
PLIEGO DE PRESCRIPCIONES TÉCNICAS

SUMINISTRO E INSTALACIÓN DE “FIBER COUPLED COMPACT LOW-COST OBJECTIVE LENS SYSTEM” PARA EL LABORATORIO DE ICFO, MEDIANTE PROCEDIMIENTO ABIERTO NO SUJETO A REGULACIÓN ARMONIZADA

NÚMERO D'EXPEDIENT: 2024.SU.003
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CLÁUSULA 1. Objeto del contrato

El presente contrato tiene como objetivo el Suministro e instalación de “FIBER COUPLED COMPACT LOW-COST OBJECTIVE LENS SYSTEM” para el laboratorio de ICFO. The system consists of two-interconnected parts, a low-cost fixed focal length objective lens and a fiber coupler. The aim is to make a reproducible low-cost imaging system that can image one end of a fiber (inserted through the fiber adapter) on a camera sensor (attached on the other end of the imaging system).

La tipología de los artículos objeto de suministro se hallan vinculados con el CPV (Vocabulario Común de Contratación Pública), **38000000-5 Equipo de laboratorio, óptico y de precisión (excepto gafas)**.

CLÁUSULA 2. Needs to be satisfied with the contracting

The aim of the system is to image a single/multi core optical fiber with core diameter ranging from 50um to 1.5mm to a C-mount camera sensor. The optical fiber with an FC/PC connector will be inserted to a corresponding connector on the imaging system. The sensor temperature can rise to a maximum of 50°C when in continuous operation, therefore, the optical parameters of the objective lens should not be impacted within a working temperature range (10°C to 50°C). There should a reliable way of focus adjustment and locking on the system. It is important that the image should be in focus within the given tolerances after we adjust the focus and lock it. Also, it is important that the image resolution is not limited by objective lens.

CLÁUSULA 3. Technical specifications

The system needs to fulfil at least the next several features:

- The system consists of a C-mount, finite conjugate objective lens.
- The objective lens should be coupled to an optical fiber with FC/PC adapter.
- Objective lens magnification = 2X.
- Objective lens numerical Aperture = 0.15NA.
- Objective lens resolution $\leq 3.5\mu\text{m}$.
- Object side field of view $\geq (1.5\text{mm} \times 1.5\text{mm})$.
- The magnification should be uniform over the field of view (free from pincushion/barrel aberrations).
- The NA should be uniform over the Field of view.
- Each optical surface inside the objective lens should be AR coated for the NIR region (600nm-900nm).
- Minimum or no longitudinal/transverse chromatic aberrations for the above wavelength range and field of view.
- The focus of the imaging system should be easy to adjust either from the object end or image end with a reliable locking mechanism.
- Focus tolerance should be $\pm 10\mu\text{m}$ after focus adjustment and locking.
- Once the focus adjusted and locked with a c-mount camera, it should be stable over time.
- Maximum diameter of the fiber coupled imaging system should be $< 30\text{ mm}$.
- Maximum length of the fiber coupled imaging system (from far end of the FC/PC fiber adapter to camera flange) $< 45\text{mm}$.
- The fiber-coupling should be immune to surrounding stray light as well reflections from inner walls. Therefore, better to have all parts (excluding the FC/PC adapter and lens assembly barrel) to be anodized in matt black.

- The material of the system should be light weight, strong and immune to corrosion over many years.
- The performance of the system should be stable for the temperatures range 10°C to 50°C.
- The system should be at least ROHS compliant.

CLÁUSULA 4. Shipping, transport

Shipping and transport to the laboratories of Prof. Dr. Turgut Durduran at ICFO must be included.

CLÁUSULA 5. Warranty

Minimum three-year full warranty on all components, starting at system acceptance. The warranty will include the replacement of any faulty or damaged part(s) during the normal use of the system. It will cover any cost related with the disassembly, transportation, reparation and re-assembly of the damaged component(s).

CLÁUSULA 6. CE Marking

CLÁUSULA 7. Target price

- 250 to 295 Euros (Vat Excluded) per piece for (100pcs-200pcs) per year.
- Maximum of 59.000 Euros/year (Vat Excluded).

CLÁUSULA 8. Delivery time

8.1. Delivery time maximum of eight weeks:

- Delivery time is defined as the time elapsed since the signature of the contract until the system delivery at ICFO facilities. It includes the manufacture of the system, the acceptance test at company's premises and the transportation.

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Prof. Dr. Turgut Durduran
GL Medical Photonics