

BALLUFF

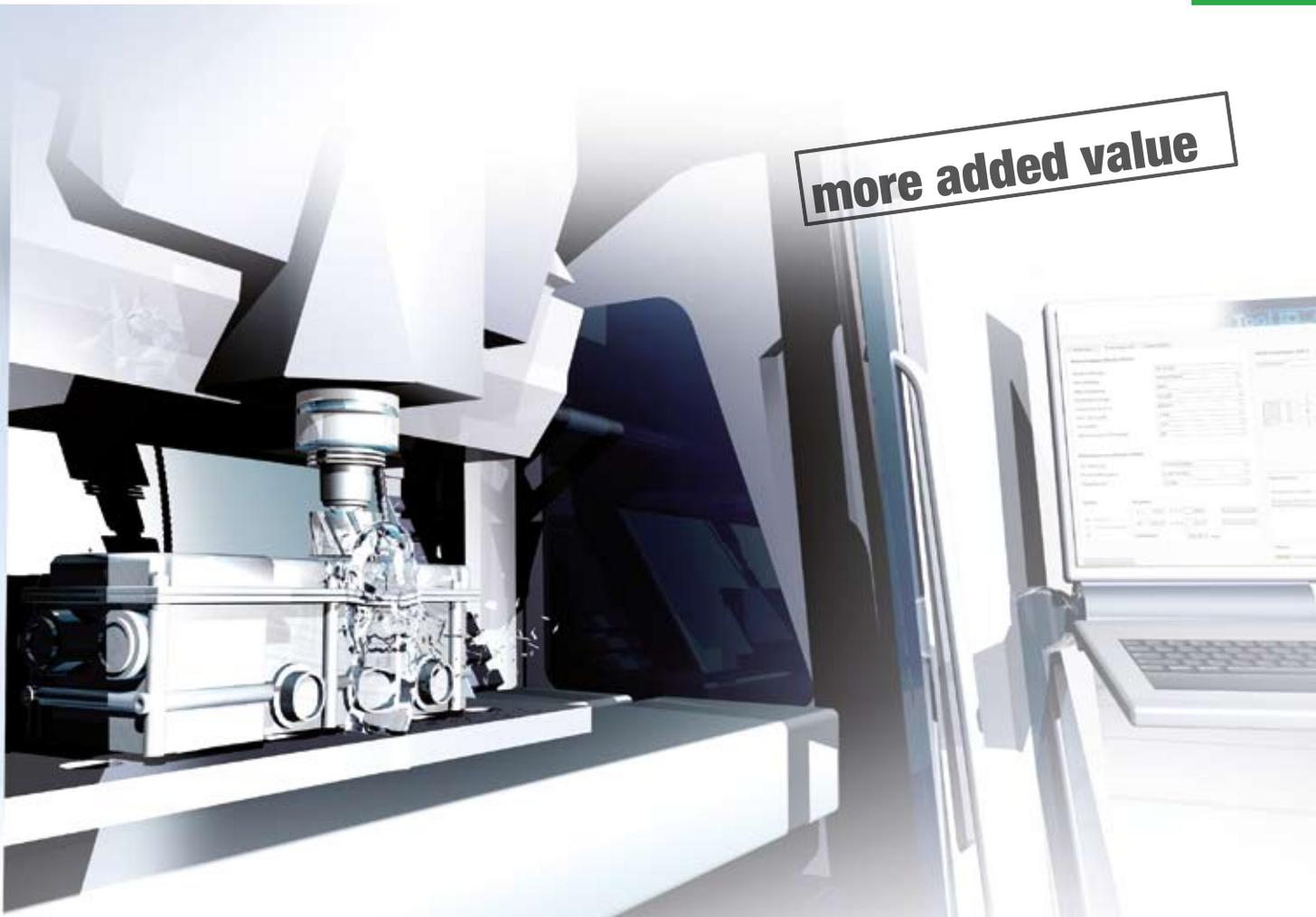
sensors worldwide

Tool Identification with Industrial RFID

More efficiency through improved processes



more added value



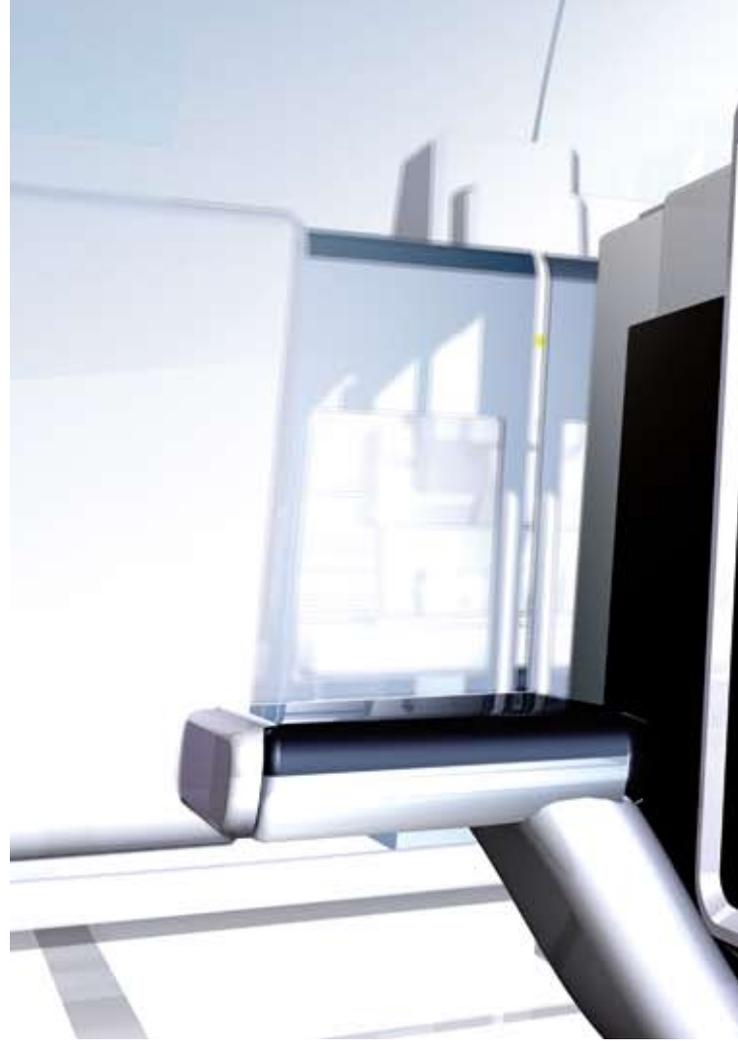
Tool Identification with Industrial RFID

Reliably manage your tools
Increase productivity

Technical progress in machine tools is a success story that is setting standards. Today's modern machine tools have little in common with their predecessors. And yet development and process optimization on machine tools continues, with the goal of the greatest possible utility and highest efficiency.

Which is just where Balluff Industrial RFID comes in. Our systems provide complete tool data with extreme reliability and guarantee assured operation as well as increased productivity of the equipment. Capable of integration in every commonly used machine controller, our Industrial RFID systems ensure flexible and reliable communication in the tool management system. And they do it absolutely without contact and maintenance-free. Tools always carry their individual data with them so they can be optimally used and managed.

Increase the uptime of your machines with Balluff Industrial RFID. You'll optimize your production processes. And profit from over 20 years of Balluff expertise in Industrial RFID.



