

First Class Laser Systems for Workflow-Driven Laser Production for Schools and Universities



Create a structured path from project intake to completed work. Trotec helps educational institutions improve lab utilization, maintain consistent results, and support reliable access across courses and semesters.

More Capacity from Every Educational Workflow



Institutional reality

Educational laser facilities must support changing student groups, varied project requirements, limited staff capacity, and deadline-driven demand peaks. The challenge is not only completing projects but maintaining a reliable process for students, educators, and authorized operators. Skill differences, shared equipment, scheduling constraints, and downtime all place pressure on the workflow.

Typical challenges

- ▶ Projects arrive in different formats
- ▶ Preparation requires educator and lab manager time
- ▶ Classes and projects compete for capacity
- ▶ New student groups require onboarding
- ▶ Settings and templates need protection



Where Trotec helps

Trotec connects project preparation, job organization, setup, production, training, and service in one workflow. This helps institutions:

- ▶ Prepare work before machine access
- ▶ Organize jobs in a central workflow
- ▶ Protect templates and settings
- ▶ Reduce setup errors
- ▶ Standardize processes across courses and semesters
- ▶ Support uptime through training and service
- ▶ Ruby® adds browser-based preparation, centralized job handling, and rights management.

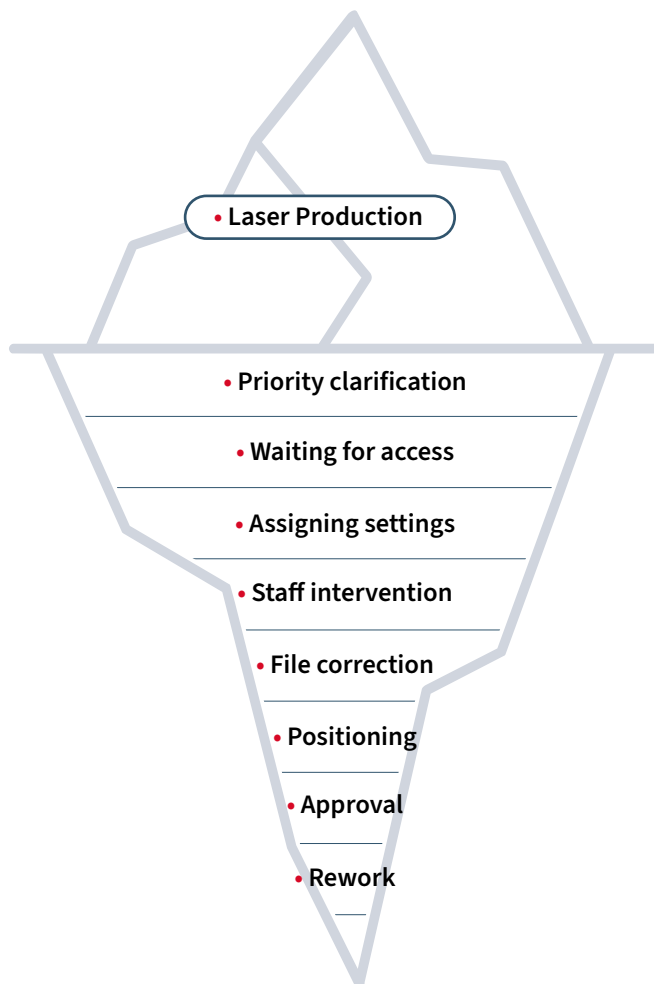


When the workflow is structured, educational institutions can make better use of equipment, educator time, and facility capacity.

Workflow Excellence Starts Before Production Begins

Workflow inefficiencies are expensive

Laser processing is only part of the day. Projects must be received, checked, prepared, assigned, positioned, and approved. When these steps depend on repeated intervention or individual expertise, capacity is lost before production starts.



Workflow inefficiencies

- ▶ Unstructured intake
- ▶ Repeated project preparation
- ▶ Waiting at the laser
- ▶ Uncertain settings and positioning
- ▶ Dependence on individual experts

Hidden costs

These inefficiencies appear as:

- ▶ Reduced productive lab time
- ▶ Increased staff intervention
- ▶ Material waste
- ▶ Delayed projects
- ▶ Inconsistent output
- ▶ Longer onboarding
- ▶ Lower equipment utilization

Operational consequences

For an educational institution, workflow friction affects more than throughput. It limits the number of student projects that can be supported, makes teaching and lab schedules less predictable, increases the operating cost of shared facilities, and restricts the institution's ability to expand access across courses and student groups.

