

EUROPEAN PATENT OFFICE  
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1702

DATE: JANUARY 1, 2025

PROJECT RP12345

The following classification changes will be effected by this Notice of Changes:

<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
<b>SCHEME:</b>		
Symbols Deleted:	F22B	31/0076
Titles Changed:	F22B	SUBCLASS
	F22B	1/00, 1/003, 1/006, 1/021, 1/023, 1/026, 1/063, 1/066, 1/165, 1/18, 1/1876, 1/24, 1/26, 1/28
	F22B	3/04
	F22B	5/04
	F22B	7/18
	F22B	9/12
	F22B	13/00, 13/065
	F22B	17/00, 17/12, 17/14
	F22B	19/00
	F22B	21/02, 21/12
	F22B	23/06
	F22B	29/02, 29/06, 29/067, 29/08, 29/10
	F22B	31/00, 31/0007
	F22B	33/00, 33/08, 33/14
	F22B	35/00, 35/001, 35/008, 35/18
	F22B	37/00, 37/006, 37/008, 37/10, 37/104, 37/105, 37/107, 37/165, 37/20, 37/22, 37/221, 37/223, 37/24, 37/26, 37/34, 37/38, 37/40, 37/42, 37/44, 37/46, 37/47, 37/48, 37/486, 37/545, 37/64, 37/66, 37/68, 37/76, 37/78
Warnings Deleted:	F22B	SUBCLASS
<b>DEFINITIONS:</b>		
Definitions New:	F22B	1/003, 1/006, 1/021, 1/063, 1/066, 1/165, 1/18, 1/26, 1/28
	F22B	3/04
	F22B	5/04
	F22B	23/06
	F22B	29/02, 29/06, 29/067, 29/08, 29/10
	F22B	31/0007
	F22B	37/006, 37/008, 37/10, 37/104, 37/105, 37/107, 37/165, 37/20, 37/22, 37/221, 37/223, 37/24, 37/26, 37/34, 37/38, 37/40, 37/42, 37/44, 37/46, 37/47, 37/545, 37/64, 37/76, 37/78
Definitions Modified:	F22B	SUBCLASS
	F22B	1/00
	F22B	3/00
	F22B	5/00
	F22B	7/00

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<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
	F22B	9/00
	F22B	11/00
	F22B	13/00
	F22B	15/00
	F22B	17/00
	F22B	19/00
	F22B	21/00
	F22B	23/00
	F22B	25/00
	F22B	27/00
	F22B	29/00
	F22B	31/00
	F22B	33/00
	F22B	35/00
	F22B	37/00

**No other subclasses/groups are impacted by this Notice of Changes.**

**This Notice of Changes includes the following** *[Check the ones included]:*

1. CLASSIFICATION SCHEME CHANGES

- A. New, Modified or Deleted Group(s)
- B. New, Modified or Deleted Warning(s)
- C. New, Modified or Deleted Note(s)
- D. New, Modified or Deleted Guidance Heading(s)

2. DEFINITIONS

- A. New or Modified Definitions (Full definition template)
- B. Modified or Deleted Definitions (Definitions Quick Fix)

3.  REVISION CONCORDANCE LIST (RCL)

4.  CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

5.  CHANGES TO THE CROSS-REFERENCE LIST (CRL)

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1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

**SUBCLASS F22B - METHODS OF STEAM GENERATION; STEAM BOILERS**

<u>Type*</u>	<u>Symbol</u>	<u>Indent Level</u> <u>Number of</u> <u>dots (e.g. 0, 1,</u> <u>2)</u>	<u>Title</u> <u>“CPC only” text should normally be</u> <u>enclosed in {curly brackets}**</u>	<u>Transferred to#</u>
M	F22B	Subclass	METHODS OF STEAM GENERATION; STEAM BOILERS	
M	F22B1/00	0	Methods of steam generation characterised by form of heating method	
M	F22B1/003	1	{using combustion of hydrogen with oxygen }	
M	F22B1/006	1	{using solar heat }	
M	F22B1/021	2	{with heating tubes in which flows a non- specified heating fluid (for nuclear reactors F22B1/023)}	
M	F22B1/023	2	{with heating tubes for nuclear reactors, as long as they are not classified according to a specified heating fluid, in another group }	
M	F22B1/026	3	{with vertical tubes between two horizontal tube sheets }	
M	F22B1/063	3	{for metal cooled nuclear reactors }	
M	F22B1/066	4	{with double-wall tubes having a third fluid between these walls, e.g. helium for leak detection }	
M	F22B1/165	3	{using heat pipes }	
M	F22B1/18	2	the heat carrier being a hot gas, e.g. waste gas such as exhaust gas of internal- combustion engines	
M	F22B1/1876	4	{the hot gas being loaded with particles, e.g. dust }	
M	F22B1/24	2	Pressure-fired steam boilers, e.g. using turbo air compressors actuated by hot gases from boiler furnace	
M	F22B1/26	2	Steam boilers of submerged-flame type, i.e. the flame being surrounded by, or impinging on, the water to be vaporised	
M	F22B1/28	1	in boilers heated electrically	
U	F22B3/00	0	Other methods of steam generation; Steam boilers not provided for in other groups of this subclass	
M	F22B3/04	1	by drop in pressure of high-pressure hot water within pressure-reducing chambers, e.g. in accumulators	
M	F22B5/04	1	Component parts thereof; Accessories therefor	

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U	F22B7/00	0	Steam boilers of furnace-tube type, i.e. the combustion of fuel being performed inside one or more furnace tubes built-in in the boiler body	
M	F22B7/18	2	Walling of flues; Flue-gas header boxes	
U	F22B9/00	0	Steam boilers of fire-tube type, i.e. the flue gas from a combustion chamber outside the boiler body flowing through tubes built-in in the boiler body	
M	F22B9/12	2	the fire tubes being in substantially-horizontal arrangement	
M	F22B13/00	0	Steam boilers of fire-box type, i.e. boilers where both combustion chambers and subsequent flues or fire tubes are arranged within the boiler body	
M	F22B13/065	2	{Combination of low- and high-pressure locomotive boilers }	
U	F22B15/00	0	Water-tube boilers of horizontal type, i.e. the water-tube sets being arranged horizontally	
M	F22B17/00	0	Water-tube boilers of horizontally-inclined type, i.e. the water-tube sets being inclined slightly with respect to the horizontal plane	
M	F22B17/12	2	the sectional headers being in vertical or substantially-vertical arrangement	
M	F22B17/14	2	the sectional headers being in horizontal or substantially-horizontal arrangement	
M	F22B19/00	0	Water-tube boilers of combined horizontally-inclined type and vertical type, i.e. water-tube boilers of horizontally-inclined type having auxiliary water-tube sets in vertical or substantially-vertical arrangement	
M	F22B21/02	1	built-up from substantially-straight water tubes	
M	F22B21/12	2	involving two or more upper drums and two or more lower drums, e.g. with crosswise-arranged water-tube sets in a butting connection with drums	
U	F22B23/00	0	Water-tube boilers built-up from sets of spaced double-walled water tubes of return type in unilateral butting connection with a boiler drum or with a header box, i.e. built-up from Field water tubes comprising an inner tube arranged within an outer unilaterally-closed tube	
M	F22B23/06	1	Component parts thereof, e.g. Field water tubes	
M	F22B29/02	1	of forced-circulation type	
M	F22B29/06	1	of once-through type, i.e. built-up from tubes receiving water at one end and delivering superheated steam at the other end of the tubes (combined low- and high-pressure boilers of forced-flow type F22B33/16)	