Optimal tool utilization

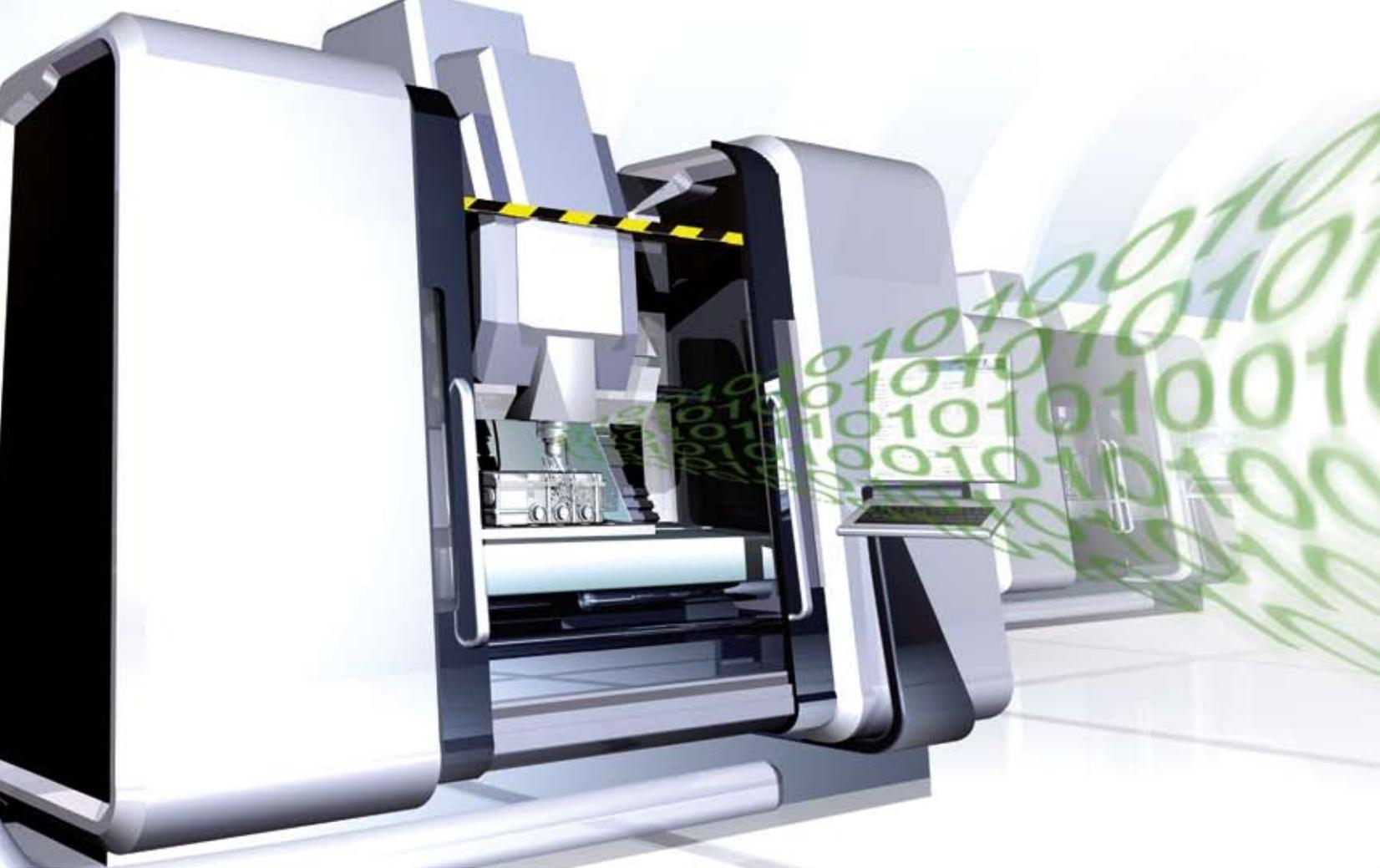
With Industrial RFID you utilize your tools in an optimal manner, since

- precise, up-to-date tool life information is ensured
- nominal/actual wear is accurately logged and maintained in a tool statistics database
- continuous monitoring ensures maximum tool quality and in turn
- reduces tool inventory requirements.

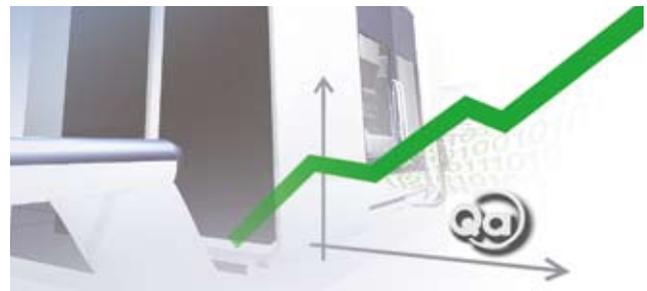
Paperless tool information

Convince yourself of the advantages of paperless information that makes data transfer absolutely reliable: The tool data

- are always correct, since manual entry mistakes are eliminated
- can be recalled at any time, since the information is always located on the tool itself
- can be unambiguously associated, since the tool and data carrier are always integrated
- are never lost, since paper and labels have been eliminated.



Tool identification with Industrial RFID means incorrect assignments or missing tools are a thing of the past. All the tool-relevant data are stored non-contact on a data carrier which is fixed on the tool holder. Automatic reading into the machine memory means all the data are always correct. And always up-to-date. Because the data are continuously updated when the tool is loaded and unloaded. In modern production facilities this ensures maximum tool utilization and high machine uptime.



Electronic data transmission

Sending tool data electronically is not only simple, it also provides unlimited reliability. Save time and profit from these benefits:

- Manual entry is eliminated and information cannot be forgotten.
- Unambiguous association in the tool magazine is ensured.
- Tool data can be recalled at any time – even after removal from the tool magazine.
- Greater machine uptime, since data entry requires less time. Machine downtime is significantly reduced.

Quality assurance

Balluff Industrial RFID optimizes production quality and efficiency. And allows you to easily verify your consistently high-quality processes to your customers.

Make full use of your capabilities. And increase your added value.

