



Dienst Justitiële Inrichtingen
Ministerie van Justitie en Veiligheid

Requirements

Annex 1

Bullet Component Ballistic Identification System

For the Netherlands Forensic Institute

Reference : NFI-bullet COMP-24
Date : 18/09/2024
Version number : 7.0

Introduction

These are the Requirements forming part of the Tender Documents. It contains the minimum requirements that you as the Supplier must meet during the performance of the Agreement. These minimum requirements are referred to as 'requirements' in this document. The requirements are given as paragraphs in this document and are grouped into chapters.

You fully and unconditionally accept these Requirements by completing, signing and submitting Form B 'Tender Form and Statement of Agreement' with your Tender. Therefore, you do not need to answer the requirements yourself.

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1 Supplier requirements

1.1 General requirements

Requirement no	Description
1.	The Supplier shall comply with applicable environmental and other laws and regulations relating to this Assignment.
2.	The Supplier shall conduct a full User Acceptance Test (UAT) within 1 week of the System's delivery in the Buyer's presence. The Buyer shall receive the test protocol for the UAT no later than 2 weeks before the UAT. The Buyer shall receive the UAT report for Acceptance of the delivered System no later than 2 days after the UAT.
3.	The Supplier provides a full coverage warranty on the hardware, software, and services for 1 year from the date of commissioning the System.
4.	The Supplier shall ensure the full maintenance of the System during the term of the Agreement, if necessary at the Location. Full maintenance of the System covers Preventive, Corrective and Adaptive maintenance and all other necessary actions to keep the System functioning in accordance with its requirements. During and after this, the hardware and software shall also operate at the latest version of the operational and security level.
5.	During the term of the Agreement, the Supplier shall provide assistance, help and advice in the event of malfunctions, as well as advice on the use and functioning of the System in the form of a helpdesk. In addition, the Supplier undertakes to establish contact between a suitably qualified technical specialist and the person who requested assistance on behalf of the Buyer as soon as possible, but no later than within a time frame of 4 hours after a request for assistance (help and advice) has been made by telephone or email.
6.	The Supplier shall ensure the elimination of all malfunctions or defects in the System reported by the Buyer and found by the Supplier by performing the necessary repairs and replacements in the System for that purpose. The Supplier shall perform the necessary Corrective Maintenance as soon as a malfunction occurs in the System. As part of Corrective Maintenance, the Supplier shall accept, record and a defect report within 2 hours, start troubleshooting within 4 hours and repair 80% of faults within a maximum of 3 working days.
7.	The Supplier shall also lay down requirements 4, 5 and 6 in a service level agreement (SLA). The SLA does not contain terms and conditions different from or less than the Buyer's requirements for the System. The SLA between the Buyer and the Supplier shall be concluded before the date of commissioning.
8.	Before the date of putting the System into use at the Location, the Supplier shall offer a user training course in the Dutch or English language for the Customer under the guidance of an instructor with full mastery of the System.
9.	During the term of the Agreement, the Supplier shall offer online e-learning training courses in Dutch or English to introduce new System functionality, best practices and all other matters required by the Customer for the operation or proper functioning of the System.
10.	The Supplier shall provide remote support or support according to the Buyer's connection conditions. This can be done, for example, using a VPN connection or equivalent.

2 System requirements

2.1 General System features

Requirement no	Description
11.	The System can exchange (import and export) data (data and metadata) with other systems to perform ballistic comparisons at the national level and at the international level via the X3P format (https://www.open-fmc.org/).
12.	The System has been delivered operational and turn-key ¹ , with all components fully integrated according to the schedule in the Tendering guidelines.
13.	The System performs daily data backups for disaster recovery purposes.
14.	The System maintains the compatibility of existing data during upgrades.
15.	The System facilitates the management of at least 25,000 samples ('exhibits').
16.	The System provides facilities for simultaneous recording, correlation and analysis of images.
17.	The System maximises the use of automation for functions such as lighting adjustment, focus, recording area delineation and sample orientation.

¹ It is therefore a fully integrated System consisting of hardware and software.