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M	F22B29/067	2	{operating at critical or supercritical pressure}	
M	F22B29/08	2	operating with fixed point of final state of complete evaporation	
M	F22B29/10	2	operating with sliding point of final state of complete evaporation	
M	F22B31/00	0	Modifications of boiler construction, or of tube systems, dependent on installation of combustion apparatus; Arrangements or dispositions of combustion apparatus	
T	F22B31/0007	1	{with combustion in a fluidized bed}	
D	F22B31/0076	2	{Controlling processes for fluidized bed boilers not related to a particular type}	<administrative transfer to F22B31/0007 and F22B35/00 simultaneously>
M	F22B33/00	0	Steam-generation plants, e.g. comprising steam boilers of different types in mutual association	
M	F22B33/08	2	of boilers of water-tube type with boilers of fire-tube type	
M	F22B33/14	1	Combinations of low- and high-pressure boilers {(combination of low- and high-pressure locomotive boilers of fire-box type F22B13/065)}	
T	F22B35/00	0	Control systems for steam boilers (for regulating feed-water supply F22D5/00; for controlling superheat temperature F22G5/00)	
M	F22B35/001	1	{Controlling by flue-gas dampers (for superheaters F22G5/04)}	
M	F22B35/008	1	{Control systems for two or more steam generators (automatic water-feed control for a number of steam boilers designed for different ranges of temperature and pressure F22D5/36)}	
M	F22B35/18	1	Applications of computers to steam-boiler control	
M	F22B37/00	0	Component parts or details of steam boilers	
M	F22B37/006	2	{Walking equipment, e.g. walking platforms suspended at the tube sheet}	
M	F22B37/008	1	{Adaptations for flue-gas purification in steam generators}	
U	F22B37/06	2	Flue or fire tubes; Accessories therefor, e.g. fire-tube inserts	
M	F22B37/10	2	Water tubes; Accessories therefor	
M	F22B37/104	3	{Connection of tubes one with the other or with collectors, drums or distributors}	
M	F22B37/105	3	{Penetrations of tubes through a wall and their sealing}	
M	F22B37/107	3	{Protection of water tubes}	

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M	F22B37/165	4	{ Closures for access openings in return bends }	
M	F22B37/20	3	Supporting arrangements, e.g. for securing water-tube sets	
M	F22B37/22	2	Drums; Headers; Accessories therefor	
M	F22B37/221	3	{ Covers for drums, collectors, manholes or the like }	
M	F22B37/223	4	{ Boiler plugs, e.g. for handholes }	
M	F22B37/24	2	Supporting, suspending or setting arrangements, e.g. heat shielding	
M	F22B37/26	2	Steam-separating arrangements	
M	F22B37/34	2	Adaptations of boilers for promoting water circulation (auxiliary devices for promoting water circulation F22D7/00)	
M	F22B37/38	2	Determining or indicating operating conditions in steam boilers, e.g. monitoring direction or rate of water flow through water tubes	
M	F22B37/40	2	Arrangements of partition walls in flues of steam boilers, e.g. built-up from baffles	
M	F22B37/42	2	Applications, arrangements or dispositions of alarm or automatic safety devices (for feed-water heaters F22D1/14 {; emergency feed-water supply F22D11/003 }	
M	F22B37/44	3	of safety valves	
M	F22B37/46	3	responsive to low or high water level, e.g. for checking, suppressing or extinguishing combustion in boilers	
M	F22B37/47	3	responsive to abnormal temperature, e.g. actuated by fusible plugs	
M	F22B37/48	2	Devices or arrangements for removing water, minerals or sludge from boilers (cleaning water tubes, furnace tubes or the like of boilers F28G) {; Arrangement of cleaning apparatus in boilers; Combinations thereof with boilers }	
M	F22B37/486	3	{ Devices for removing water, minerals or sludge from boilers (F22B37/483, F22B37/50, F22B37/52 and F22B37/54 take precedence) }	
M	F22B37/545	4	{ Valves specially adapted therefor }	
M	F22B37/64	2	Mounting of, or supporting arrangements for, tube units	
M	F22B37/66	3	involving vertically-disposed water tubes { (F22B37/645 takes precedence) }	
M	F22B37/68	3	involving horizontally-disposed water tubes { (F22B37/645 takes precedence) }	
M	F22B37/76	1	Adaptations or mounting of devices for observing existence or direction of fluid flow	
M	F22B37/78	1	Adaptations or mounting of level indicators	

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\*N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; T = existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

#### NOTES:

- \*\*No {curly brackets } are used for titles in CPC only subclasses, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets } are used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).
- U groups: it is obligatory to display the required “anchor” symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups). Always include the symbol, indent level and title of the U group in the table above.
- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types.
- “Transferred to” column must be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.
- When multiple symbols are included in the “Transferred to” column, avoid using ranges of symbols in order to be as precise as possible.
- For administrative transfer of documents, the following text should be used: “<administrative transfer to XX>”, “<administrative transfer to XX and YY simultaneously>”, or “<administrative transfer to XX, YY, ...and ZZ simultaneously>” when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be “additional information”.
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations “ADD” or “INV”: <administrative transfer to XX ADD>, <administrative transfer to XX INV>, or <administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the “D” entries of 2000-series or Y-series groups may not require a destination (“Transferred to”) symbol, however it is required to specify “<no transfer>” in the “Transferred to” column for such cases.
- For finalization projects, the deleted “F” symbols should have <no transfer> in the “Transferred to” column.
- For more details about the types of scheme change, see CPC Guide.