- Consistent quality and verifiability are ensured.
- Nominal tool life of the tools cannot be inadvertently exceeded.
- Monitored tool quality reduces scrap.

Tool Identification with Industrial RFID

Improve quality
Increase efficiency

Balluff Industrial RFID systems provide you with the analysis data which is indispensable for exact cost calculations and modern quality and tool management.

All the relevant tool data, such as numbers, dimensions or tool life are stored by the Balluff Industrial RFID system. With absolute reliability. And all the data are available at any time.

Balluff Industrial RFID supports your tool management system and not only simplifies data management. It also improves the quality of the production process. And increases the efficiency of your equipment. Optimal tool utilization with Industrial RFID ensures the best possible added value.

Tool crib

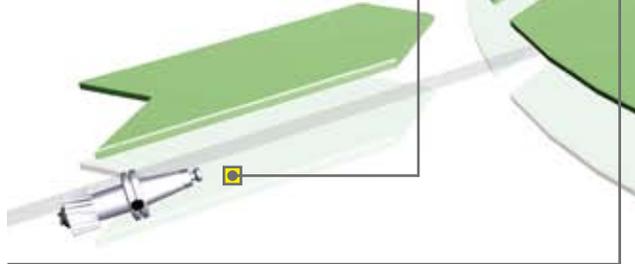
Ready to use immediately

- Tools are always at the ready so they can be optimally utilized.
- Data are complete and error-free.
- Data can be retrieved at any time.

New tool

Simple integration into the tool

- Thanks to standardized size for installation in HSK spindles per DIN 68871-A and SK tapers per ISO/DIS 12164-1



Tool presetting

Convenient and absolutely reliable storing of tool data

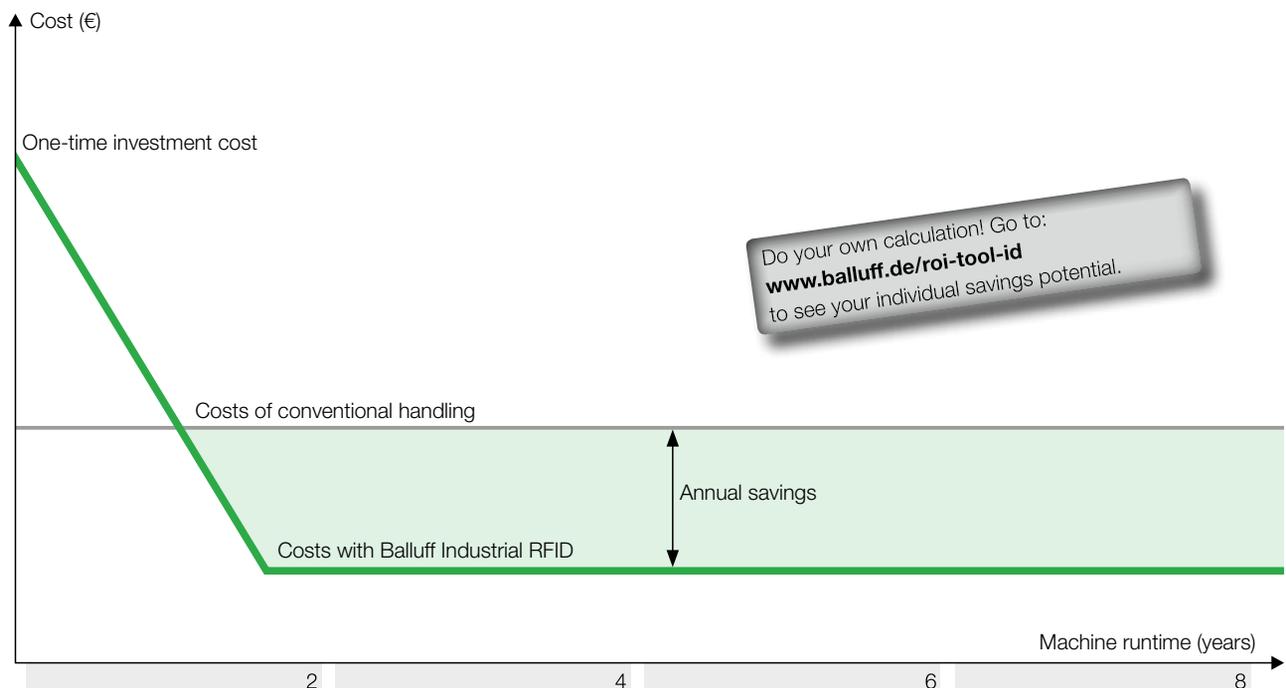
- All the data are stored directly on a data carrier embedded in the tool holder. No more manual entry errors.
- Tool data are permanently and uniquely associated with the tool.

