

DETAILED APPLICATION INTAKE · LASER MARKING

Laser Marking Application Intake Questionnaire

EMAIL THIS FORM TO
sales@vytek.com
All forms: vytek.com/smp

QR CODE
[vytek.com/smp
?process=marking](http://vytek.com/smp?process=marking)

Use this questionnaire once a marking project is active, usually after the initial Project Brief or engineering review. Complete as much as possible. If an answer is unknown, or you would like Vytech to determine it, select "Unknown" or "Vytech to recommend." Missing technical details do not prevent submission; Vytech can help determine them through application review and sample testing. If you already sent a Project Brief, sections 1 to 4 may be shortened.

SEND WITH YOUR QUESTIONNAIRE

Attach drawings, photographs, sample mark files and production videos where available, and email them to sales@vytek.com. To send physical samples, include the Laser Marking Project Brief and Sample Evaluation Request with the parts.

01 CUSTOMER AND PROJECT INFORMATION

Company		Facility / location
Primary contact	Title / department	Date
Phone	Email	
Project name / reference		
Project status		
☐ Initial investigation	☐ Budgetary planning	☐ Active capital project
☐ Replacing existing equipment	☐ Production problem / capacity need	☐ Approved project / sourcing
☐ Other	☐ Unknown	
Desired equipment timing		
☐ Immediately	☐ Less than 3 months	☐ 3–6 months
☐ 6–12 months	☐ More than 12 months	☐ Not yet determined
Target installation date	Budget range, if established	

02 APPLICATION OVERVIEW

Briefly describe what you need the laser system to accomplish

Primary process

- | | | |
|--|---|---|
| ☐ Permanent part identification | ☐ Text / serial numbers | ☐ Barcode / Data Matrix / QR |
| ☐ UID / UDI | ☐ Logo / graphics | ☐ Annealing / contrast marking |
| ☐ Engraving / deep engraving | ☐ Surface ablation / coating removal | ☐ Laser etching |
| ☐ Decorative marking | ☐ Marking combined with cutting / drilling | ☐ Other <input type="text"/> |

What is the principal objective of the project?

03 CURRENT PROCESS

Is this process currently being performed?

☐ Yes ☐ No ☐ New product / new process

Current process or equipment

- | | | |
|--|---|---|
| ☐ Existing laser | ☐ Dot peen | ☐ Chemical etching |
| ☐ Inkjet / printing | ☐ Label | ☐ Mechanical engraving |
| ☐ Manual identification | ☐ Other <input type="text"/> | |

Existing equipment manufacturer / model

What problems or limitations are you trying to solve?

- | | | |
|--|--|--|
| ☐ Insufficient throughput | ☐ Poor mark quality / readability | ☐ Maintenance / reliability |
| ☐ Operator dependence | ☐ Consumable cost | ☐ Traceability requirements |
| ☐ Automation requirements | ☐ Existing equipment obsolete | ☐ Insufficient marking area |
| ☐ Additional capacity | ☐ Other <input type="text"/> | |

Additional details

04 PART INFORMATION

Part name

Part number(s)

Number of part types

Minimum part size (L × W × H)

Maximum part size (L × W × H)

Min. / max. part weight

Material

- | | | |
|--|---|---|
| ☐ Carbon steel | ☐ Stainless steel | ☐ Tool steel |
| ☐ Aluminum | ☐ Titanium | ☐ Copper / brass |
| ☐ Carbide | ☐ Ceramic / glass | ☐ Silicon / semiconductor |
| ☐ ABS / polycarbonate / nylon | ☐ PEEK / other polymer | ☐ PCB / electronic substrate |
| ☐ Composite | ☐ Other / unknown <input type="text"/> | |

Specific alloy / grade, if known

Surface condition

- | | | |
|--|--|-----------------------------------|
| ☐ Bare material | ☐ Polished / ground | ☐ Machined |
| ☐ Painted | ☐ Powder coated | ☐ Anodized |
| ☐ Plated | ☐ Passivated / heat treated | ☐ Oxidized |
| ☐ Other coating / finish <input type="text"/> | | |

Coating type and thickness, if applicable

05 PART GEOMETRY AND MARKING SURFACE

Marking surface

- | | | |
|---|--|---|
| ☐ Flat | ☐ Cylindrical | ☐ Conical |
| ☐ Curved | ☐ Irregular / 3D | ☐ Multiple heights |
| ☐ Multiple surfaces | ☐ Inside diameter | ☐ Outside diameter |
| ☐ Other <input type="text"/> | | |

