

90.05 - Binoculars, monoculars, other optical telescopes, and mountings therefor; other astronomical instruments and mountings therefor, but not including instruments for radio-astronomy.

9005.10 - Binoculars

9005.80 - Other instruments

9005.90 - Parts and accessories (including mountings)

This heading includes :

- (1) **Binoculars**, such as opera glasses, binoculars for touring or hunting, military binoculars (including night glasses and certain periscopic binoculars) and binoculars made in the form of spectacles.
- (2) **Telescopes** for hunting, touring, for use at sea, for firing ranges, for health resorts (for observing scenery or the sky), etc. They may be in one piece (pocket or other telescopes) or with sliding drawers for focussing; they may also be designed to be fitted on a stand. Certain telescopes may incorporate a device so that they can be used only after the insertion of a coin.
- (3) **Astronomical refracting telescopes**. Unlike reflecting telescopes which have a mirror for objective, refracting telescopes have objectives consisting of a system of lenses, some of which may be of large diameter. They are not equipped with an erecting eyepiece which would cause loss of light.

The heading includes refracting telescopes whether designed for visual, visual and photographic, or solely for photographic observation. When equipped with a photographic camera which forms an integral part of the complete instrument, they are classified in this heading; however, a photographic camera which does not form an integral part of the complete instrument is classified in **heading 90.06**.

- (4) **Reflecting telescopes**. These are the main general purpose astronomical instruments. The objective, which forms the primary image, consists of a concave parabolic mirror which may be of a considerable diameter; the reflecting surface is silvered or aluminised.

Reflecting telescopes are usually designed to be mounted on stands which are frequently large structures with considerable associated equipment. When equipped with a photographic camera which forms an integral part of the complete instrument, they are classified in this heading; however, a photographic camera which does not form an integral part of the complete instrument is classified in **heading 90.06**.

This heading includes the Schmidt reflecting telescope, often referred to as the Schmidt camera. This is used solely in astronomy for photographic observation. It uses a spherical mirror and a correcting plate which is placed parallel to the mirror at the centre of its arc. The image is recorded at the focal point on a convex film.

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- (5) **Astronomical telescopes** fitted with photo-multipliers or image converter tubes. In this type of telescope the energy of the incident light is used to free electrons from a photoelectric surface placed where the eyepiece would otherwise be. The electrons may be multiplied and measured to show the amount of light originally received by the telescope, or may be focussed (e.g., by magnetic lenses) to form an image on a photographic plate or fluorescent screen.
- (6) **Transit instruments**, which are used to observe the apparent passage (due to the rotation of the earth) of celestial bodies above the meridian line at the place of observation. They consist essentially of a telescope mounted on an East-West horizontal axis and can therefore move within the meridian plane.
- (7) **Equatorial telescopes**. These are mounted on an equatorial stand which allows the telescope to move round an axis parallel to that of the earth (polar axis) and round another axis perpendicular to the former (axis of declination).
- (8) **Zenith telescopes**, which are telescopes mounted so as to move round a horizontal and a vertical axis.
- (9) **Altazimuths, or azimuth circles**. These are telescopes movable round a horizontal axis whereas their frames are movable round a vertical axis. These instruments are designed to measure both altitudes and azimuths. Theodolites are smaller instruments designed on the same principle, but used for surveying and are **excluded** (heading 90.15).
- (10) **Coelostats**, which are instruments intended to facilitate astronomical observations, particularly by reflecting a given part of the sky into a vertical or horizontal stationary instrument (telescope, spectroheliograph). They consist essentially of two plane mirrors, one of which is controlled by a clockwork movement and turns a complete circle in 48 hours.

Heliostats and siderostats are special types of coelostats used for astronomical purposes. Certain instruments also called heliostats are used for surveying; these are **excluded** (heading 90.15).

- (11) **Spectroheliographs and spectrohelioscopes**, which are instruments used in studying the sun. The spectroheliograph is used to take photographs of the sun in the light of any desired wavelength. It consists of a spectroscope with a slit in place of the eyepiece so that only light of the desired wavelength can pass through it on to a photographic plate. The spectrohelioscope operates on the same principle as the spectroheliograph but uses a rapidly oscillating slit so that the sun can be viewed by the naked eye. Other methods (e.g., rotating glass prism with a fixed slit) are used to obtain the same result.
- (12) **Heliometers**, which consist of a telescope with its object glass divided along a diameter, the two halves being movable; they are used for measuring the sun's angular diameter and the angular distance between two heavenly bodies.
- (13) **Coronagraphs and similar instruments**, which are used to observe the sun's corona at times other than that of a total solar eclipse.

The heading also includes telescopes, and more particularly **binoculars**, which utilize infra-red light and which incorporate image converter tubes to convert the magnified infra-red image into an image which can be seen by the human eye; these infra-red instruments are used at night, particularly by armed forces. Also included are telescopes, binoculars and the like which utilise light amplifiers (also known as image intensifiers) to increase the brightness of an image which is below the visual threshold to a level where the image can be seen.

However, in accordance with Note 4 to this Chapter, this heading **does not cover** telescopic sights for fitting to arms, periscopic telescopes for fitting to submarines or tanks, or telescopes for machines, appliances, instruments or apparatus of this Chapter (for example, telescopes for fitting to theodolites, levels or other surveying instruments) or of Section XVI (heading 90.13).

PARTS AND ACCESSORIES

Subject to the provisions of Notes 1 and 2 to this Chapter (see the General Explanatory Note), this heading also covers parts and accessories of the goods of this heading. Such parts and accessories include: frames, housings, tubes and mountings; filar micrometers used with equatorial telescopes for measuring the diameters of planets (these devices consist of a graduated disc mounted on the eyepiece of the telescope and fitted with two fixed wires and one movable wire); Gerrish drives used with a motor to move astronomical instruments.

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The heading also **excludes** :

- (a) Superstructures used for installing the instruments or facilitating access to them (domes, platforms, control boards, etc.); these are classified in their own appropriate headings (for example, in **Section XV**).
- (b) Optical elements such as mirrors, lenses and prisms, presented separately (**heading 90.01** or **90.02** as the case may be).
- (c) Blink microscopes, used in astronomy to find new stars by comparing photographs of the sky (**heading 90.11**).
- (d) "Door eyes" or through door viewers (**heading 90.13**).
- (e) Instruments used to determine a terrestrial position in relation to the stars, e.g., sextants (**heading 90.14**).
- (f) Microphotometers or microdensitometers for the study of spectrograms (**heading 90.27**).
- (g) Astronomical clocks (**Chapter 91**).