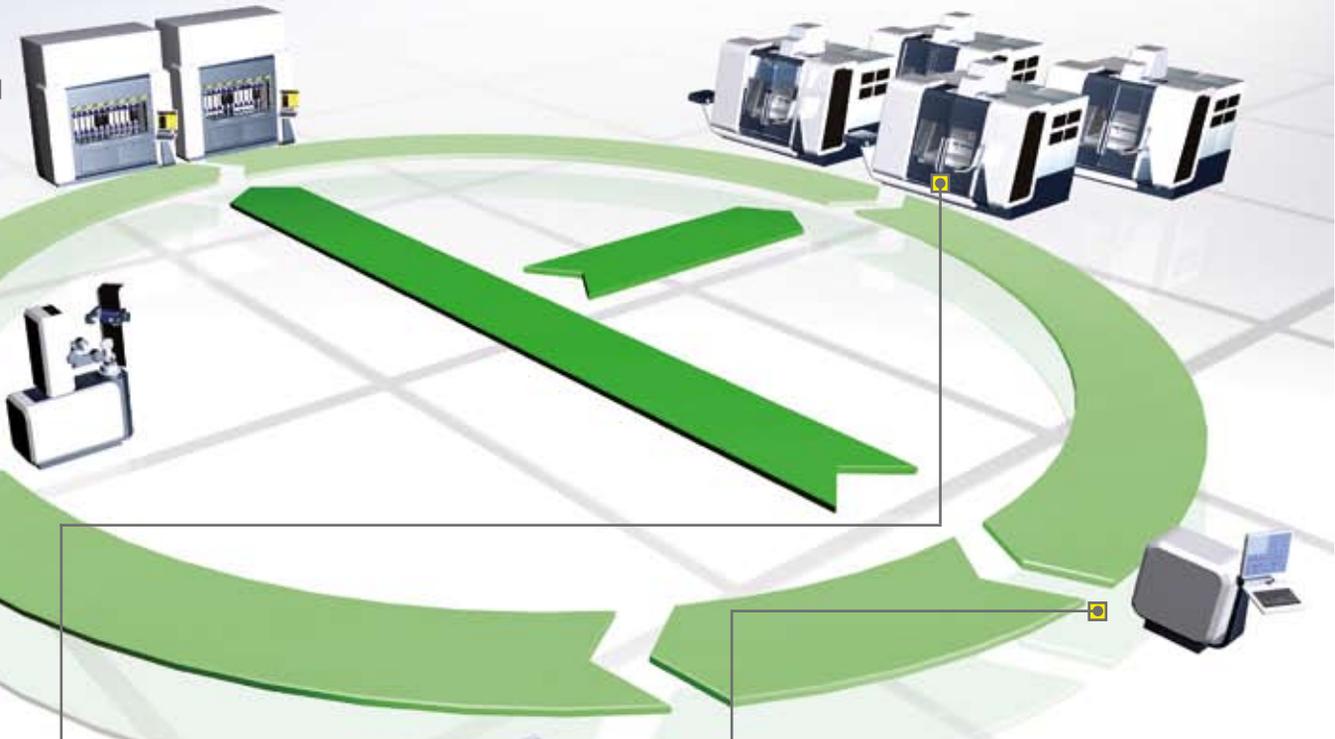
Tool Identification with Industrial RFID

Reduce costs

Compare Industrial RFID tool management with conventional tool handling. And convince yourself of the tangible cost advantages of Industrial RFID.

The cost calculation presumes a medium-size production facility with twelve machining centers and 1200 tools. The up-front procurement will have paid for itself after only a short time.





Machine tool

Greater machine uptime

- Through reliable, unique association in the tool magazine
- All tool data are acquired and automatically transferred to the machine memory.
- No incorrect entries, no forgetting of data



Tool life monitoring

Greater efficiency

- Exact inventorying reduces stock level requirements and offers great savings potential.
- Exact tracking of tools in the work process ensures efficient tool usage.
- Maximum quality: Tools are sharpened or replaced just-in-time.

