

84.05 - Producer gas or water gas generators, with or without their purifiers; acetylene gas generators and similar water process gas generators, with or without their purifiers.

8405.10 - Producer gas or water gas generators, with or without their purifiers; acetylene gas generators and similar water process gas generators, with or without their purifiers

8405.90 - Parts

This heading covers self-contained apparatus and plant for generating any kind of gas (e.g., producer gas, water gas and mixtures thereof, or acetylene) whatever the intended use of the gas produced (lighting, industrial heating, feeding gas engines, welding or cutting metals, chemical synthesis, etc.).

The heading also includes producer gas generators specially constructed for use in motor vehicles, but **excludes** acetylene generators which are in fact lamps requiring only the fitting of a burner (**heading 94.05**).

(A) PRODUCER GAS GENERATORS

These usually consist of a closed cylinder, generally fitted with a refractory lining or a water-cooled double wall enclosing a grate (either of fixed, shaking or revolving type), with provision for passing a current of air (or of air and steam) by suction or blowing. A thick bed of fuel is burned on the grate and the flow of air and steam is regulated so that combustion is incomplete. The decomposition of the water and the incomplete combustion of the fuel yield carbon monoxide and hydrogen. The resultant mixture of carbon monoxide, hydrogen and nitrogen (producer gas) is drawn off at the top of the apparatus.

In certain generators of the "reversed combustion" type, the air is blown from the top to the bottom and along the sides of the cylinder and the gas is collected at the bottom of the apparatus, below the grate. This allows for more complete combustion of tars, etc.

(B) WATER GAS GENERATORS

These are of similar construction, but are arranged so that air and a spray of water or steam are blown in alternate phases into the apparatus. The gas resulting from the water phase is a mixture of hydrogen and carbon monoxide (water gas) having a higher heating power than producer gas. It may be collected separately from the producer gas obtained during the air phase or the two gases may be mixed.

*
* *

Both producer gas and water gas generators may be adapted for burning many kinds of solid fuel (e.g., coal, coke, charcoal, wood, vegetable or other waste).

84.05

For certain uses, particularly for supplying gas engines, producer or water gases must be cleaned of impurities such as dust, tars, sulphurous compounds, etc., and sometimes reheated or cooled. For this purpose, the generators are often fitted with purifiers (comprising perforated cones, coke beds, scrubbers, etc.), coolers, dryers, reheaters, etc. Such purifiers and other auxiliary apparatus are classified with the generators when presented therewith, **provided** they are clearly suitable for use together. When presented separately they fall in their own respective headings (e.g., purifiers in **heading 84.21**).

(C) ACETYLENE WATER PROCESS GAS GENERATORS

These are generally of simple construction, consisting of a water-sealed gas reservoir, the movement of which, as it is charged and discharged, automatically controls the gas generating device. There are three types of generating devices :

- (1) Producing intermittent immersion of the mass of calcium carbide in the water.
- (2) Providing for the gradual addition of carbide to water.
- (3) Causing water to be dripped on to the carbide.

(D) OTHER WATER PROCESS GAS GENERATORS

These include **oxygen generators** (e.g., those used in submarines) and **ethylene generators** (e.g., those based on the action of water on certain chemicals).

PARTS

Subject to the general provisions regarding the classification of parts (see the General Explanatory Note to Section XVI), parts of the apparatus of this heading are also classified here (e.g., gas generator bodies, grates, gas collectors and water-carbide mixers).

*
* *

The heading also **excludes** :

- (a) Free-piston generators for gas turbines (**heading 84.14**).
- (b) Coke ovens (e.g., town gas generators) (**heading 84.17**).
- (c) Ozone generating and diffusing apparatus, electric, designed for non-therapeutic purposes (e.g., for industrial uses, for the ozonisation of premises), and electrolytic gas generators for the generation of, e.g., nitrogen dioxide, hydrogen sulphide or prussic acid (**heading 85.43**) and ozonotherapy apparatus (**heading 90.19**).