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B. New, Modified or Deleted Warning notice(s)

**SUBCLASS F22B - METHODS OF STEAM GENERATION; STEAM BOILERS**

<u>Type*</u>	<u>Location</u>	<u>Old Warning notice</u>	<u>New/Modified Warning</u>
D	F22B	In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.	Delete entire Warning

\*N = new warning, M = modified warning, D = deleted warning

NOTE: The "Location" column only requires the symbol PRIOR to the location of the warning. No further directions such as "before" or "after" are required.



## 2. A. DEFINITIONS (new)

### F22B1/003

#### References

##### *Application-oriented references*

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Power plants using steam created by combustion of hydrogen with oxygen	F01K25/005
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### F22B1/006

#### References

##### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Devices for producing mechanical power from solar energy	F03G6/00
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### F22B1/021

#### References

##### *Limiting references*

*This place does not cover:*

Steam generation methods in nuclear reactors with heating tubes, as long as they are not classified according to a specified heating fluid, in another group	F22B1/023
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**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Heat carrier being a hot gas, e.g. waste gas such as exhaust gas of internal-combustion engines	<a href="#">F22B1/18</a>
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**F22B1/063****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Heat-exchange apparatus for nuclear applications	<a href="#">F28D2021/0054</a>
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**F22B1/066****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Double-wall pipes per se	<a href="#">F16L9/18</a>
Heat-exchange apparatus with double-wall conduits	<a href="#">F28D7/10</a>

**F22B1/165****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Heat-pipes per se	<a href="#">F28D15/02</a>
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**F22B1/18****References*****Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Engine plants with two or more engines with thermally coupled engine cycles driven by different fluids, in which combustion heat from the exhaust fluid of one cycle heats the fluid in another cycle	<a href="#">F01K23/10</a>
Using the waste heat of gas-turbine plants outside the plants themselves	<a href="#">F02C6/18</a>
Profiting from waste heat of combustion engines, not otherwise provided for	<a href="#">F02G5/00</a>

**F22B1/26****Definition statement**

*This place covers:*

Steam boilers of the submerged-flame type, i.e. the flame being surrounded by, or impinging on, the water to be vaporised, e.g. water in sprays.

**F22B1/28****References*****Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Steam superheating using an electrical heat source independent from heat supply of the steam boiler	<a href="#">F22G1/165</a>
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**F22B3/04**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Steam accumulators per se	<a href="#">F01K1/00</a>
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**F22B5/04**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Covers or similar closure members for pressure vessels in general	<a href="#">F16J13/00</a>
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**F22B23/06**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Heat-exchange tubes in general	<a href="#">F28F1/00</a>
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**F22B29/02**

**Definition statement**

*This place covers:*

Forced-flow steam boilers of forced-circulation, i.e. recirculation type.

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**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Forced-flow steam boilers of once-through type	<a href="#">F22B29/06</a>
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**F22B29/06**

**References**

***Limiting references***

*This place does not cover:*

Combinations of low- and high-pressure boilers of forced-flow type	<a href="#">F22B33/16</a>
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***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Forced-flow steam boilers of forced-circulation type	<a href="#">F22B29/02</a>
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**F22B29/067**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

With recirculation during normal operation	<a href="#">F22B29/026</a>
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**F22B29/08****References*****Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Evaporation or evaporation apparatus for physical or chemical purposes, e.g. evaporation of liquids for gas phase reactions	<a href="#">B01B1/005</a>
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**F22B29/10****References*****Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Evaporation or evaporation apparatus for physical or chemical purposes, e.g. evaporation of liquids for gas phase reactions	<a href="#">B01B1/005</a>
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**F22B31/0007****References*****Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Fluidised bed apparatus per se	<a href="#">B01J8/00</a>
Apparatus in which combustion takes place in a fluidised bed of fuel or other particles	<a href="#">F23C10/00</a>

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**F22B37/006****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Walking mechanism per se	<a href="#">B62D57/02</a>
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**F22B37/008****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Gas purification in general	<a href="#">B01D</a>
Flue gas purification in general	<a href="#">F23J</a>

**F22B37/10****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Working or processing of metal tubes	<a href="#">B21D</a>
Pipes in general	<a href="#">F16L</a>
Repairing leaks in water tubes	<a href="#">F16L55/16</a> , <a href="#">F28F11/00</a>
Removing solid combustion residues from passages or chambers beyond the fire	<a href="#">F23J3/00</a>
Baffles or deflectors formed as tubes in combustion chambers of water-tube boilers	<a href="#">F23M9/10</a>
Cleaning of internal or external surfaces of heat-exchange or heat-transfer conduits, e.g. water tubes of boilers	<a href="#">F28G</a>

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**F22B37/104**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Pipes, joints or fittings therefor, in general	F16L
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**F22B37/105**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Devices for use where pipes, cables or protective tubing pass through walls or partitions	F16L5/00
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**F22B37/107**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Protection of pipes against external or internal damage or wear in general	F16L57/00
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**F22B37/165**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Boiler plugs for drums or headers	<a href="#">F22B37/223</a>
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**F22B37/20**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Tube walls of combustion chambers	<a href="#">F23M5/08</a>
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**F22B37/22**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Making boilers from sheet metal	<a href="#">B21D51/24</a>
Pressure vessels in general	<a href="#">F16J12/00</a>
Covers or similar closure members for pressure vessels in general	<a href="#">F16J13/00</a>

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**F22B37/221**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Covers or similar closure members for pressure vessels in general	<a href="#">F16J13/00</a>
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**F22B37/223**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Closures for access openings in return bends	<a href="#">F22B37/165</a>
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**F22B37/24**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Frames, casings or beds of engines, machines or apparatus	<a href="#">F16M</a>
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**F22B37/26****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Separating dispersed particles from gases or vapours by gravity, inertia or centrifugal forces	B01D45/00
Apparatus using free vortex flow, e.g. cyclones, in general	B04C

**F22B37/34****References****Limiting references***This place does not cover:*

Auxiliary devices for promoting water circulation	F22D7/00
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**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Thermosiphons for steam boilers of the fire-box type	F22B13/145
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**F22B37/38****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Measuring volume, volume flow, mass flow or liquid level in general	G01F
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**F22B37/40**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Fittings for chimneys or flues of combustion apparatus	<a href="#">F23J13/00</a>
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**F22B37/42**

**References**

***Limiting references***

*This place does not cover:*

Safety devices for feed-water heaters	<a href="#">F22D1/14</a>
Emergency feed-water supply	<a href="#">F22D11/003</a>