Handling with Industrial RFID

Tool breakage	Quantity:	20 pcs./year
	Downtime:	10 minutes
	Downtime costs:	Machine hourly cost Operator hourly cost = 4 €/min (assumption)
		<hr/> = 200 min × 4 €/min = 800 € cost/year

Conventional handling

Tool breakage	Quantity:	175 pcs./year
	Downtime:	10 minutes
	Downtime costs:	Machine hourly cost Operator hourly cost = 4 €/min (assumption)
		<hr/> = 1750 min × 4 €/min = 7,000 € cost/year

➔ **Annual savings with Balluff Industrial RFID 6,200 €** (not including resulting production downtime)

Tool utilization	Avg. tool price:	150 €
	Tool utilization:	< 92 %
	New tool:	< 340 pcs./year
	Lost utilization:	8 %
		<hr/> = (340 pcs./year × 150 €) × 8 % = 4,080 € cost/year

Tool utilization	Avg. tool price:	150 €
	Tool utilization:	< 65 %
	New tool:	< 500 pcs./year
	Lost utilization:	35 %
		<hr/> = (500 pcs./year × 150 €) × 35 % = 26,250 € cost/year

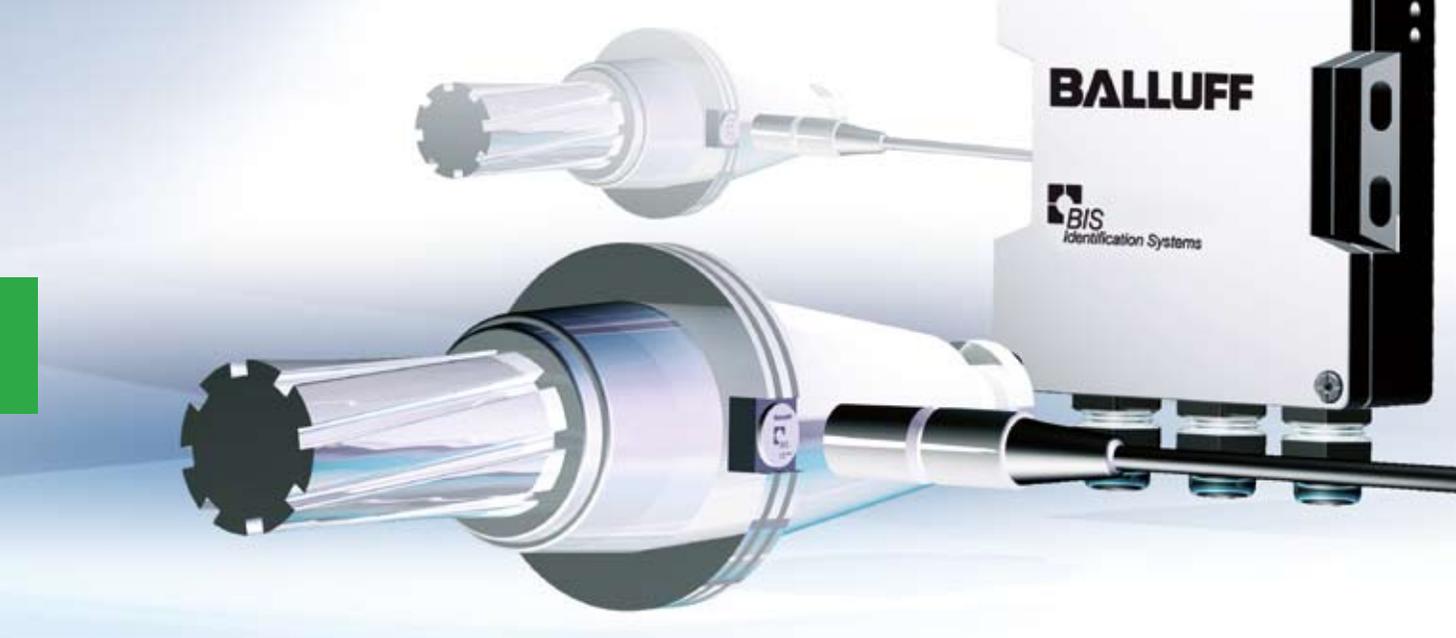
➔ **Annual savings with Balluff Industrial RFID 22,170 €**

Tool and data entry	Loading, data entry:	0.3 minutes
	Machine hourly rate:	64 € (1.07 €/min)
	Tool changing assuming 2-shift operation per machine:	avg. 25 changes/day
	Machine operation:	250 days/year
		<hr/> = 0.3 minutes × 25 tool changes × 12 machines × 250 days × 64 €/h = 24,000 € cost/year

Tool and data entry	Loading, data entry:	1.3 minutes
	Machine hourly rate:	64 € (1.07 €/min)
	Tool changing assuming 2-shift operation per machine:	avg. 25 changes/day
	Machine operation:	250 days/year
		<hr/> = 1.3 minutes × 25 tool changes × 12 machines × 250 days × 64 €/h = 104,000 € cost/year

➔ **Annual savings with Balluff Industrial RFID 80,000 €**

Total annual savings with Balluff Industrial RFID 108,370 €



Data exchange between the data carrier and read/write head is non-contact and therefore wear-free. The data and necessary power for the data carrier are inductively coupled by the read/write head. This means the data carrier requires no battery for power. The reliability of the data transmission is guaranteed by special checking software.

