84.02 - Steam or other vapour generating boilers (other than central heating hot water boilers capable also of producing low pressure steam); super-heated water boilers.

- Steam or other vapour generating boilers :

8402.11 - - Watertube boilers with a steam production exceeding 45 t per hour

8402.12 - - Watertube boilers with a steam production not exceeding 45 t per hour

8402.19 - - Other vapour generating boilers, including hybrid boilers

8402.20 - Super-heated water boilers

8402.90 - Parts

(A) STEAM OR OTHER VAPOUR GENERATING BOILERS

This group includes apparatus for generating steam or other vapour (e.g., mercury vapour) to operate prime movers (e.g., steam turbines) or other machines using steam power (e.g., steam hammers and pumps) or to supply steam to apparatus for heating, cooking, sterilising, etc., including steam generating boilers for central heating.

It includes separately presented boilers (e.g., locomotive boilers) even though they may clearly be specially constructed to form an integral part of a particular machine, apparatus or vehicle.

Steam boilers may be heated by means of a solid, liquid or gaseous fuel, or by electricity.

The desire to obtain a more efficient heating effect, or quicker vaporisation from fuel-burning boilers has led to the production of boilers differing in structure. The main types are :

(1) **Firetube boilers** (e.g., locomotive boilers), in which the body of the boiler is traversed by tubes through which the flue gases are conducted.

(2) **Watertube boilers,** in which a system of watertubes is surrounded by the flue gases; the internal walls of some boilers are also formed of watertubes.

(3) **Hybrid boilers,** which are generally a combination of types (1) and (2) above.

In some boilers, the systems of tubes are connected by a collector to one or more generally cylindrical bodies which serve to store the water or separate the water from the vapour. In others, known as **forced circulation boilers**, there is sometimes no evaporation drum and the circulation of the water is accelerated by a pump.

Boilers vary considerably in size. Small boilers are usually presented assembled, the various components being enclosed in a shell or mounted on a common base. The larger boilers comprise as a rule a number of separate elements for assembly on site, either within a shell or within a structure of brickwork.

(B) SUPER-HEATED WATER BOILERS

These are boilers in which the water is submitted to fairly high pressure so that it can be heated to a temperature far in excess of the normal vaporisation point (generally of the order of 180 °C or more).

These boilers are structurally very similar to the boilers described in Part (A) above. The pressure required for their operation is obtained either by accumulating steam in, for example, an evaporator drum, or in some cases, by means of an inert gas (generally nitrogen). The super-heated water produced in the boiler must be kept constantly under pressure. It therefore circulates in closed circuit, starting from and returning to the boiler.

Super-heated water boilers are used to provide heat, generally at a distance, to industrial plant (motor vehicle body paint drying tunnels, for instance), or to large groups of buildings or district heating schemes. In the latter case, heat is provided through heat exchangers in which the super-heated water (primary fluid) transfers calories to a secondary fluid that heats the premises.

*
* *

In order to increase or regulate their output or efficiency, the boilers of this heading are often equipped with a wide range of auxiliary apparatus. Such auxiliary apparatus includes economisers, air pre-heaters, super-heaters, de-super-heaters, steam receivers, steam accumulators, soot removers, gas recoverers, watertube fire-box walls and other apparatus of heading 84.04, and feed water purifiers, de-aerators, de-gasifiers and softeners of heading 84.21.

Such auxiliaries are classified with the boilers in this heading when they are presented together therewith, whether they already form, or are designed to form subsequently, a whole with those boilers; if presented separately they are to be classified in their own appropriate headings.

Similarly, and **provided** they are designed to form a whole therewith, grates presented with boilers are classified in this heading together with the boiler. In this respect, no distinction is made between grates already incorporated in boilers and those designed to be combined with boilers by means of a brickwork structure.

The heading **excludes** the types of boilers designed only for heating water to a temperature below its normal vaporisation point, and central heating hot water boilers of **heading 84.03** (even if capable also of producing low pressure steam).

PARTS

Subject to the general provisions regarding the classification of parts (see the General Explanatory Note to Section XVI), parts of the boilers of this heading are also covered, e.g., boiler bodies and bases, internal assemblies for boilers consisting of tubes, watertube caps, headers, boiler drums, steam domes, non-mechanical fire-boxes, inspection covers and fusible plugs.

Metal tubes or pipes which have been bent or curved but not otherwise worked, presented unassembled, are **not** identifiable as parts of boilers and are therefore to be classified in **Section XV**.