18.	The System stores and enables retrieval of the details of the samples and includes at least a unique identification, case reference, police reference, date of the offence, calibre, general characteristics of the barrel, the SIN (trace identification number) ^[2] , samples, correlations and matches ^[3] .
19.	The System provides various modes of operation for firearms crime (shooting incidents = 'crime evidence') and firearms registration (firearms and test shots), with associated user interfaces and correlation capabilities (to reveal possible links between firearms and shooting incidents).
20.	The System exports and imports images, including metadata, to various formats. These formats, file extensions, are at least XP3, JPEG, PNG, TIFF.
21.	The System must be CE-marked and comply with European product safety directives, particularly the Electromagnetic Compatibility Directive and European standards for Class B electromagnetic compatibility of IT equipment. The Supplier must provide proof of this with the Tender.
22.	The Supplier provides the System with demonstrably certified hardware and software licences of third parties, if applicable. The Supplier shall also ensure that the most recent, certified software versions are applied during the term of the Agreement. This also applies to the associated necessary hardware.

2.2 Requirements for Recording bullets

Requirement no	Description
23.	The System automatically captures images of traces in bullets.
24.	The System incorporates the full spectrum of bullet calibres with an effective diameter of at least 4 mm to 15 mm. The selection of calibres must include both European and international calibre designations.
25.	The System automatically records the full circumference of a bullet with a minimum height of 8 mm and parts of a bullet fragment.
26.	The System automatically records the three-dimensional topography of the bullet's surface with an xy-resolution of at least 2.0 µm or smaller and a z-resolution of at least 0.5 µm or smaller.
27.	The System automatically captures the two-dimensional image of the bullet surface while capturing the three-dimensional topography.
28.	The System automatically captures the bullet contour's shape below the captured surface.
29.	The System automatically rotates and moves bullets to adapt to surface contours and imperfections.
30.	The System captures images of damaged bullets and bullet fragments with all deformations found, such as convex, flat, concave or twisted surfaces.
31.	The System is capable of capturing images of bullets fired from rifled barrels ('conventional rifling'), polygonal barrels ('polygonal rifling'), smooth barrels and home-made barrels.
32.	The System automatically identifies the groove edges ('shoulders') of the grooves on the circumference of the bullet caused by the fields of the barrel.

2.3 Requirements for the Correlation of bullets

Requirement no	Description
33.	The System independently correlates each captured bullet area, such as the grooves ('land impressions') and high parts ('groove impressions') of the traces of drawn barrels, or the contact areas of the traces of polygonal barrels.
34.	The System uses specialised correlation algorithms for bullets adapted for each barrel type, including rifled, polygonal open, smooth, and home-made barrels.
35.	The System provides separate and aggregated numerical scores of a bullet's areas of interest and provides the visual means of viewing the result to help investigators identify possible matches.
36.	The System automatically correlates newly captured traces in bullets with a database of similar traces and displays a ranked list of the most similar traces.
37.	The System provides options to start a correlation automatically or manually based on configurable data filters, such as trace characteristics, date and recording source selection.
38.	The Supplier demonstrates the effective correlation performance of the System. This is done, for example, by providing a demo, via papers published in forensic journals, a sample database with 100 known matching bullet pairs and 1,000 non-matching bullets of the same calibre and system characteristics or by other means.

2.4 Requirements for viewing and analysis

Requirement no	Description
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² The SIN is a unique item or track number assigned to an item or track throughout the process and filing. This number can always be used to trace and derive the item or trace.

³ This can be extended by mutual agreement.