The Trotec workflow philosophy

Structure intake. Standardize preparation. Guide setup. Stabilize production. Simplify handover. Support long-term availability. Many workflow improvements happen before production begins.

From Project Request to Reliable Educational Output

Step 1: Order intake



Structured job intake & planning

Operational challenge

Projects arrive from different courses and students with competing deadlines. Educators and lab managers must coordinate priorities and prevent unsuitable jobs from entering production.

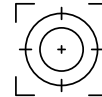
Trotec workflow contribution

Ruby® provides a shared environment for project preparation, organization, visibility, and rights management while helping protect approved templates and settings.

Institutional impact

- ▶ Clearer priorities
- ▶ Less administrative correction
- ▶ Improved use of booked lab time
- ▶ More manageable queue during demand peaks.

Step 3: Setup & positioning



Efficient setup & guided settings

Operational challenge

Mixed materials and inaccurate positioning can lead to waste, trial runs, and repeated intervention.

Trotec workflow contribution

Live preview, Vision Design & Position, and the material database support guided setup and more repeatable results.

Institutional impact

- ▶ Greater positioning confidence for students
- ▶ Less avoidable material use
- ▶ Shorter setup cycles
- ▶ More consistent work across courses and student groups.

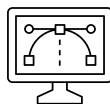
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Step 2: Job preparation



Purpose-driven automation

Operational challenge

File cleanup, setup repetition, and last-minute corrections consume valuable staff time and reduce available machine access.

Trotec workflow contribution

Ruby® enables preparation away from the laser through direct file handling, reusable profiles, and built-in correction tools.

Institutional impact

- ▶ Faster project preparation
- ▶ Fewer handoffs between students and educators
- ▶ Reduced dependence on individual software expertise,
- ▶ More productive use of scheduled machine access.

Step 5: Post-processing & delivery



Clean operation & protected uptime

Operational challenge

Cleaning and project handling can delay the transition to the next class or project session.

Trotec workflow contribution

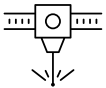
Exhaust systems, airflow management, and organized handover processes help keep facilities ready for the next job.

Institutional impact

- ▶ Reduced cleaning effort
- ▶ More reliable transition between classes
- ▶ Better protection of output quality
- ▶ More available time for teaching and productive project work.

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Step 4: Production



Predictable production quality

Operational challenge

Educational facilities must deliver consistent results across varying experience levels and changing project demands.

Trotec workflow contribution

Guided workflows, protected templates, controlled settings, and job visibility support a stable production process.

Institutional impact

- ▶ More consistent project results
- ▶ Improved equipment utilization
- ▶ Fewer workflow interruptions
- ▶ Greater capacity during busy teaching periods

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Step 6: Service & maintenance



Long-term reliability & expert support

Operational challenge

Downtime affects teaching schedules, student deadlines, and research activities.

Trotec workflow contribution

Training, workflow guidance, maintenance resources, and service options help maintain operational readiness.

Institutional impact

- ▶ More predictable availability
- ▶ Faster onboarding of new student groups
- ▶ Reduced dependence on one internal expert
- ▶ A stronger foundation for expanding access across courses and departments

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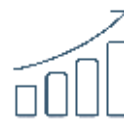
Why organizations choose Trotec



● Challenge



● Trotec contribution



● Business impact

Use shared
capacity
more
effectively

Preparation at the machine and unclear job priorities reduce productive access.

Multi-user preparation and central job organization allow projects to progress without requiring every preparation step to happen at the laser.

More productive use of scheduled lab time.

Reduce
avoidable
material
use

Inaccurate positioning, inconsistent files, and trial-based setup consume materials and educator and lab manager time.

Visual positioning, structured preparation, protected templates, and controlled starting parameters help reduce avoidable setup errors.

More predictable material consumption and better use of departmental budgets.

Standardize
output across
changing student
groups

Courses and semesters introduce new student groups with different experience levels.

Guided workflows, user and rights management, protected templates, and shared preparation standards create a common operating approach.

More consistent output and less dependence on individual experience.