Maximum height variation within marking area

Must the mark follow the contour of the part? ☐ Yes ☐ No ☐ Unknown

Does the mark wrap around a cylindrical or curved surface? ☐ Yes ☐ No ☐ Unknown

If yes, approximate wrap angle (degrees)

Is rotary motion required? ☐ Yes ☐ No ☐ Vytek to determine

06 MARK REQUIREMENTS

Typical individual mark size (W × H)

Total area containing all marks (X × Y)

Minimum character height / line width

Minimum barcode / Data Matrix cell size

Mark content

- | | | |
|--|--|--|
| ☐ Fixed text | ☐ Variable text | ☐ Serial / sequential numbers |
| ☐ Date / time / lot | ☐ Part number | ☐ Logo / graphics |
| ☐ 1D barcode | ☐ Data Matrix | ☐ QR code |
| ☐ UID / UDI | ☐ Database-generated data | ☐ Other <input type="text"/> |

Desired mark characteristics

- | | | |
|--|---|---|
| ☐ Dark / black | ☐ Light / white | ☐ High contrast |
| ☐ Annealed | ☐ Engraved | ☐ Deep engraved |
| ☐ Surface only | ☐ Color mark | ☐ Material removed |
| ☐ Coating removed | ☐ Other <input type="text"/> | ☐ Vytek to recommend |

Required engraving depth, if applicable

Are there cosmetic requirements? ☐ Yes ☐ No ☐ Unknown

Describe appearance requirements or provide an acceptable sample or photo

07 MARK QUALITY AND VERIFICATION

Applicable mark / code standard

- | | | |
|--|---|---|
| ☐ None specified | ☐ AIM DPM / ISO/IEC TR 29158 | ☐ ISO/IEC 15415 |
| ☐ ISO/IEC 15416 | ☐ MIL-STD-130 | ☐ UID requirement |
| ☐ UDI requirement | ☐ Customer-specific standard | ☐ Other / unknown <input type="text"/> |

Is barcode / Data Matrix grading required?

- ☐ Yes ☐ No ☐ Unknown

Required minimum grade

Post-mark verification required

- | | | |
|---|---|---|
| ☐ None | ☐ Presence / absence | ☐ OCR / OCV |
| ☐ Barcode read | ☐ Data Matrix read | ☐ Code grading |
| ☐ Position verification | ☐ Content verification | ☐ Finished-part inspection |
| ☐ Other <input type="text"/> | | |

Should failed parts be identified or automatically rejected?

- ☐ Yes ☐ No ☐ Unknown

08 MARK LOCATION, POSITIONING AND VISION

Required mark-position accuracy

Expected part-to-part positional variation

How accurately is the part presented?

- ☐ Precisely fixtured
 ☐ Approximately positioned
 ☐ Randomly positioned
 ☐ Varies significantly
 ☐ Unknown

Is machine vision required?

- ☐ Yes ☐ No ☐ Vytek to recommend

Potential vision functions

- | | | |
|---|--|--|
| ☐ Locate part | ☐ Locate feature / fiducial | ☐ Correct X/Y position |
| ☐ Correct rotation / scale | ☐ Identify part type | ☐ Read existing barcode |
| ☐ OCR | ☐ Verify mark | ☐ Inspect finished part |
| ☐ Other <input type="text"/> | | |

09 PRODUCTION REQUIREMENTS

Parts per hour / required takt

Parts per shift

Shifts per day / days per week

Annual production volume

Required total cycle time per part

Maximum acceptable marking time

Marking time and total cycle time are often unknown before testing. Leave them blank or mark them as estimates; sample evaluation measures process time and estimates cycle time for the handling method.

Production type

- | | | | |
|---------------------------------------|--|--|--|
| ☐ Continuous | ☐ Batch | ☐ High-mix / low-volume | ☐ Low-mix / high-volume |
| ☐ Intermittent | ☐ Prototype / R&D | | |

Typical batch size / frequency of part changeover

10 PART LOADING AND HANDLING

How will parts be presented?