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Fire-fighting in general	<a href="#">A62C</a>
Fire-extinguishing compositions; Use of chemical substances in extinguishing fires	<a href="#">A62D1/00</a>
Alarms responsive to undesired or abnormal conditions in general	<a href="#">G08B17/00</a> - <a href="#">G08B23/00</a>

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**F22B37/44**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Safety valves per se	F16K17/00
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**F22B37/46**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Fire-fighting, fire extinction in general	A62
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**F22B37/47**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Alarms or devices responsive to abnormal temperature per se	G08B
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**F22B37/545**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Valves in general	F16K
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**F22B37/64**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Tube walls of combustion chambers	F23M5/08
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**F22B37/76**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Measuring speed of fluids in general	G01P5/00
Indicating or recording presence or direction of movement in general	G01P13/00

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**F22B37/78**

**References**

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Level indicators per se	<a href="#">G01F23/00</a>
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**2. A. DEFINITIONS (modified)**

**F22B**

**References**

Insert: The following new Application-oriented references section.

***Application-oriented references***

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Steam engine plants	F01K
Domestic central-heating systems using steam	F24D1/00, F24D9/02

Replace: The existing Informative references table with the following updated table.

***Informative references***

Cooking vessels	A47J27/00
Apparatus for making beverages	A47J31/00
Baking; Roasting; Grilling; Frying	A47J37/00
Machines for cleaning floors, carpets, furniture, walls or wall coverings with arrangements for steam generation	A47L11/4086
Bathing devices for special therapeutic or hygienic purposes	A61H33/00
Chemical or physical apparatus for generating gases	B01J
Cleaning by methods involving the use or presence of liquid steam	B08B3/00
Washing machines with steam generation	D06F39/40
Hand irons	D06F75/00
Reciprocating piston steam engines	F01B17/04
Removal or treatment of combustion products or combustion residues, e.g. cleaning furnace tubes	F23J, F23J3/02
Generating combustion products of high pressure or high velocity	F23R
Water heaters not for steam generation	F24H
Heat exchange or heat transfer in general	F28
Cleaning of internal or external surfaces of heat-transfer conduits, e.g. water tubes of boilers	F28G
Nuclear power plant	G21D



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Replace: The existing Glossary of terms table with the following updated table.

### **Glossary of terms**

*In this place, the following terms or expressions are used with the meaning indicated:*

once-through boiler	type of boiler in which water is input at one side, and steam is extracted from the other side of the flow path
forced-flow boiler	type of boiler in which a pump ensures flow
forced-once-through boiler	combination of a once-through and a forced-flow boiler (a pump ensures flow of a boiler in which water is input at one side, and steam is extracted from the other side of the flow path)
forced-circulation boiler	type of boiler in which recirculation is achieved by a circulation pump
natural-circulation boiler	type of boiler in which the circulation is achieved by the difference in density of the heated water in the boiler causing convection currents

### **F22B1/00**

Replace: The existing Definition statement with the following updated statement.

### **Definition statement**

Methods of steam generation

- using combustion of hydrogen with oxygen,
- using solar heat,
- by the exploitation of the heat content of hot heat carriers, for example, the heat carrier being hot slag, hot residues or heated blocks of the heat carrier being molten like a molten metal, the heat carrier being hot liquid or hot vapour (i.e. steam), the heat carrier being a hot gas (i.e. waste gas or exhaust gas),
- using heat evolved in a solution absorbing steam, for example soda steam boilers,
- using combustion under pressure substantially exceeding atmospheric pressure,
- boilers heated electrically.

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Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

Jackets or other cooling means in which steam is generated, and which serve for cooling other apparatus, are classified in the places for that apparatus.

Use of waste heat of combustion engines, in general, is classified in [F02G](#), solar heat collectors per se in [F24S](#), heat pipes in [F28D15/02](#). When steam is produced and explicitly mentioned as being superheated steam, [F22G](#) should be consulted.

**References**

Delete: The entire Limiting references section.

Insert: The following new Application-oriented references section.

**Application-oriented references**

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Steam power plants using electrical heat	<a href="#">F01K3/186</a>
Power plants using steam created by combustion of hydrogen with oxygen	<a href="#">F01K25/005</a>

Replace: The existing Informative references table with the following updated table.

**Informative references**

Methods involving the use of working media other than water, drop in pressure and transforming mechanical energy into heat energy	<a href="#">F22B3/00</a>
Methods of steam generation at critical or supercritical pressure values	<a href="#">F22B3/08</a>
Devices for producing mechanical power from solar energy	<a href="#">F03G6/00</a>
Solar power plants	<a href="#">F03G6/02</a>
Superheating of steam	<a href="#">F22G</a>
Superheating using an electrical heat source independent from heat supply of the steam boiler	<a href="#">F22G1/165</a>

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Solar heat collectors; Solar heat systems, e.g. use of solar heat	F24S
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## F22B3/00

Replace: The existing Definition statement with the following updated statement.

### Definition statement

Steam generation and steam boilers involving working media other than water, steam generation by drop in pressure of high-pressure hot water within pressure reducing chambers, by transformation of mechanical (kinetic) energy into heat energy and steam generation at critical or supercritical pressure values.

Insert: A period at the end of the current Relationships text, so that the updated text appears as follows.

### Relationships with other classification places

Methods for superheating steam are classified in [F22G](#).

### References

Delete: The entire Limiting references section.

Insert: The following new Application-oriented references section.

### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Steam engine plants characterised by the use of special working fluids	F01K25/00
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Delete: The entire Informative references section.

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**F22B5/00**

Replace: In the third sentence of the Definition statement, the phrase “The group” with “This place”, so that the updated Definition statement appears as follows.

**Definition statement**

Steam boilers containing a closed vessel designed to withstand internal pressure for generating steam. The drum is contacted externally by flue gases. This place also covers old documents (state of the art, which basis is not up to date, for example basic techniques used at the beginning of the 19th century) with big rotating drums, documents with auxiliary water tubes outside the boiler body and components and accessories of the drum.

Delete: The entire Relationships section.

**References**

Replace: The existing Informative references table with the following updated table.

**Informative references**

Instantaneous boiler with rotating heat exchange elements	<a href="#">F22B27/12</a>
Steam generation plants with a boiler of furnace-tube type and a boiler of water-tube type	<a href="#">F22B33/04</a>
Covers or similar closure members for pressure vessels in general	<a href="#">F16J13/00</a>

**F22B7/00**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Boilers in which combustion of fuel is performed inside one or more furnace-tubes running through a sealed container of water. Combustion heat is transferred through the walls of the tubes by thermal conduction, thereby heating water and creating steam. This place also covers steam boilers of furnace-tube type with auxiliary water tubes inside the furnace tube and outside the boiler body, with auxiliary fire tubes and component parts of the boiler, for example walling of flues.