Reduce
repetitive
preparation and
supervision

Unavailable equipment affects courses, submissions, research schedules, and booked lab access.

Training, maintenance guidance, system support, and Trotec service help institutions maintain operational knowledge and respond to interruptions.

More consistent output, faster onboarding, and reduced dependence on individual experts.

Protect
long-term
workflow
performance

Cleaning, maintenance, training, and service directly influence production continuity.

Trotec supports the operating environment through exhaust systems, laser materials, enablement, maintenance guidance, technical support, and service.

More stable daily operation and stronger protection of uptime and delivery performance.

The expertise behind workflow-driven production

Trotec combines workflow expertise, software, automation, training, service, and support to help organizations improve performance across the entire production workflow.

Choosing a laser system is also a decision about workflow, onboarding, support, and long-term operational continuity. Trotec supports institutions from implementation through daily educational use.



Many suppliers provide equipment. Trotec helps institutions build and support the workflow around it.

✓ Workflow expertise

Trotec helps institutions evaluate project intake, access management, preparation processes, and operational controls to establish an effective workflow.

✓ Software ecosystem

Ruby® provides a structured environment for preparing, organizing, and managing laser jobs across courses, student groups, and semesters.

✓ Automation and integration

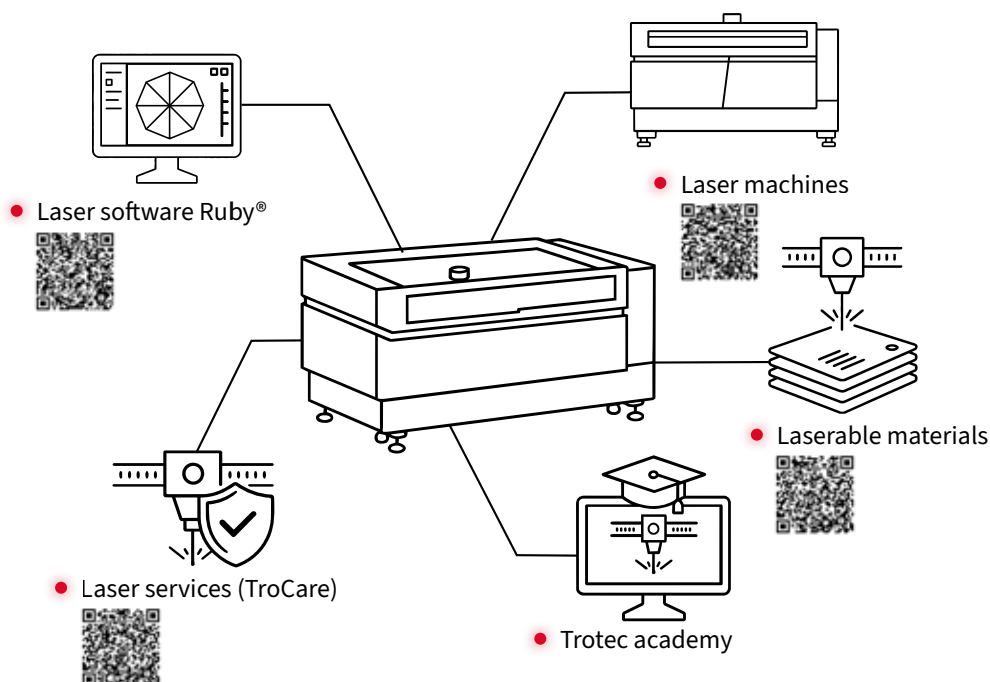
Trotec supports workflows ranging from standardized preparation to connected processes. The goal is to reduce repetitive work while protecting established procedures.

✓ Training and enablement

Training, application guidance, workflow videos, and maintenance resources support repeatable onboarding for new student groups.

✓ Global service and support

Maintenance, technical assistance, and service help institutions maintain equipment availability and operational continuity.



Improve every stage of the educational workflow

Educational institutions depend on reliable facility access, efficient use of educator and lab manager capacity, and consistent project results across courses, student groups, and semesters.

Trotec Black Line helps improve workflow performance from student project intake and preparation through production, educator enablement, student onboarding, and long-term facility operation.

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trotec



Ideal for schools and universities:
Speedy BlackLine and SpeedMarker 330

First class laser systems for workflow driven production



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