- | | | |
|---|---|---|
| ☐ Individual operator load | ☐ Fixture | ☐ Pallet |
| ☐ Tray | ☐ Conveyor | ☐ Rotary / indexing dial |
| ☐ Robot / cobot | ☐ Bowl feeder | ☐ Magazine |
| ☐ Existing production line | ☐ Other / unknown <input type="text"/> | |

Pallet / tray dimensions

Parts per pallet / tray

Part spacing / pitch

Loaded pallet / tray weight

Are pallet, tray or fixture CAD drawings available?

- ☐ Yes ☐ No ☐ Can be developed

Should the entire pallet be marked without repositioning?

- ☐ Yes ☐ No ☐ Preferred ☐ Vytec to determine

Normal operator interaction

- | | | |
|--|--|---|
| ☐ Load one part at a time | ☐ Load fixture | ☐ Load pallet / tray |
| ☐ Load / unload drawer | ☐ No interaction in normal production | ☐ Other <input type="text"/> |

11 AUTOMATION REQUIREMENTS

Desired automation level

- | | | |
|--|--|---|
| ☐ Manual | ☐ Semi-automatic | ☐ Fully automatic |
| ☐ Integrated into existing line | ☐ Automation Ready (automate later) | ☐ Vytec to recommend |

Potential motion / automation requirements

- | | | |
|---|---|--|
| ☐ X/Y positioning stage | ☐ Z-axis | ☐ Rotary axis |
| ☐ Conveyor | ☐ Indexing table | ☐ Robot / cobot |
| ☐ Automatic door | ☐ Automatic fixture change | ☐ Automatic part identification |
| ☐ Automatic recipe selection | ☐ Automatic focusing | ☐ 3-axis dynamic focusing |
| ☐ Multiple marking stations | ☐ Other <input type="text"/> | |

12 EXISTING PRODUCTION LINE INTEGRATION

Machine installation

- ☐ Standalone ☐ Connected to another machine ☐ Existing production line ☐ New automated line

Upstream process

Downstream process

Describe how parts transfer into and out of the marking process

Required communications

- | | | |
|---|---|-------------------------------------|
| ☐ Discrete I/O | ☐ EtherNet/IP | ☐ EtherCAT |
| ☐ PROFINET | ☐ Modbus TCP | ☐ OPC UA |
| ☐ Serial | ☐ SQL / database | ☐ REST / API |
| ☐ Other / unknown <input type="text"/> | | |

Existing PLC manufacturer / model

13 SOFTWARE, DATA AND TRACEABILITY

Source of marking information

- | | | |
|--|--|---|
| ☐ Operator entry | ☐ Barcode scan | ☐ Work order |
| ☐ CSV / text file | ☐ Excel file | ☐ Database |
| ☐ ERP | ☐ MES | ☐ LIMS |
| ☐ PLC | ☐ Customer software | ☐ Other <input type="text"/> |

Systems the laser must communicate with

- | | | |
|---------------------------------------|--|---------------------------------------|
| ☐ ERP | ☐ MES | ☐ LIMS |
| ☐ SQL database | ☐ Customer database | ☐ Cloud system |
| ☐ PLC | ☐ Other / none <input type="text"/> | |

Software / system name

Is an API or communications specification available?

- ☐ Yes ☐ No ☐ Unknown

Data to be logged

- | | | |
|---|---|--|
| ☐ Serial number | ☐ Marked data | ☐ Date / time |
| ☐ Operator | ☐ Laser parameters | ☐ Part image |
| ☐ Before / after images | ☐ Barcode grade | ☐ Pass / fail |
| ☐ Production count | ☐ Cycle time | ☐ Alarm / fault history |
| ☐ Other <input type="text"/> | | |

Required record retention period

14 LASER AND OPTICAL CONFIGURATION

Complete this section only if you have known preferences. Vytek can recommend the laser source, wavelength, power, scanner, field size and optical architecture from the application requirements and sample testing.

Preferred laser type

- | | | |
|---|-------------------------------------|------------------------------------|
| ☐ Fiber | ☐ MOPA fiber | ☐ UV 355 nm |
| ☐ CO2 | ☐ Green | ☐ Ultrafast |
| ☐ Unknown / Vytek to recommend | | |

Preferred laser power, if known

Critical process priorities

- | | | | |
|--|--|--|---|
| ☐ Minimize heat input / HAZ | ☐ Fine feature resolution | ☐ Largest field | ☐ Smallest spot |
| ☐ Fastest marking | ☐ Highest contrast | ☐ Maximum engraving depth | ☐ Best edge-of-field quality |
| ☐ Vytek to optimize | | | |

Can a larger optical field be used for a smaller central work area?