Tool Identification with Industrial RFID

The system

Non-contact tool identification in modern machine tools makes an indispensable contribution to defect-free and efficient production processes.

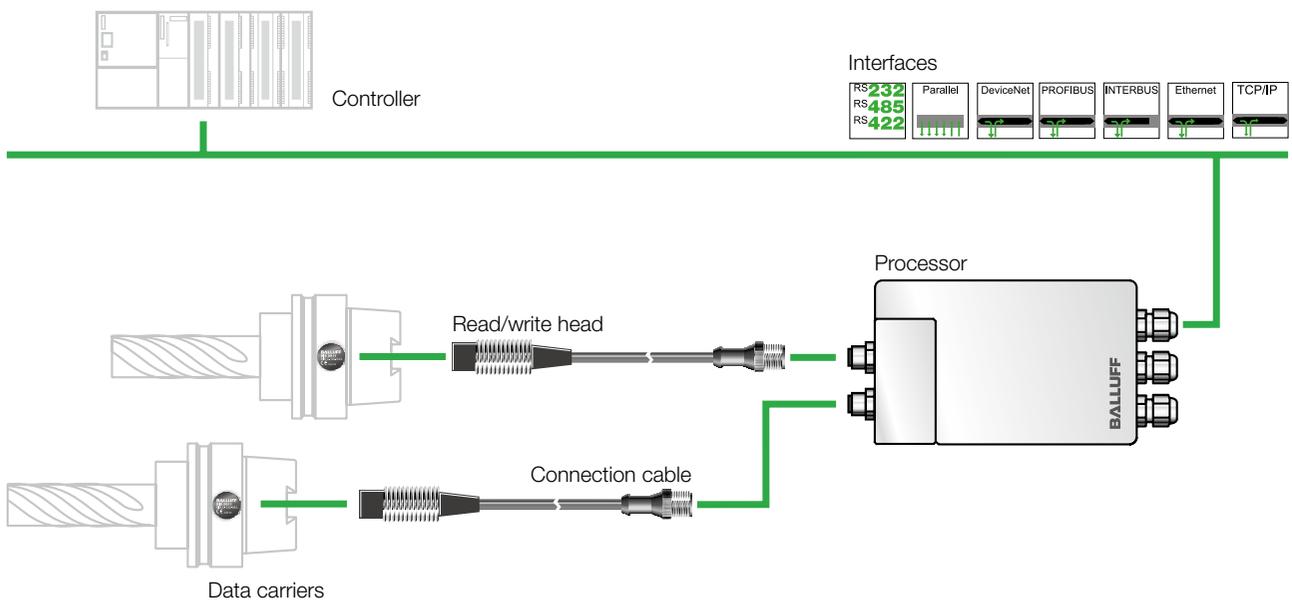
Extremely rugged and absolutely impervious to environmental effects, Balluff Industrial RFID systems are exceptionally reliable and dependable. This is guaranteed by their inductive principle of operation. Balluff Industrial RFID systems are therefore ideal for use in the harsh industrial environment of the machine tool.