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Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

The following types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).
- Steam boilers of water-tube type are classified in [F22B15/00](#), [F22B17/00](#), [F22B19/00](#) and [F22B23/00](#).

**References**

Delete: The entire Limiting references section.

Insert: The following new row into the existing Informative references table.

**Informative references**

Flue or fire tubes; Accessories therefor, e.g. fire-tube inserts	<a href="#">F22B37/06</a>
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**F22B9/00**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Boilers in which hot flue gases from a combustion chamber outside the boiler body, said body being a sealed container, are channelled through tubes built-in the boiler body that are surrounded by the fluid to be heated. Heat of the gases is transferred through the walls of the tubes by thermal conduction, heating the water and creating steam. This place also covers arrangements of the fire tubes and the boiler as well as components of the boiler itself.

Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

The following types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).
- Steam boilers of water-tube type are classified in [F22B15/00](#), [F22B17/00](#), [F22B19/00](#) and [F22B23/00](#).

**References**

Delete: The entire Limiting references section.

Replace: The existing Informative references table with the following updated table.

**Informative references**

Methods of steam generation with heating tubes in which flows a non-specified heating fluid	<a href="#">F22B1/021</a>
Methods of steam generation with hit gas heating tube boilers with one or more heating tubes	<a href="#">F22B1/1884</a>
Steam generation plants comprising boilers of furnace-tube type in mutual association with a boiler of fire-tube type	<a href="#">F22B33/06</a>
Steam generation plants comprising boilers of water-tube type in mutual association with a boiler of fire-tube type	<a href="#">F22B33/08</a>
Flue or fire tubes; Accessories therefor, e.g. fire-tube inserts	<a href="#">F22B37/06</a>

**[F22B11/00](#)**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

All combinations of the steam boilers of fire-tube type with steam boilers of water-tube type consisting of a fire-tube boiler with auxiliary water tubes or a water-tube

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boiler having auxiliary fire tubes in a water or steam containing vessel. This place also covers boilers with fire tubes being in upright and horizontal arrangement.

Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

The following types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).
- Steam boilers of water-tube type are classified in [F22B15/00](#), [F22B17/00](#), [F22B19/00](#) and [F22B23/00](#).

**References**

Replace: The existing Informative references table with the following updated table.

**Informative references**

Steam boilers of drum type with auxiliary water tubes outside the boiler body	<a href="#">F22B5/02</a>
Steam boilers of furnace-type with auxiliary water tubes	<a href="#">F22B7/04</a>
Steam boilers of furnace-type with auxiliary fire tubes	<a href="#">F22B7/12</a>
Steam boilers of furnace-type with auxiliary fire tubes and auxiliary water tubes	<a href="#">F22B7/14</a>
Steam boilers of fire-box type with flues other than fire tubes and with auxiliary water tubes inside the fire box	<a href="#">F22B13/023</a>
Steam boilers of fire-box type with auxiliary water tubes inside the fire box	<a href="#">F22B13/10</a>

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## **F22B13/00**

Replace: The existing Definition statement with the following updated statement.

### **Definition statement**

Boilers in which combustion of fuel is performed inside a chamber called a fire box, including fire tubes or flues attached to the wall of the fire-box that carry the hot gaseous products of combustion through the boiler water, heating it, before the gaseous products escape to the atmosphere. Both the fire-box and fire tubes are built-in in the boiler body. This place covers locomotive boilers, fire-box boiler with flues other than fire tubes and component parts of said boilers.

Replace: The existing Relationships text with the following updated text.

### **Relationships with other classification places**

The following types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of water-tube type are classified in [F22B15/00](#), [F22B17/00](#), [F22B19/00](#) and [F22B23/00](#).

### **References**

Delete: The entire Limiting references section.

Insert: The following new row into the existing Informative references table.

### **Informative references**

Flue or fire tubes; Accessories therefor, e.g. fire-tube inserts	<a href="#">F22B37/06</a>
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**F22B15/00**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Details and constructional features of water-tube boilers in which water circulates in tubes heated externally and characterised by strictly horizontal arranged water tubes or water tube walls.

Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

The following other types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).

**References**

Delete: The entire Limiting references section.

Replace: The existing Informative references table with the following updated table.

**Informative references**

Water-tube boilers of horizontally-inclined type, i.e. the water-tube sets being inclined slightly with respect to the horizontal plane	<a href="#">F22B17/00</a>
Water-tube boilers of combined horizontally-inclined type and vertical type, i.e. water-tube boilers of horizontally-inclined type having auxiliary water-tube sets in vertical or substantially-vertical arrangement	<a href="#">F22B19/00</a>
Water-tube boilers of vertical or steeply-inclined type, i.e. the water-tube sets being arranged vertically or substantially vertically	<a href="#">F22B21/00</a>
Water-tube boilers built up from sets of spaced double-walled water tubes	<a href="#">F22B23/00</a>

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Water-tube boilers built up from sets of water tubes with internally-arranged flue tubes or fire tubes	F22B25/00
Fluid heaters with water tube or tubes	F24H1/40

**F22B17/00**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Details, constructional features and component parts of water-tube boilers in which water circulates in tubes heated externally and characterised by horizontally-inclined water tubes or water tube walls.

Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

If the water-tube sets are inclined horizontally, then group [F22B15/00](#) should be considered.

The following other types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).

**References**

Delete: The entire Limiting references section.

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Replace: The existing Informative references table with the following updated table.

### **Informative references**

Water-tube boilers of horizontal type, i.e. the water-tube sets being arranged horizontally	<a href="#">F22B15/00</a>
Water-tube boilers of combined horizontally-inclined type and vertical type, i.e. water-tube boilers of horizontally-inclined type having auxiliary water-tube sets in vertical or substantially-vertical arrangement	<a href="#">F22B19/00</a>
Water-tube boilers of vertical or steeply-inclined type, i.e. the water-tube sets being arranged vertically or substantially vertically	<a href="#">F22B21/00</a>
Water-tube boilers built up from sets of spaced double-walled water tubes	<a href="#">F22B23/00</a>
Water-tube boilers built up from sets of water tubes with internally-arranged flue tubes or fire tubes	<a href="#">F22B25/00</a>
Fluid heaters with water tube or tubes	<a href="#">F24H1/40</a>

### **F22B19/00**

Replace: The existing Definition statement with the following updated statement.