- ☐ Yes ☐ No ☐ Vytek to determine

15 ENVIRONMENT AND FACILITY

Installation environment

- | | | |
|--|---|--|
| ☐ Clean manufacturing | ☐ General machine shop | ☐ Automotive |
| ☐ Aerospace | ☐ Medical | ☐ Semiconductor / electronics |
| ☐ Food / pharmaceutical | ☐ Foundry | ☐ Welding / fabrication |
| ☐ Dusty / contaminated | ☐ Other <input type="text"/> | |

Ambient temperature / humidity concerns

Process contaminants present

- ☐ Oil / coolant
 ☐ Dust
 ☐ Smoke / fumes
 ☐ None
 ☐ Other

Available electrical service

- ☐ 120 VAC
 ☐ 208 VAC
 ☐ 220/240 VAC
 ☐ 480 VAC
☐ Single phase
 ☐ Three phase
 ☐ Other / unknown

Compressed air availability / pressure

Available floor space (W × D × H)

Is fume extraction already in place?

- ☐ Yes
 ☐ No
 ☐ Unknown

Doorway, ceiling, floor-loading or other installation restrictions

16 LASER SAFETY

Preferred safety configuration

- | | |
|--|--|
| ☐ Fully enclosed Class 1 workstation | ☐ Class 4 / open processing |
| ☐ Selectable Class 1 / controlled Class 4 | ☐ Existing guarded cell integration |
| ☐ Unknown / Vyteck to recommend | |

Does the facility currently operate Class 4 lasers?

- ☐ Yes
 ☐ No
 ☐ Unknown

Does the facility have a Laser Safety Officer (LSO)?

- ☐ Yes
 ☐ No
 ☐ Unknown

Safety / support requirements

- | | | |
|---|---|--|
| ☐ Interlocked enclosure | ☐ Safety-rated door interlocks | ☐ Laser safety viewing window |
| ☐ Laser safety eyewear | ☐ Portable barriers | ☐ Warning signs / lights |
| ☐ Fume extraction | ☐ LSO training | ☐ Operator training |
| ☐ Other <input type="text"/> | | |

17 MACHINE CONFIGURATION AND ERGONOMICS

Preferred machine configuration

- | | | | |
|---|---|--|---|
| ☐ Benchtop | ☐ Floor-standing workstation | ☐ Conveyor system | ☐ Pallet system |
| ☐ Rotary / indexing system | ☐ Robot / cobot cell | ☐ OEM integration package | ☐ Custom automated machine |
| ☐ Vyteck to recommend | | | |

Operator position

- ☐ Standing
 ☐ Seated
 ☐ Either / not applicable

Maximum loading height, if constrained

Ergonomic / accessibility requirements

18 QUALITY, VALIDATION, DOCUMENTATION AND TRAINING

Validation / acceptance requirements

- | | | |
|--|--|--|
| ☐ Factory Acceptance Test (FAT) | ☐ Site Acceptance Test (SAT) | ☐ IQ / OQ |
| ☐ PQ support | ☐ Gauge R&R / capability study | ☐ Calibration certification |
| ☐ Process validation | ☐ Sample processing before purchase | ☐ Customer witness testing |
| ☐ Other <input type="text"/> | | |

Required acceptance criteria

Required documentation

- | | | |
|--|--|---|
| ☐ Operator manual | ☐ Maintenance manual | ☐ Electrical schematics |
| ☐ Pneumatic schematics | ☐ Mechanical drawings | ☐ Spare parts list |
| ☐ Consumables list | ☐ Preventive maintenance schedule | ☐ Software / PLC backup |
| ☐ Calibration documentation | ☐ Safety documentation | ☐ Other <input type="text"/> |

Training required

- | | | | |
|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| ☐ Operator | ☐ Maintenance | ☐ Programming | ☐ Laser safety |
| ☐ LSO | ☐ On-site | ☐ Remote | |

Number of personnel to be trained

19 SAMPLE PARTS AND FILES

Can sample parts be supplied to Vytek?

- ☐ Yes ☐ No ☐ To be determined

Number of samples available

May samples be permanently marked or destructively tested?

