

CPC COOPERATIVE PATENT CLASSIFICATION

F23R **GENERATING COMBUSTION PRODUCTS OF HIGH PRESSURE OR HIGH VELOCITY, e.g. GAS-TURBINE COMBUSTION CHAMBERS** (using such products for specific purposes, [see the relevant classes for the purposes](#); chemical aspects of gas production [C06D 5/00](#); gas-turbine plants characterised by the arrangement of the combustion chamber in the plant [F02C 3/14](#); arrangement of afterburners in jet-propulsion plants [F02K 3/10](#); combustion chambers of rocket-engine plants [F02K 9/00](#))

3/00	Continuous combustion chambers using liquid or gaseous fuel	3/44	<ul style="list-style-type: none">Combustion chambers comprising a {single} tubular flame tube within a tubular casing (reverse-flow combustion chambers F23R 3/54)
3/002	<ul style="list-style-type: none">{Wall structures (F23R 3/02 and F23R 3/007 take precedence)}	3/46	<ul style="list-style-type: none">Combustion chambers comprising an annular arrangement of {several essentially tubular} flame tubes within a common annular casing or within individual casings
3/005	<ul style="list-style-type: none">{Combined with pressure or heat exchangers}	3/48	<ul style="list-style-type: none">Flame tube interconnectors, e.g. cross-over tubes
3/007	<ul style="list-style-type: none">{constructed mainly of ceramic components}	3/50	<ul style="list-style-type: none">Combustion chambers comprising an annular flame tube within an annular casing (toroidal combustion chambers F23R 3/52)
3/02	<ul style="list-style-type: none">characterised by the air-flow or gas-flow configuration (reverse-flow combustion chambers F23R 3/54; cyclone or vortex type combustion chambers F23R 3/58)	3/52	<ul style="list-style-type: none">Toroidal combustion chambers
3/04	<ul style="list-style-type: none">Air inlet arrangements	3/54	<ul style="list-style-type: none">Reverse-flow combustion chambers
3/045	<ul style="list-style-type: none">{using pipes}	3/56	<ul style="list-style-type: none">Combustion chambers having rotary flame tubes
3/06	<ul style="list-style-type: none">Arrangement of apertures along the flame tube	3/58	<ul style="list-style-type: none">Cyclone or vortex type combustion chambers
3/08	<ul style="list-style-type: none">between annular flame tube sections, e.g. flame tubes with telescopic sections	3/60	<ul style="list-style-type: none">Support structures; Attaching or mounting means
3/10	<ul style="list-style-type: none">for primary air (F23R 3/06, F23R 3/045 take precedence)	5/00	Continuous combustion chambers using solid or pulverulent fuel
3/12	<ul style="list-style-type: none">inducing a vortex	7/00	Intermittent or explosive combustion chambers
3/14	<ul style="list-style-type: none">by using swirl vanes		
3/16	<ul style="list-style-type: none">with devices inside the flame tube or the combustion chamber to influence the air or gas flow	2900/00	Special features of, or arrangements for continuous combustion chambers; Combustion processes therefor
3/18	<ul style="list-style-type: none">Flame stabilising means, e.g. flame holders for after-burners of jet-propulsion plants	2900/00001	<ul style="list-style-type: none">Arrangements using bellows, e.g. to adjust volumes or reduce thermal stresses
3/20	<ul style="list-style-type: none">incorporating fuel injection means	2900/00002	<ul style="list-style-type: none">Gas turbine combustors adapted for fuels having low heating value [LHV]
3/22	<ul style="list-style-type: none">movable, e.g. to an inoperative position; adjustable, e.g. self-adjusting	2900/00004	<ul style="list-style-type: none">Preventing formation of deposits on surfaces of gas turbine components, e.g. coke deposits
3/24	<ul style="list-style-type: none">of the fluid-screen type	2900/00005	<ul style="list-style-type: none">Preventing fatigue failures or reducing mechanical stress in gas turbine components
3/26	<ul style="list-style-type: none">Controlling the air flow	2900/00006	<ul style="list-style-type: none">Using laser for starting or improving the combustion process
3/28	<ul style="list-style-type: none">characterised by the fuel supply (burners F23D)	2900/00008	<ul style="list-style-type: none">Combustion techniques using plasma gas (plasma torches F23R 2900/00009)
3/283	<ul style="list-style-type: none">{Attaching or cooling of fuel injecting means}	2900/00009	<ul style="list-style-type: none">Using plasma torches for igniting, stabilizing, or improving the combustion process
3/286	<ul style="list-style-type: none">{having fuel-air premixing devices (F23R 3/30 takes precedence)}	2900/00012	<ul style="list-style-type: none">Details of sealing devices
3/30	<ul style="list-style-type: none">comprising fuel prevapourising devices	2900/00013	<ul style="list-style-type: none">Reducing thermo-acoustic vibrations by active means
3/32	<ul style="list-style-type: none">being tubular	2900/00014	<ul style="list-style-type: none">Reducing thermo-acoustic vibrations by passive means, e.g. by Helmholtz resonators (silence apparatus using resonance F01N 1/023)
3/34	<ul style="list-style-type: none">Feeding into different combustion zones	2900/00015	<ul style="list-style-type: none">Trapped vortex combustion chambers
3/343	<ul style="list-style-type: none">{Pilot flames, i.e. fuel nozzles or injectors using only a very small proportion of the total fuel to insure continuous combustion (ignition in gas-turbine plants F02C 7/264; pilot flame igniters F23Q 9/00)}	2900/00016	<ul style="list-style-type: none">Retrofitting in general, e.g. to respect new regulations on pollution
3/346	<ul style="list-style-type: none">{for staged combustion}	2900/00017	<ul style="list-style-type: none">Assembling combustion chamber liners or subparts
3/36	<ul style="list-style-type: none">Supply of different fuels	2900/00018	<ul style="list-style-type: none">Manufacturing combustion chamber liners or subparts
3/38	<ul style="list-style-type: none">comprising rotary fuel injection means		
3/40	<ul style="list-style-type: none">characterised by the used of catalytic means		
3/42	<ul style="list-style-type: none">characterised by the arrangement or form of the flame tubes or combustion chambers		
3/425	<ul style="list-style-type: none">{Combustion chambers comprising a tangential or helicoidal arrangement of the flame tubes}		

F23R

- 2900/00019 . Repairing or maintaining combustion chamber liners or subparts
- 2900/03041 . Effusion cooled combustion chamber walls or domes
- 2900/03042 . Film cooled combustion chamber walls or domes
- 2900/03043 . Convection cooled combustion chamber walls with means for guiding the cooling air flow ([means for creating turbulence F23R 2900/03045](#))
- 2900/03044 . Impingement cooled combustion chamber walls or subassemblies
- 2900/03045 . Convection cooled combustion chamber walls provided with turbulators or means for creating turbulences to increase cooling
- 2900/03281 . Intermittent fuel injection or supply with plunger pump or other means therefor
- 2900/03282 . High speed injection of air and/or fuel inducing internal recirculation
- 2900/03341 . Sequential combustion chambers or burners
- 2900/03342 . Arrangement of silo-type combustion chambers
- 2900/03343 . Pilot burners operating in premixed mode