### **Definition statement**

Details, constructional features and component parts of water-tube boilers in which water circulates in tubes heated externally and characterised by horizontally inclined water-tube sets being connected to or having also an auxiliary water-tube set with vertical or substantially vertical water tubes.

Replace: The existing Relationships text with the following updated text.

### **Relationships with other classification places**

The following other types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).

**References**

Replace: The existing Informative references table with the following updated table.

**Informative references**

Water-tube boilers of horizontal type, i.e. the water-tube sets being arranged horizontally	<a href="#">F22B15/00</a>
Water-tube boilers of horizontally-inclined type, i.e. the water-tube sets being inclined slightly with respect to the horizontal plane	<a href="#">F22B17/00</a>
Water-tube boilers of vertical or steeply-inclined type, i.e. the water-tube sets being arranged vertically or substantially vertically	<a href="#">F22B21/00</a>
Water-tube boilers built up from sets of spaced double-walled water tubes	<a href="#">F22B23/00</a>
Water-tube boilers built up from sets of water tubes with internally-arranged flue tubes or fire tubes	<a href="#">F22B25/00</a>
Fluid heaters with water tube or tubes	<a href="#">F24H1/40</a>

**[F22B21/00](#)**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Details, constructional features and component parts of water-tube boilers in which water circulates in tubes heated externally and characterised by vertically or substantially vertically water tubes or water tube walls. This place covers straight water tubes and serpentine, helical bent in U-loop or spirally formed water tubes disposed vertically.

Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

The following other types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).

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- Steam boilers of fire-box type are classified in [F22B13/00](#).

**References**

Replace: The existing Informative references table with the following updated table.

**Informative references**

Water-tube boilers of horizontal type, i.e. the water-tube sets being arranged horizontally	<a href="#">F22B15/00</a>
Water-tube boilers of horizontally-inclined type, i.e. the water-tube sets being inclined slightly with respect to the horizontal plane	<a href="#">F22B17/00</a>
Water-tube boilers of combined horizontally-inclined type and vertical type, i.e. water-tube boilers of horizontally-inclined type having auxiliary water-tube sets in vertical or substantially-vertical arrangement	<a href="#">F22B19/00</a>
Water-tube boilers built up from sets of spaced double-walled water tubes	<a href="#">F22B23/00</a>
Water-tube boilers built up from sets of water tubes with internally-arranged flue tubes or fire tubes	<a href="#">F22B25/00</a>
Fluid heaters with water tube or tubes	<a href="#">F24H1/40</a>

**[F22B23/00](#)**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Details, constructional features and component parts of water-tube boilers in which water circulates in tubes heated externally and characterised by sets of spaced double-walled water tubes of return type in unilateral abutting connection with a boiler drum or with a header box forming for example an annular flow.

Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

The following other types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).

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- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).

**References**

Replace: The existing Informative references table with the following updated table.

**Informative references**

Water-tube boilers of horizontal type, i.e. the water-tube sets being arranged horizontally	<a href="#">F22B15/00</a>
Water-tube boilers of horizontally-inclined type, i.e. the water-tube sets being inclined slightly with respect to the horizontal plane	<a href="#">F22B17/00</a>
Water-tube boilers of combined horizontally-inclined type and vertical type, i.e. water-tube boilers of horizontally-inclined type having auxiliary water-tube sets in vertical or substantially-vertical arrangement	<a href="#">F22B19/00</a>
Water-tube boilers of vertical or steeply-inclined type, i.e. the water-tube sets being arranged vertically or substantially vertically	<a href="#">F22B21/00</a>
Water-tube boilers built up from sets of water tubes with internally-arranged flue tubes or fire tubes	<a href="#">F22B25/00</a>
Steam superheaters with steam tubes with steam flowing in opposite directions in one pipe	<a href="#">F22G3/004</a>
Steam superheaters with annular steam tubes, i.e. the steam being heated between concentric tubes with the heating fluid flowing in inner and around tube	<a href="#">F22G3/005</a>
Fluid heaters with water tube or tubes	<a href="#">F24H1/40</a>

**[F22B25/00](#)**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Details, constructional features and component parts of water-tube boilers in which water circulates in tubes heated externally and characterised by sets of water tubes with internally arranged flue tubes or fire tubes forming thereby an annular flow of the water to be evaporated.

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Replace: The existing Relationships text with the following updated text.

### **Relationships with other classification places**

The following other types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).

### **References**

Replace: The existing Informative references table with the following updated table.

#### **Informative references**

Water-tube boilers of horizontal type, i.e. the water-tube sets being arranged horizontally	<a href="#">F22B15/00</a>
Water-tube boilers of horizontally-inclined type, i.e. the water-tube sets being inclined slightly with respect to the horizontal plane	<a href="#">F22B17/00</a>
Water-tube boilers of combined horizontally-inclined type and vertical type, i.e. water-tube boilers of horizontally-inclined type having auxiliary water-tube sets in vertical or substantially-vertical arrangement	<a href="#">F22B19/00</a>
Water-tube boilers of vertical or steeply-inclined type, i.e. the water-tube sets being arranged vertically or substantially vertically	<a href="#">F22B21/00</a>
Water-tube boilers built up from sets of spaced double-walled water tubes	<a href="#">F22B23/00</a>
Steam superheaters with steam tubes with steam flowing in opposite directions in one pipe	<a href="#">F22G3/004</a>
Steam superheaters with steam tubes with annular steam tubes	<a href="#">F22G3/005</a>
Fluid heaters with water tube or tubes	<a href="#">F24H1/40</a>

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**F22B27/00**

Replace: In the second sentence of the Definition statement, “The group” with “This place”, so that the updated statement appears as follows.

**Definition statement**

All steam generators and steam generation methods with an instant steam generation process including flash steam boilers. This place covers instantaneous steam boilers built up from fire tubes, from water tubes, from rotary heat-exchange elements or from heat-exchange elements arranged within a confined chamber having heat retaining walls and steam boilers with spray nozzles for sprinkling or injecting water particles on to or into hot heat-exchange elements.

**References**

Insert: The following new Application-oriented references section.

**Application-oriented references**

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Steam engine plants with steam generation in engine-cylinders	<a href="#">F01K21/02</a>
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Replace: The existing Informative references table with the following updated table.

