



HQ H335894

November 19, 2025

OT:RR:CTF:EMAIN H335894 PF

CATEGORY: Classification

TARIFF NO.: 9022.90.95

Jessica M. Brown
Ichor Systems Inc.
9660 SW Herman Rd.
Tualatin, OR 97062

RE: The tariff classification of an Electron Gun, RF Window and Ion Pump

Dear Ms. Brown:

This is in reply to your ruling request, on behalf of IMG Altair, LLC, pertaining to the tariff classification of an Electron Gun, Radio Frequency (RF) Window and Ion Pump under the Harmonized Tariff Schedule of the United States (HTSUS). Your request was forwarded by the National Commodity Specialist Division to this office for a response. No sample was provided for examination.

FACTS:

The subject Electron Gun, RF Window, and Ion Pump are used in a linear accelerator (LINAC); they must each be attached to the LINAC to perform their functions. The LINAC produces electron or x-ray radiation that is aimed at cancer tumors for cancer radiation therapy. The LINAC will produce electrons or X-rays depending on whether it has an exit window or X-ray target.

The Electron Gun produces a narrow stream of electrons by heating the surface of a cathode to create a thermionic emission, which then releases electrons to be injected into the RF Window. Along with the cathode, the Electron Gun is also comprised of a grid that controls the electron emission as well as an anode that concentrates and focuses the electron beam.

The RF Window is a passive component that allows RF power to freely pass from a source (Magnetron, Klystron, etc.) to the LINAC while blocking any gas transfer. The RF Window has an operating frequency range of GHZ 2.856/2.998 and 2.998. It is made from

high-grade ceramic, housed in a length of waveguide, and consists of an output flange, ceramic window, copper window ring, and two water fittings.

The Ion Pump is an electro-physical ion vacuum pump that collects contaminants that are present inside the LINAC. The Ion Pump uses a combination of high voltage and a magnetic field to trap contaminant gases in titanium disks before turning them into solid materials. Specifically, the Ion Pump uses a magnetic field to create a cloud of electrons that form ions with the contaminant gases once they interact, then it uses an electric field to accelerate the ions onto a solid electrode made of titanium. The high voltage is supplied to the Ion Pump by an external power supply and a cable. The magnetic field is created by a set of stationary magnets wrapped around the outside of the ion pump.

You request that U.S. Customs and Border Protection (CBP) classify the Electron Gun and RF Window under heading 8540, HTSUS, specifically subheading 8540.99.40, HTSUS, which provides for “Thermionic, cold cathode or photocathode tubes (for example, vacuum or vapor or gas filled tubes, mercury arc rectifying tubes, cathode-ray tubes, television camera tubes); parts thereof: Parts: Other: Electron guns; radio frequency (RF) interaction structures for microwave tubes of subheadings 8540.71 through 8540.79, inclusive.” You also request the Ion Pump be classified under heading 8414, specifically subheading 8414.10.00, which provides for “Air or vacuum pumps, air or other gas compressors and fans; ventilating or recycling hoods incorporating a fan, whether or not fitted with filters; gas-tight biological safety cabinets, whether or not fitted with filters; parts thereof: Vacuum pumps.”

ISSUE:

What is the tariff classification of the Electron Gun, RF Window, and Ion Pump under the HTSUS?

LAW AND ANALYSIS:

Classification under the HTSUS is in accordance with the General Rules of Interpretation (GRIs). GRI 1 provides that the classification of goods is determined according to the terms of the headings of the tariff schedule and any relative section or chapter notes. In the event goods cannot be classified solely on the basis of GRI 1, and if the headings and legal notes do not otherwise require, the remaining GRIs 2 through 6 will then be applied in order.

The HTSUS headings at issue are:

- 8414 Air or vacuum pumps, air or other gas compressors and fans; ventilating or recycling hoods incorporating a fan, whether or not fitted with filters; gas-tight biological safety cabinets, whether or not fitted with filters; parts thereof:

- 8540 Thermionic, cold cathode or photocathode tubes (for example, vacuum or vapor or gas filled tubes, mercury arc rectifying tubes, cathode-ray tubes, television camera tubes); parts thereof

9022 Apparatus based on the use of X-rays or of alpha, beta, gamma or other ionizing radiations, whether or not for medical, surgical, dental or veterinary use, including radiography or radiotherapy apparatus, X-ray tubes and other X-ray generators, high tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like; parts and accessories thereof

Note 1(m) to Section XVI (includes Chapters 84 and 85), HTSUS, states that the Section does not cover “[a]rticles of Chapter 90.”