- ☐ Yes ☐ No ☐ Limited quantity

May Vytek section or cut samples if necessary?

- ☐ Yes ☐ No ☐ Ask before testing

Are acceptable "good" samples or photos available?

- ☐ Yes ☐ No

Attached where available

- | | | |
|---|---|---|
| ☐ Part drawings | ☐ STEP / 3D CAD files | ☐ DXF files |
| ☐ Pallet / tray drawings | ☐ Fixture drawings | ☐ Marking artwork / vector logo |
| ☐ Barcode specifications | ☐ Part photographs | ☐ Existing process photos / videos |
| ☐ Cycle-time data | ☐ Existing laser parameters | ☐ Quality specifications |
| ☐ API / communications documents | ☐ PLC / interface requirements | ☐ Facility / layout drawing |
| ☐ Equipment specification / SOW | | |

Shipping samples? Include a printed Laser Marking Project Brief and Sample Evaluation Request with the parts. It covers sample IDs, return shipping and confidentiality.

20 PROCESS FLOW AND EXCEPTIONS

The perfect part is easy. Production lives in the exceptions. Describe what really happens, including the unusual cases.

What happens immediately before laser marking?

How does the part arrive at the marking station?

What must the laser system do?

What happens immediately after marking?

What happens when a part or mark fails inspection?

Known variability / exceptions

- | | | |
|---|---|--|
| ☐ Part position varies | ☐ Part orientation varies | ☐ Part height varies |
| ☐ Warped parts | ☐ Multiple materials | ☐ Multiple finishes |
| ☐ Existing marks must be located | ☐ Unreadable barcodes possible | ☐ Incorrect / damaged parts may enter |
| ☐ Fixtures / pallets vary | ☐ Part geometry changes often | ☐ Production data may be unavailable |
| ☐ Manual rework required | ☐ Other <input type="text"/> | |

Describe unusual conditions, exceptions or process risks

21 PROJECT PRIORITIES AND FUTURE REQUIREMENTS

Most important project requirements

- | | | |
|--|--|---|
| ☐ Mark quality | ☐ Cycle time / throughput | ☐ Reliability |
| ☐ Automation | ☐ Multi-part flexibility | ☐ Traceability |
| ☐ Code readability | ☐ Small feature size | ☐ Minimal HAZ |
| ☐ Deep engraving | ☐ Ease of operation | ☐ Minimal operator handling |
| ☐ Compact footprint | ☐ Existing-line integration | ☐ Capital cost |
| ☐ Delivery schedule | ☐ Future expandability | ☐ Other <input type="text"/> |

List the three most important criteria for a successful system

Automation Ready does not mean buying automation you do not need. It means making sure the system you buy today does not prevent you from automating tomorrow.

Potential future requirements

- | | | |
|---|---|--|
| ☐ Additional part types | ☐ Larger marking area | ☐ Higher production rate |
| ☐ Higher laser power | ☐ Additional laser process | ☐ Automatic loading / unloading |
| ☐ Robot / cobot integration | ☐ Conveyor integration | ☐ Machine vision |
| ☐ Additional inspection | ☐ MES / ERP / database integration | ☐ Additional marking station |
| ☐ Other <input type="text"/> | | |

Additional information that would help Vytek understand the application

22 SUBMISSION CHECKLIST

Include the information that is readily available. Missing technical details do not prevent submission; Vytek can help determine them during application review.

Included with this questionnaire

- | | | |
|---|---|---|
| ☐ Completed intake form | ☐ Part drawings / CAD | ☐ Part photographs |
| ☐ Sample mark / artwork | ☐ Sample parts to follow | ☐ Production video |
| ☐ Quality / code specification | ☐ Interface / communications documents | ☐ Customer SOW / specification |
| ☐ Other <input type="text"/> | | |

Customer contact for follow-up questions

Preferred follow-up method / meeting availability

Export control: do not send export-controlled technical data or parts (ITAR / EAR) without contacting Vytek first. Files and data you send are kept for the evaluation and follow-up, and deleted on request.

RETURN THIS QUESTIONNAIRE

Email the completed questionnaire and attachments to sales@vytek.com. Vytek confirms scope within three business days of receiving complete information. Process forms and sample instructions are at vytek.com/smp. Questions: 978-342-9800. Vytek, 195 Industrial Road, Fitchburg, MA 01420, USA.

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