**Informative references**

Steam generation using heat accumulators	<a href="#">F22B1/028</a>
Steam boilers heated electrically with water in sprays or in films	<a href="#">F22B1/287</a>
Instantaneous electrical steam generators built up from heat exchange elements arranged within a confined chamber having heat retaining walls	<a href="#">F22B1/288</a>
Steam boiler of drum type with rotating drums	<a href="#">F22B5/005</a>
Water-tube boiler of vertical type with water tubes bent in serpentine or sinuous form	<a href="#">F22B21/24</a>
Water-tube boiler of vertical type with water tubes bent helically	<a href="#">F22B21/26</a>
Water-tube boiler of vertical type with water tubes bent spirally	<a href="#">F22B21/28</a>
Control systems for instantaneous steam generators	<a href="#">F22B35/005</a>



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Component parts or details of steam boilers specially adapted for steam boilers of instantaneous or flash type	F22B37/60
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## F22B29/00

Replace: The existing Definition statement with the following updated statement.

### Definition statement

Steam boilers in which means are provided, such as a pump, in order to ensure the flow of the working medium. This place covers details, component parts and arrangements of steam boilers of forced-circulation type, steam boilers of combination type in which natural flow (convection circulation) is promoted by additional measures and boilers of once-through type in which flow is forced (forced once through boilers).

Replace: The existing Relationships text with the following updated text.

### Relationships with other classification places

Water-tube boilers of horizontal type (F22B15/00) are normally steam boilers of forced-flow type and Water-tube boilers of vertical type (F22B21/00) are normally boilers of natural convection type.

### References

Insert: The following new Application-oriented references section.

### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Steam plants with engines using steam of critical or overcritical pressure	F01K7/32
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Replace: The existing Informative references table with the following updated table.

**Informative references**

Steam generation at critical or supercritical pressure values	F22B3/08
Water-tube boilers of vertical type with water tubes bent helically	F22B21/26
Water-tube boilers of vertical type with water tubes bent spirally	F22B21/28
Steam boilers built up from water tubes surrounding the combustion chamber (radiation boilers)	F22B21/34
Steam-generation plants with combinations of boilers having a single combustor in common	F22B33/00
Control systems of steam boilers with natural convection circulation	F22B35/02
Supply means for steam boilers with vertically and horizontally or helically disposed water tubes	F22B37/141, F22B37/142
Details and component parts specially adapted for boilers of forced-flow type	F22B37/62
Details of boilers of forced-flow type with vertically disposed water tubes	F22B37/66
Details of boilers of forced-flow type with horizontally disposed water tubes	F22B37/68
Devices for promoting water circulation in preheaters by injecting water or steam	F22D7/04

Delete: The entire Special rules section.

Replace: The existing Glossary of terms table with the following updated table.

**Glossary of terms**

once-through boiler	type of boiler in which water is input at one side, and steam is extracted from the other side of the flow path
forced-flow boiler	type of boiler in which a pump ensures flow
forced-once-through boiler	combination of a once-through and a forced-flow boiler (a pump ensures flow of a boiler in which water is input at one side, and steam is extracted from the other side of the flow path)
forced-circulation boiler	type of boiler in which recirculation is achieved by a circulation pump
natural-circulation boiler	type of boiler in which the circulation is achieved by the difference in density of the heated water in the boiler causing convection currents

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**F22B31/00**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Modifications of boiler construction or of tube systems dependent on the installation of combustion apparatus, for example:

- boilers with combustion in a fluidized bed (boilers of water-tube type, constructional features of bed cooling, control systems thereof, details concerning the recirculation of the fluidized bed particles),
- installation of water-tube boilers in chimneys,
- heat supply by installation of two or more combustion apparatus, and
- installations of heat exchangers in boilers for heating air supplied for combustion.

**References**

Insert: The following new Application-oriented references section.

**Application-oriented references**

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Steam engine plants having heaters using heat from a specified chemical reaction	<a href="#">F01K3/188</a>
Steam engine plants having heaters with heating by separately fired heaters	<a href="#">F01K3/24</a>
Plants in which combustion heat from one cycle is heating the fluid in the other cycle and where the combustion is performed in a fluidised bed	<a href="#">F01K23/061</a>

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Replace: The existing Informative references table with the following updated table.

**Informative references**

Steam generation characterised by heating method	F22B1/00
Waste heat boiler with supplementary firing, the hot gas being loaded with particles	F22B1/1876
Feed water heaters with water and air preheating systems	F22D1/36
Steam superheaters using heat generated by chemical reactions	F22G1/14
Combustion apparatus per se	F23
Heating of air supplied for combustion	F23L15/00
Heat exchange apparatus using a fluidised bed	F28D13/00

**F22B33/00**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Steam generation plants in the meaning of devices for the generation of steam with other apparatus in mutual association with the steam boilers. Steam boilers of different types in mutual association having a single combustion apparatus in common, e.g. combinations of:

- boilers of furnace-tube type with boilers of water-tube type,
- boilers of furnace-tube type with boilers of fire-tube type,
- boilers of water-tube type with boilers of fire-tube type,
- two or more superposed boilers,

self-contained boilers comprising as a unit the steam boiler, the combustor and fuel storage accessory machines,

combinations of low- and high-pressure boilers, and

combinations of steam boilers with other apparatus, like a condenser, a chemical reactor or other are also covered.

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Replace: The existing Relationships text with the following updated text.

**Relationships with other classification places**

Steam engine plants related to the thermodynamic cycle and focused in power generation are classified in [F01K](#).

The following types of steam boilers are covered by the following classification places:

- Steam boilers of drum type are classified in [F22B5/00](#).
- Steam boilers of furnace-tube type are classified in [F22B7/00](#).
- Steam boilers of fire-tube type are classified in [F22B9/00](#).
- Steam boilers of combined fire-tube type and water-tube type are classified in [F22B11/00](#).
- Steam boilers of fire-box type are classified in [F22B13/00](#).
- Steam boilers of water-tube type are classified in [F22B15/00](#), [F22B17/00](#), [F22B19/00](#) and [F22B23/00](#).

**References**

Insert: The following new Application-oriented references section.

**Application-oriented references**

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Arrangements or dispositions of steam-generation plants in marine vessels	<a href="#">B63H21/00</a>
Steam engine plants having separately fired heaters delivering steam to a common mains	<a href="#">F01K3/242</a>
Steam engine plants having separately fired heaters delivering steam at different pressure levels	<a href="#">F01K3/245</a>

Replace: The existing Informative references table with the following updated table.

**Informative references**

Steam boilers of fire-box type with combinations of low- and high-pressure locomotive boilers	<a href="#">F22B13/065</a>
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Replace: The existing Special rules text with the following updated text.