In understanding the language of the HTSUS, the Harmonized Commodity Description and Coding System Explanatory Notes (ENs) may be utilized. The ENs, though not dispositive or legally binding, provide commentary on the scope of each heading of the HTSUS, and are the official interpretation of the Harmonized System at the international level. See T.D. 89-80, 54 Fed. Reg. 35127, 35128 (August 23, 1989).

EN 90.22 provides, in pertinent part, that it includes the following:

(I) APPARATUS BASED ON THE USE OF X-RAYS

The fundamental element of this apparatus is the unit containing the X-ray generating tube or tubes. This unit, which is usually suspended or mounted on a pedestal or other support with a directing or elevating mechanism, is fed with appropriate voltages from special equipment consisting of an assembly of transformers, rectifiers, etc. In most other respects, the structural characteristics of X-ray apparatus vary according to the use for which they are designed, for example:

* * *

(B) **Radiotherapy apparatus.** Both the penetrating power of X-rays and their destructive effect on certain living tissues are used in the treatment of many diseases, e.g., certain skin diseases and certain tumours. This treatment is known as “superficial” or “deep” according to the depth reached by the rays.

* * *

(III) X-RAY TUBES AND OTHER X-RAY GENERATORS, HIGH TENSION GENERATORS, CONTROL PANELS AND DESKS, SCREENS, EXAMINATION OR TREATMENT TABLES, CHAIRS AND THE LIKE

This group includes:

(A) **X-ray tubes.** These are devices in which electrical energy is transformed into X-rays.

The characteristics of such tubes vary according to the use for which they are designed. They consist essentially of a cathode from which the electrons are emitted, and a target (anti-cathode or anode) on which the electrons impinge, thus causing it to emit X-rays. In some cases, the tubes also have a number of intermediate electrodes for accelerating the stream of electrons. The electrodes are mounted in a tube or container, usually of glass, with the appropriate electrical contacts. The tube is often mounted in an electrically insulated metal container filled with oil. Sometimes the tube is gas filled, but more usually it is maintained at a high degree of vacuum.

The heading **excludes** glass envelopes for X-ray tubes (**heading 70.11**).

(B) **Other X-ray producing apparatus**, e.g., apparatus incorporating a betatron which greatly accelerates the stream of electrons and so produces X-rays of a very high penetrating power. Betatrons and other electron accelerators not adapted for the production of X-rays nor incorporated in X-ray apparatus are **excluded (heading 85.43)**.

* * *

PARTS AND ACCESSORIES

Subject to the provisions of Notes 1 and 2 to this Chapter (see the General Explanatory Note), parts and accessories identifiable as being solely or principally for use with X-ray apparatus, etc., are also classified in this heading....

The Electron Gun, RF Window, and Ion Pump are described as components of a LINAC. Before we classify the Electron Gun, RF Window, and Ion Pump, we must first determine the classification of the LINAC. The headings under consideration fall under Harmonized System Sections XVI (headings 8414 and 8540) and XVIII (heading 9022). Section XVI, Note 1(m) excludes articles of Chapter 90. Therefore, the initial determination is whether the LINAC is classifiable in heading 9022, HTSUS.

Note 2 to Chapter 90 provides as follows:

Subject to note 1 above, parts and accessories for machines, apparatus, instruments or articles of this chapter are to be classified according to the following rules:

- (a) Parts and accessories which are goods included in any of the headings of this chapter or of chapter 84, 85 or 91 (other than heading 8487, 8548 or 9033) are in all cases to be classified in their respective headings;
- (b) Other parts and accessories, if suitable for use solely or principally with a particular kind of machine, instrument or apparatus, or with a number of machines, instruments or apparatus of the same heading (including a machine, instrument or apparatus of heading 9010, 9013 or 9031) are to be classified with the machines, instruments or apparatus of that kind;

The LINAC produces electron or x-ray radiation that is aimed at cancer tumors for cancer radiation therapy. The LINAC will produce electrons or X-rays depending on whether it has an exit window or X-ray target. Heading 9022, HTSUS, provides, in pertinent part, for “apparatus based on the use of X-rays or of alpha, beta, gamma or other ionizing radiations, whether or not for medical, surgical, dental or veterinary use, including radiography or radiotherapy apparatus, X-ray tubes and other X-ray generators . . .” As the LINAC produces X-rays and electron radiation for medical use, we find that the LINAC is classifiable in heading 9022, HTSUS, and specifically in subheading 9022.90.05, HTSUS, which provides for “[r]adiation generator units.” Our determination is based on the heading language of 9022 and the language of EN’s 9022, as excerpted above.