39.	The System allows the analysis of correlation results using sortable score lists, score graphs and visual comparisons.
40.	The System displays all captured images for comparison purposes.
41.	The System displays recordings of cartridge casings in an adjustable multiple-tile view and side-by-side view (test versus reference) for screening correlation results.
42.	The System displays recordings of bullets in a horizontal side-by-side view and a vertical top-to-bottom view of (test versus reference bullet).
43.	The System provides tools that allow an investigator to resize, overlap, blend, rotate and shift images along all axes of motion and rotation for comparison purposes.
44.	The System provides dynamic contrast, brightness and exposure of images in both tile and side-by-side views.
45.	The System can display automatic alignment of images in their best-fit position and/or orientation.
46.	The System displays the image of the three-dimensional topography as an elevation map representing the surface depth.
47.	The System displays a 3D view combining microscopic surface roughness and macroscopic shape, including the accurate representation of the true shape of deformed and fragmented bullets.
48.	The System allows deformed and fragmented bullets to be automatically reshaped to match a reference sample without disturbing surface roughness.
49.	The System should represent a cross-sectional profile of a three-dimensional topography.
50.	The System displays a detailed three-dimensional view of the correlated areas of the horizontal and vertical image strips of bullets, where the images can be slidably switched between two-dimensional and three-dimensional views.
51.	The System offers ways to improve the quality of images. These include brightness, contrast, sharpening and noise reduction.
52.	The System allows hits to be indicated, which are then made permanently visible as annotations in the relevant images. Linked cases can be disabled for future comparisons.
53.	The System allows searching on all data where images of the result can also be displayed in a tile screen.
54.	The System provides a printout of a side-by-side comparison.
55.	The System allows each individual investigator to customise the display and analysis parameters of the System to their own preferences.

2.5 Reporting Requirements

Requirement no	Description
56.	The System must be able to generate reports based on predefined templates, such as unique identification, case reference, police reference, date of the offence, calibre, general characteristics of the barrel, SIN ^[4] , samples, correlations and matches.
57.	The System must be able to generate customised reports for the investigator with access to all data fields.
58.	The System offers colour printing capabilities with a minimum resolution of 300 dpi.

3 Personnel requirements

3.1 Integrity, security and reliability requirements

Requirement no	Description
59.	Only employees of the Supplier who can produce a valid identification document may enter the Location. The Location may only be entered and left through the designated entrances, passageways and routes. Persons may only be present at places where work is to be carried out under this Agreement.

⁴ The SIN is a unique item or track number assigned to an item or track throughout the process and filing. This number can always be used to trace and derive the item or trace.

4 Financial requirements

4.1 Indexation

Requirement no	Description
60.	WHEN The tariffs in this Agreement may be indexed for the first time on 15 May 2026 and every year thereafter for as long as the Agreement lasts, including possible renewals. Indexation can be either upward or downward. Notice of indexation should be given at least 3 months before the effective date. HOW Where applicable, tariffs are indexed based on the Harmonised Index of Consumer Prices (HICP) (2015 = 100) Overall index, Euro area (changing composition), monthly. Series key: ICP.M.U2.N.000000.4.INX. The HICP is compiled by Eurostat, the statistical office of the European Union, and the national statistical institutes of EU Member States. For this purpose, the most recent month* known to Eurostat will be taken, no later than 3 months before the effective date. The indexation is then calculated as follows: $\left(\frac{\text{index year, month}}{\text{index year-1, month}} - 1 \right) * 100\%$ The result of the formula is rounded to one decimal place. WHO The Supplier shall submit a proposal for indexation to Contract Management of the IUC DJI at least 3 months before the effective date of indexation, based on the above. Indexation can also be initiated by Contract Management of the IUC DJI. The Supplier shall, if applicable, adjust the price sheet and return it to the Customer. After written confirmation of the indexation by the IUC DJI Contract Manager, the price change is effective as of the effective date. *) a month chosen once should also be used in subsequent years.

4.2 Billing

Requirement no	Description
61.	The Supplier shall send the invoice electronically (XML) so that it can be received and processed, subject to the specifications given by the Contracting Authority.
62.	Invoicing takes place in accordance with Annex 7 'E-invoicing leaflet'.
63.	Each purchase order is invoiced separately in accordance with the Agreement.
64.	The payment period is 30 days after receipt of an invoice. To meet the payment deadline, invoices should comply with set requirements.
65.	Invoices comply with all applicable legal requirements as a minimum. Invoices that do not comply with this will not be processed.
66.	After award, further arrangements can be made regarding billing.

5 Further assignments and/or orders

5.1 The ordering process

Requirement no	Description
67.	The Supplier agrees that the Buyer may place orders by email. An email address for Buyer shall be provided after award.
68.	Every delivery shall be accompanied by a packing slip. The packing slip must be clearly visible on the packaging. Each packing slip shall include at least the following information: - Order/order number; - Debtor number; - Number of packages;

	▪ Full delivery address; ▪ Description of products supplied; ▪ Numbers and units per product as stated on the order; ▪ Date of delivery.
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