**Special rules of classification**

Documents which contain a boiler of combined water-tube and fire-tube type should be classified in [F22B11/00](#). Subgroup [F22B33/08](#) covers steam generation plants comprising several boilers having a single combustion apparatus in common where at least one boiler is a boiler of water-tube type and at least another is a boiler of fire-tube type.

**F22B35/00**

Replace: The existing Definition statement with the following updated statement.

**Definition statement**

Control system of steam boilers in general, for example, control by flue gas dampers, control by recirculating flue gases, control systems for steam generators of nuclear power plants, control systems for instantaneous steam boilers, control systems for waste heat boilers, control systems for two or more steam generators, control systems for steam boilers with natural convection circulation and control systems for steam boilers of forced-flow type.

Delete: The entire Relationships section.

**References**

Insert: The following new Limiting references section.

**Limiting references**

*This place does not cover:*

Controlling water feed or water level	<a href="#">F22D5/00</a>
Automatic water-feed control for a number of steam boilers designed for different ranges of temperature and pressure	<a href="#">F22D5/36</a>
Controlling superheat temperature	<a href="#">F22G5/00</a>
Controlling superheat temperature by regulating flue gas flow	<a href="#">F22G5/04</a>
Controlling superheat temperature by recirculating flue gases	<a href="#">F22G5/06</a>

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Controlling superheat temperature by attemperating the superheated steam	<a href="#">F22G5/12</a>
Controlling superheat temperature by indirectly cooling or heating the superheated steam in auxiliary enclosed heat exchanger	<a href="#">F22G5/16</a>

Replace: The existing Informative references table with the following updated table.

**Informative references**

Steam boilers of once-through type operating with superimposed recirculation during starting and low load periods	<a href="#">F22B29/12</a>
Safety devices for boilers in general	<a href="#">F22B37/42</a>
Regulation or control of steam power plants	<a href="#">F01K7/00</a> , <a href="#">F01K13/02</a>
Emergency feed water supply	<a href="#">F22D11/003</a>
Control of combustion	<a href="#">F23N</a>
Control of steam power plants	<a href="#">G05</a>
Control of nuclear reaction	<a href="#">G21C7/00</a>
Control of nuclear power plant	<a href="#">G21D3/00</a>

Replace: The existing Glossary of terms table with the following updated table.

**Glossary of terms**

once-through boiler	type of boiler in which water is input at one side, and steam is extracted from the other side of the flow path
forced-flow boiler	type of boiler in which a pump ensures flow
forced-once-through boiler	combination of a once-through and a forced-flow boiler (a pump ensures flow of a boiler in which water is input at one side, and steam is extracted from the other side of the flow path)
forced-circulation boiler	type of boiler in which recirculation is achieved by a circulation pump
natural-circulation boiler	type of boiler in which the circulation is achieved by the difference in density of the heated water in the boiler causing convection currents

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## **F22B37/00**

Replace: The existing Definition statement with the following updated statement.

### **Definition statement**

Component parts or details of steam boilers categorised in these groups:

- of steam generators built up from pre-fabricated elements,
- of nuclear steam generators including maintenance or repairing,
- applicable to more than one kind of steam boiler,
- specially adapted for steam boilers of instantaneous or flash type,
- specially adapted for steam boilers of forced-flow type,
- adaptations or mounting of devices for observing existence or direction of fluid flow,
- adaptations or mounting of level indicators.

This place, which is applicable to more than one kind of steam boiler and which could be applied also to nuclear steam boilers, steam boilers of pre-fabricated elements, instantaneous type boilers and forced-flow type boilers, covers:

- steam boilers characterised by material,
- accessories of flue or fire tubes,
- accessories of water tubes,
- accessories of drums or headers,
- arrangements for supporting, suspending or setting,
- steam separating arrangements,
- adaptation of boilers for promoting water circulation,
- arrangements for sheathing or casing boilers,
- devices and methods for determining or indicating operation conditions,
- arrangements of partition walls in flues of steam boilers,
- applications of alarm or automatic safety devices,
- devices and methods for removing water, salt or sludge,
- boiler cleaning control devices,
- methods and tools for removing tubes from headers or drums.



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**References**

Replace: The text in the following four rows of the existing Informative references table.

***Informative references***

Steam generator using hot slag, hot residues with double-wall tubes	<a href="#">F22B1/066</a>
Furnace tubes of furnace-tube type boilers	<a href="#">F22B7/20</a>
Vertical water-tube boilers with frames built from water tubes	<a href="#">F22B21/086</a>
Radiant superheaters	<a href="#">F22G1/06</a>

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3. REVISION CONCORDANCE LIST (RCL)

<u>Type*</u>	<u>From CPC Symbol (existing)</u>	<u>To CPC Symbol(s)</u>
D	F22B31/0076	<administrative transfer to F22B31/0007 and F22B35/00 simultaneously>

\* C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed.

NOTES:

- Only C, D, F, and Q type entries are included in the table above.
- When multiple symbols are included in the “To” column, do not use ranges of symbols.
- For administrative transfer of documents, the following text should be used: “<administrative transfer to XX>”, “<administrative transfer to XX and YY simultaneously>”, or “<administrative transfer to XX, YY, ...and ZZ simultaneously>” when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be “additional information”.
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations “ADD” or “INV”: <administrative transfer to XX ADD>, <administrative transfer to XX INV>, or <administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the “D” entries of 2000-series or Y-series groups may not require a destination (“To”) symbol, however it is required to specify “<no transfer>” in the “To” column for such cases.
- RCL is not needed for finalisation projects.

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4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

<u>CPC</u>	<u>IPC</u>	<u>Action*</u>
F22B31/0076		DELETE

\*Action column:

- For an (N) or (Q) entry, provide an IPC symbol and complete the Action column with "NEW."
- For an existing CPC main trunk entry or indexing entry where the existing IPC symbol needs to be changed, provide an updated IPC symbol and complete the Action column with "UPDATED."
- For a (D) CPC entry or indexing entry complete the Action column with "DELETE." IPC symbol does not need to be included in the IPC column.
- For an (N) 2000 series CPC entry which is positioned within the main trunk scheme (breakdown code) provide an IPC symbol and complete the action column with "NEW".
- For an (N) 2000 series CPC entry positioned at the end of the CPC scheme (orthogonal code), with no IPC equivalent, complete the IPC column with "CPCONLY" and complete the action column with "NEW".

NOTES:

- F symbols are not included in the CICL table above.
- T and M symbols are not included in the CICL table above unless a change to the existing IPC is desired.