Moreover, because the LINAC is classifiable in heading 9022, the remaining question is whether the Electron Gun, RF Window, and Ion Pump are “parts” of an apparatus of heading 9022, HTSUS. The term “part” is not defined in the HTSUS. In the absence of a statutory definition, the courts have fashioned two distinct but reconcilable tests for determining whether a

particular item qualifies as a part for tariff classification purposes. See *Bauerhin Technologies Limited Partnership, & John V. Carr & Son, Inc. v. United States*, 110 F.3d 774 (Fed. Cir. 1997). Under the first test, articulated in *United States v. Willoughby Camera Stores*, 21 C.C.P.A. 322 (1933), an imported item qualifies as a part only if can be described as an “integral, constituent, or component part, without which the article to which it is to be joined, could not function as such article.” *Bauerhin*, 110 F.3d at 779.

Pursuant to the second test, set forth in *United States v. Pompeo*, 43 C.C.P.A. 9 (1955), a good is a “part” if it is “dedicated solely for use” with a particular article and, “when applied to that use...meets the Willoughby test.” *Bauerhin*, 110 F.3d at 779 (citing *Pompeo*, 43 C.C.P.A. at 14); *Ludvig Svensson, Inc. v. United States*, 63 F. Supp. 2d 1171, 1178 (Ct. Int'l Trade 1999) (holding that a purported part must satisfy both the *Willoughby* and *Pompeo* tests). An item is not a part if it is “a separate and distinct commercial entity.” *Bauerhin*, 110 F.3d at 779.

Here, the Electron Gun, RF Window, and Ion Pump are dedicated for use with the LINAC. The Electron Gun, RF Window, and Ion Pump are integral to the LINAC’s operation as an apparatus of heading 9022, HTSUS. The Electron Gun is the source for producing electrons, the RF Window allows RF power to pass into the LINAC to accelerate the electrons and the Ion Pump collects contaminants that are present inside the LINAC. Accordingly, we find that the Electron Gun, RF Window, and Ion Pump at issue, in their condition as imported, are “parts” of an apparatus of heading 9022, HTSUS, per Note 2(b) to Chapter 90 and they are specifically classified in 9022.90.95, HTSUS.

As discussed, the Electron Gun, RF Window, and Ion Pump are “parts” of the LINAC. Since the Electron Gun, RF Window, and Ion Pump are “parts” of the LINAC, which are classifiable in heading 9022, HTSUS, they cannot be classified as “parts” of Chapters 84 or 85 pursuant to Section XVI, Note 1(m). Therefore, the Electron Gun, RF Window, and Ion Pump are not classified under headings 8414, HTSUS or 8540, HTSUS.

HOLDING:

By application of GRIs 1 (Note 2(b) to Chapter 90) and 6, we hold that the Electron Gun, RF Window, and Ion Pump are properly classified under heading 9022, HTSUS, and specifically subheading 9022.90.95, which provides for “Apparatus based on the use of X-rays or of alpha, beta, gamma or other ionizing radiations, whether or not for medical, surgical, dental or veterinary use, including radiography or radiotherapy apparatus, X-ray tubes and other X-ray generators, high tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like; parts and accessories thereof: Other, including parts and accessories: Other: Other: Other.” The general, column one rate of duty is 1.4% *ad valorem*.

This ruling does not address the applicability of any additional duties that may apply to the goods discussed herein. Likewise, duty rates are provided for your convenience and are subject to change. The text of the most recent HTSUS and the accompanying duty rates are provided on the World Wide Web at www.usitc.gov.

This ruling is being issued under the provisions of Part 177 of the Customs Regulations (19 C.F.R. 177). A copy of the ruling or the control number indicated above should be provided with the entry documents filed at the time this merchandise is imported.

Sincerely,

Gregory Connor, Chief
Electronics, Machinery, Automotive, and
International Nomenclature Branch