaphragm steam-boiler safety devices
- 13c-27 Multiple-seat safety valves
- 13c-28 Steam-boiler safety valves with enlarged seat-area, high lift
- 13c-29 Miscellaneous safety valves for steam boilers
- 13c-30 Miscellaneous equipment for steam-boiler safety valves

13d Steam pipes, steam drying and purification, steam superheating condensate exhaust lines

- 13d-1 Steam pipe arrangements, general
- Steam superheaters**
- Tubular steam superheaters, general
- 13d-2/01 Structure and tubular components
- 13d-2/02 Structure and tubular components of "Field" type tubular superheaters
- Steam superheaters for locomotive and locomobile boilers
- 13d-3/01 Tubular components, tube joints
- 13d-3/02 Collecting chambers
- 13d-3/03 Fire-tube superheaters
- 13d-3/04 Superheaters in the smoke box
- 13d-3/05 Superheaters in the fire box
- 13d-3/06 Superheaters outside the boiler, and other arrangements
- 13d-3/07 Protection during engine shutdown
- Steam superheaters for marine boilers
- 13d-4/01 for fire-tube boilers
- 13d-4/02 for water-tube boilers
- 13d-5 Steam superheaters for multi-tubular boilers in general
- 13d-6 Steam superheaters for fire-tube boilers

- 13d-7/01 Steam superheaters for water-tube boilers for vertical tube boilers
- 13d-7/02 Steam superheaters for water-tube boilers for inclined tube boilers
- 13d-8 Steam superheaters separately fired
- 13d-9/01 Superheating by means of intermediate agents, including hot gases or exhaust gases
- 13d-9/02 Superheaters for pulverised coal firing
- 13d-9/03 Intermediate superheaters
- 13d-9/04 Special types of superheaters
- Miscellaneous devices for steam superheaters
- 13d-10/01 Suspensions and supports
- 13d-10/02 Heat accumulation in the tubes, tube inserts
- 13d-10/03 Anti-glow protection
- 13d-10/04 Steam saturation
- Control of steam superheating
- 13d-11/01 Injection of water
- 13d-11/02 Mixing of wet and superheated steam
- 13d-11/03 Surface coolers
- 13d-11/04 Movable superheaters
- 13d-11/05 Control by variation of the draft and of the direction of the flue gases
- 13d-11/06 Miscellaneous devices for regulation
- Steam traps**
- 13d-12 with expansion rods
- 13d-13 with expansion tubes
- 13d-14 with expansion liquid
- 13d-15 with pistons or diaphragms
- 13d-16 with closed floats and levers
- 13d-17 with closed floats without levers
- 13d-18 with open floats and levers
- 13d-19 with open floats without levers
- 13d-20 with belt floats
- 13d-21 with swinging container
- 13d-22 with baffle elements
- 13d-23 for low-pressure steam
- 13d-24 Miscellaneous steam traps
- 13d-25/01 Air separators
- 13d-25/02 Supervision appliances
- 13d-25/03 Ball valves
- Steam driers, purifiers and oil separators**
- 13d-26 Centrifugal and rotary steam driers
- 13d-27 Steam driers with baffle surfaces, screens, angle irons, steps, etc.
- 13d-28 Steam driers with steam deflection
- 13d-29 Miscellaneous steam driers, also valves with water separators (compressed-air separators 46d-5/07)
- 13d-30 Waste-steam oil separators (13b-12/02; 14g-8)
- 13d-31 Steam cleaners and purifiers
- 13e Mechanical cleaning of boilers, boiler tubes and condensers for boiler scale, rust and sludge** (soot removal 24g-4/01 – 24g-4/03; methods for preventing formation of boiler scale 13b; cleaning by

electrical methods 13b, 18; agents for prevention of boiler scale
85b-1/35, 85b-1/36, 85b-1/40)