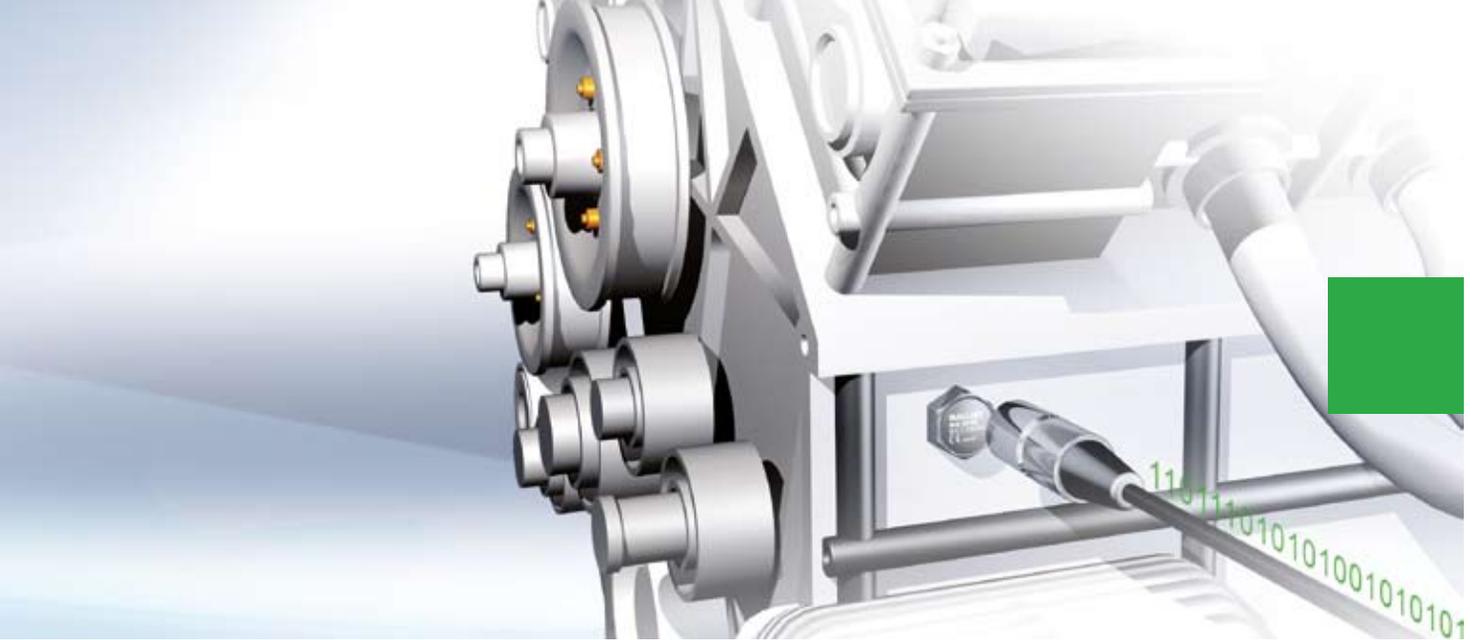
You too can benefit from these powerful Industrial RFID systems for tool identification.

A wide variety of

- Data carriers,
- Read/write heads,
- Processors and
- Accessories

are available. Simply make your choice based on the features you need. And you will benefit from the ease of installation.





At an engine production plant, a data carrier is installed on the work-piece prior to machining and assembly. All the process data can be minutely recorded, any defects precisely localized and analyzed. This ensures rapid response should in the worst case a recall be issued. Balluff Industrial RFID offers security.

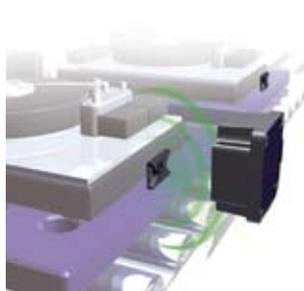
Product Identification with Industrial RFID

Reliably track parts

In addition to tool identification, Balluff Industrial RFID systems also offer significant advantages in unbroken documentation and automation of the entire manufacturing process. Parts can be easily kept track of – whether in the machining or assembly process.

Each step in machining or assembly is stored on the data carrier to ensure traceability for providing the greatest process reliability and highest quality.

In addition, you can precisely monitor work steps which directly precede or follow the production process, and use them for optimized resource management. Balluff Industrial RFID lets you create transparency and reduce your costs.



90° angled data carrier

For large assembly systems with many shunt points. Create new possibilities. While saving time. With a data carrier whose data are available from two 90° offset sides. No longer do the work-piece carriers have to be rotated for reading and writing.

Screw tag

Ideally suited for harsh environments. Their rugged design ensures that screw tags enable parts tracking in production processes where coolants or chips are present in significant quantities. Washing equipment and vacuum driers also leave them unfazed.

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For 100% quality and consistent defect prevention even on metal. Consistent high performance in any environment – regardless of the substrate material. The small form factor handles large quantities of data. And at long range.

Pallet identification

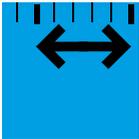
The large variety of models in the Balluff Industrial RFID system makes pallet identification absolutely reliable in any surroundings. Balluff Industrial RFID systems make their contribution – in improving automation, preventing process interruptions and in process-oriented quality assurance.

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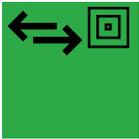
sensors worldwide



Object Detection



Linear Position Sensing



Industrial Identification



Industrial Networking and Connectivity



Mechanical Accessories



Learn more about the broad product range of our Industrial RFID Systems in our brochures, on CD-ROM, DVD-ROM or online!



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