



Annex No. 1 – Technical Requirements

A small-scale order

Nd:YAG nanosecond laser for applications in laser matter interactions at Tandetron laboratory

This public tender is announced for the delivery of the Nd:YAG nanosecond laser for application in laser matter interactions. The requested instrument is a High Energy Q switched Pulsed Nd: YAG laser operating in single pulse and in 10 Hz repetition rate. Such laser should consist of the main head working at the first harmonic (1064 nm) and also the 266 nm harmonic generator modul. High beam homogeneity, motorized auto-tuning of harmonics, auto stabilisation for operation are required. The control interface for monitoring of the laser beam parameters will be a part of the requested delivery.

1 The Contracting Authority has requested the device (an analytical optical device for thin-layer characterisation) in a tender.

2 In order to fulfil the obligations arising from the Agreement, the Supplier is obliged to test and deliver to the Contracting Authority the following device:

Item	Technical and functional properties, values, amount	
► laser system - the basic description		
1	Number of pieces	1 or 2 in case the attenuator is external to the laser head
2	Repetition rate	10 Hz
2	Wavelength range	1064 nm and attenuator for modulation to the third harmonic wavelength at 266 nm
3	Output energy at 1064 nm	at least 850 mJ
4	Output energy at 266 nm	at least 100 mJ
5	Power drift at 1064 nm	at least 3% in 8 hour continuous running without adjustment
6	Power drift at 266 nm	at least 10% in 8 hour continuous running without adjustment
7	Pulse duration at 1064 nm	at most 6 ns
8	Pulse duration at 266 nm	at most 5 ns
► laser system - beam parameters		
9	Beam diameter	at most 9.5 mm
#	Beam divergence	at most 0.5 mrad
#	Time diffraction limit factor /beam quality factor	M ² at most 2
#	Laser pulse beam stability	at most 70 microrad
#	Timer jitter	at most 0.5 ns
#	Linewidth at 1064 nm	at most 0.7 cm ⁻¹
#	Polarization ratio	at least 90%
#	Spatial Profile of laser beam	Spatial profile in near field (fitted in 0.4 m from the laser output) at most 0.75 and the Spatial profile Far Field (fitted in 1 m from the laser output) at most 0.95.
► Outside size		
#	Device Height	less than 20 cm (H)
#	Width and depth of the device	less than 80 cm x 20 cm
#	Device weight	less than 20 kg
► Accessories		
#	Power supply unit	Voltage 220-250 V AC;
#	Control screen	Touch screen for remote functionality control of the laser system
22	Motorized attenuator	Motorized attenuator for 266 nm wavelength is part of the tender enabling easy upgrading to fourth harmonic frequency.
23	Delivery time	8 weeks
24	Technická podpora a záruka	Warranty 12 months on labor and materials are part of the tender

The Supplier declares that the delivery consisting of the above-mentioned equipment will meet all the requirements of the Contracting Authority specified in this Annex. If any additional equipment or work becomes necessary during the preparation and delivery of the supply in order to meet the Contracting Authority's requirements specified in this Annex and the values guaranteed in herein, the Supplier undertakes to supply the device and carry out the work as part of the delivery without increasing the purchase price (these deliveries and work cannot be of a multi-purpose nature). During the assembly, the supplied components must be fully interconnected to ensure the full functionality of the entire equipment delivered.

By the application for the tender, the Supplier guarantees the Contracting Authority the fulfilment of all the requirements and parameters of the supplied items within the tender, which are specified in this technical specification document.

signature