- 13e-1 Tube cleaners for external cleaning
- 13e-2 Brushes for steam-boiler and tube cleaning (9b; 24g-4/02)
- Tube cleaners for internal cleaning (for conduits 85e-18)
- 13e-3/01 Push or pull rod type
- 13e-3/02 on ropes or chains drawn through the tubes
- 13e-3/03 with rotating cutter wheels
- 13e-3/04 with rotary boring tools, boring heads and spring blades
- 13e-3/05 with cages of wire or spring blades, pushed or rotary
- 13e-3/06 Devices and frames as well as miscellaneous accessories
- Tube cleaners with beaters for steam boiler tubes, also for condenser and preheater tubes (electrically and mechanically driven hand-hammer devices 87b-3/01 – 87b-3/05)
- 13e-4/01 Tube cleaners with swinging-out tools
- 13e-4/02 Tube beaters and hammers with compressed-air device
- Cleaning by means of bodies driven by compressed air, steam or water pressure (sand blast units 67b)
- 13e-5/01 Cleaners operated by water movements, e.g. chains, wire spirals, springs, friction bodies
- 13e-5/02 Cleaning by rinsing, blowing, spraying
- 13e-5/03 Cleaning by means of scrapers moved from outside
- 13e-5/04 Cleaning by burning out and freezing
- 13e-5/05 Cleaning of condensers during operation
- Blowing off and blowing down, washing out and scumming of boilers, preheaters, etc (scumming of boilers with cleaning and return 13b-17)
- 13e-6/01 Devices for the removal of sludge and scum
- 13e-6/02 Sludge and discharge valves
- 13e-6/03 Washing-out devices
- 13e-7 Miscellaneous devices for steam boiler and tube cleaning, also for the cleaning of the manhole covers and hatch covers (covers for cleaning openings and manholes 13a-15/50)
- 13e-8 Turbine drive for tube cleaners
- 13e-9 Devices for inspecting boiler cleaning
- 13f Fastening and sealing of tubes for steam boilers, preheaters and superheaters (tools 7c-20)**
- 13f-1/01 Tube beading
- 13f-1/03 Tube inserting with hydraulic or pneumatic tools
- 13f-1/05 Driving in of wedges, conical bushings
- 13f-1/06 Screw joints, stuffing boxes
- 13f-1/07 Fastening by means of flanges
- Closing of damaged tubes
- 13f-2/01 Closing by means of stoppers, covers, etc.
- 13f-2/02 Bilateral tube closures with the use of stays and pull-rods
- 13f-2/03 Automatic tube closure using valves, etc.
- 13f-3 Tube removing devices

13g Special steam-generating processes, boiler firing by means of preheated materials, e.g. hot slag, liquid metals, etc., enclosed furnaces, e.g. with the flame acting directly upon the water

- High-speed steam generators (13a-18)
- 13g-1/01 with coil tubes (13a-19)
 - 13g-1/02 with rotating drums
 - 13g-1/03 with narrow spaces and heat storage in thick walls
 - 13g-1/04 with water injection
 - 13g-1/05 with sprinkling
 - 13g-1/06 Miscellaneous high-speed steam generators (13a-18, 13a-19)
- Steam generation by means of hot, solid or molten materials, heating-gas accumulators
- 13g-2/01 Steam generation by means of slag (during pig-iron production 18a-9/02), coke (10a-17/01), iron ingots, etc.
 - 13g-2/02 Steam generation by means of liquid metals
 - 13g-2/03 Heating-gas accumulators
- Steam generation by means of hot liquids, vapours, gases or air
- 13g-3/01 Steam generation by means of waste heat (waste heat boilers 13a-28), air and hot gases (46d-14/02; 46e-10; 46f-5/02)
 - 13g-3/02 Steam generation by means of heat carriers functioning in a closed cycle
 - 13g-3/03 Steam generation by blowing steam into water
 - 13g-3/04 Steam generation by injecting water into steam
 - 13g-3/05 Heat accumulators for live steam directly connected to the steam boiler (feed water accumulator 13b-37/05; accumulators for equalising steam consumption variations in power plants 14h-3/01)
- Steam generation by water expansion
- 13g-4/01 Steam generation by water expansion
 - 13g-4/02 Steam generation by mechanical action
 - 13g-5 Steam generation by means of heated liquor (14h-1/10; 14h-8)
- Steam generation by means of enclosed furnaces
- 13g-6/01 Steam generation by means of a flame burning in the boiler (36e-2; 46d-7)
 - 13g-6/02 Steam generation by fuel explosion
 - 13g-6/03 Miscellaneous generators with enclosed furnaces
- 13g-7 Special methods of steam generation (46e-10)
 - 13g-8 Steam generation under critical pressure
 - 13g-9 Control and operation of steam generators (with firing process modification 24m)