



eBook

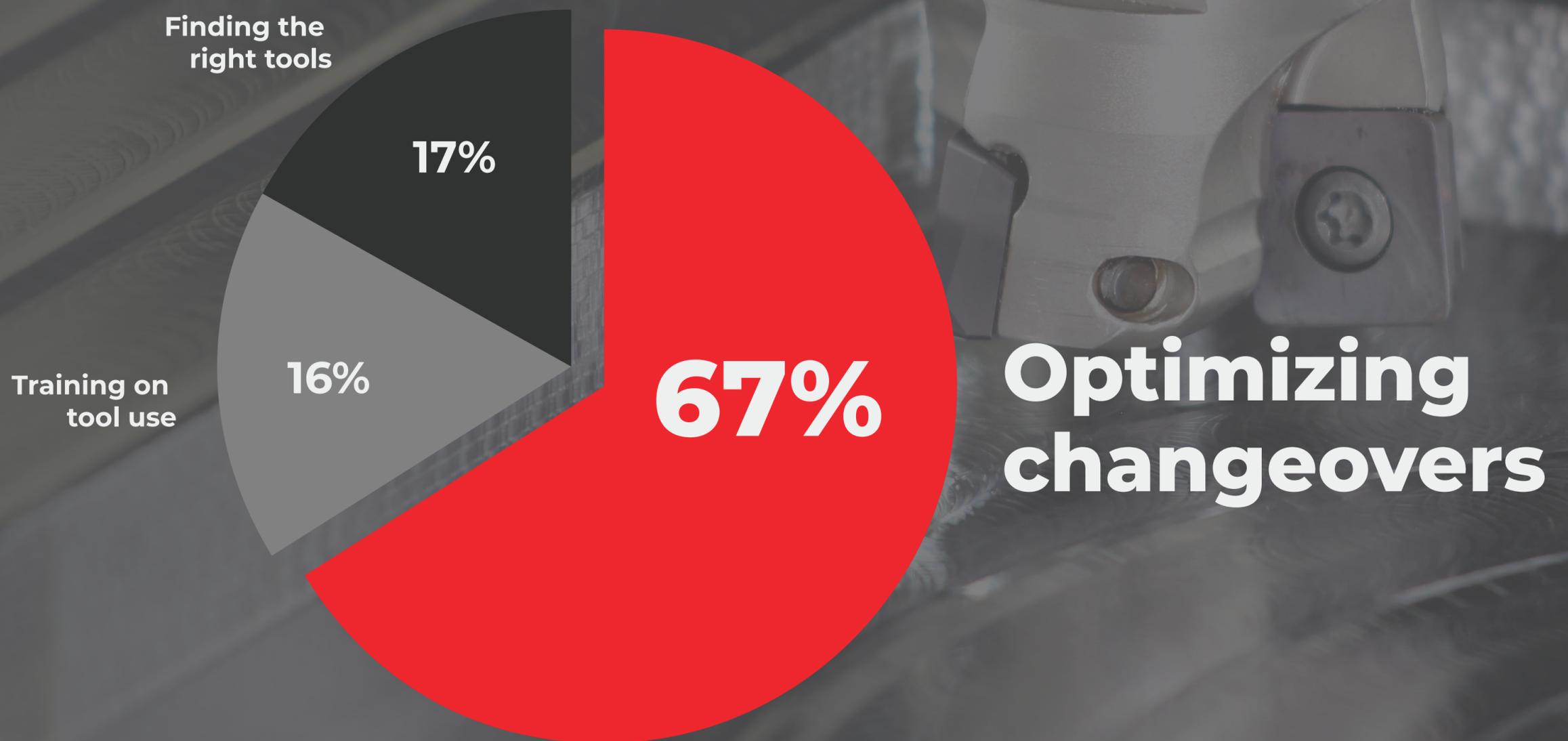
Cutting Through Challenges

How Cutting Tools
Can Improve Your Process

SEE HOW



What's the biggest challenge with time-consuming setups in machining and how can cutting tools help?



Time-consuming setups may cause:

- Loss of productivity
- Inefficient use of resources
- Increased downtime

High feed operations can help to optimize changeovers and reduce the impact of time-consuming setups

Faster machining times

By using high feed rates, high feed operations can remove material quickly and efficiently, reducing the time required for machining and overall production times.

Reduced tool changeovers

High feed tools are designed to withstand the high forces and speeds associated with high feed operations, meaning that they may be able to last longer between tool changeovers. This can reduce the time required for tool changes, as well as the associated downtime and costs.

Improved consistency

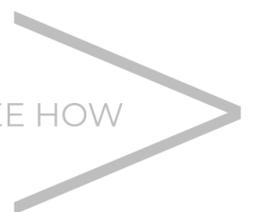
High feed operations can provide consistent, high-quality results, reducing the need for operator intervention and ensuring that production runs smoothly and efficiently.

Reduced setup times

By optimizing cutting parameters and tooling, high feed operations can help to minimize the time required for setup and changeover. This can reduce downtime, increase productivity and ultimately improve overall efficiency.

+INFO: palbit.pt/en/high-performance-with-high-feed-solutions

SEE HOW



PALBIT TEST REPORT

AUTOMOTIVE INDUSTRY

+50% Tool Life Increase

-58% Cycle Time Reduction

SEE HOW 



AXLE BEAM ROUGHING

Material: SG Iron
Operation: High-feed Roughing

Competitor

Palbit

Tool Details

Inserts	Competitor Insert	
Toolholder	Ø80, Z6	
Cutting Dia.	Dc	80
No. Pockets	Z	8
No. Edges / Insert		4

SOEW 160512 S PH7920
080A06815-06-02-027050



80	mm
6	
4	

Cutting Parameters (Tool)

Spindle Speed	N	717	800	rpm
Cutting Speed	Vc	180	201	m/min
Linear Feed	Vf	7 100	8 500	mm/min
Feed per Tooth	fz	1,24	1,77	mm/tooth
Cutting Width	ae	70%	70%	%Dc
Depth of Cut	ap	1	2	mm

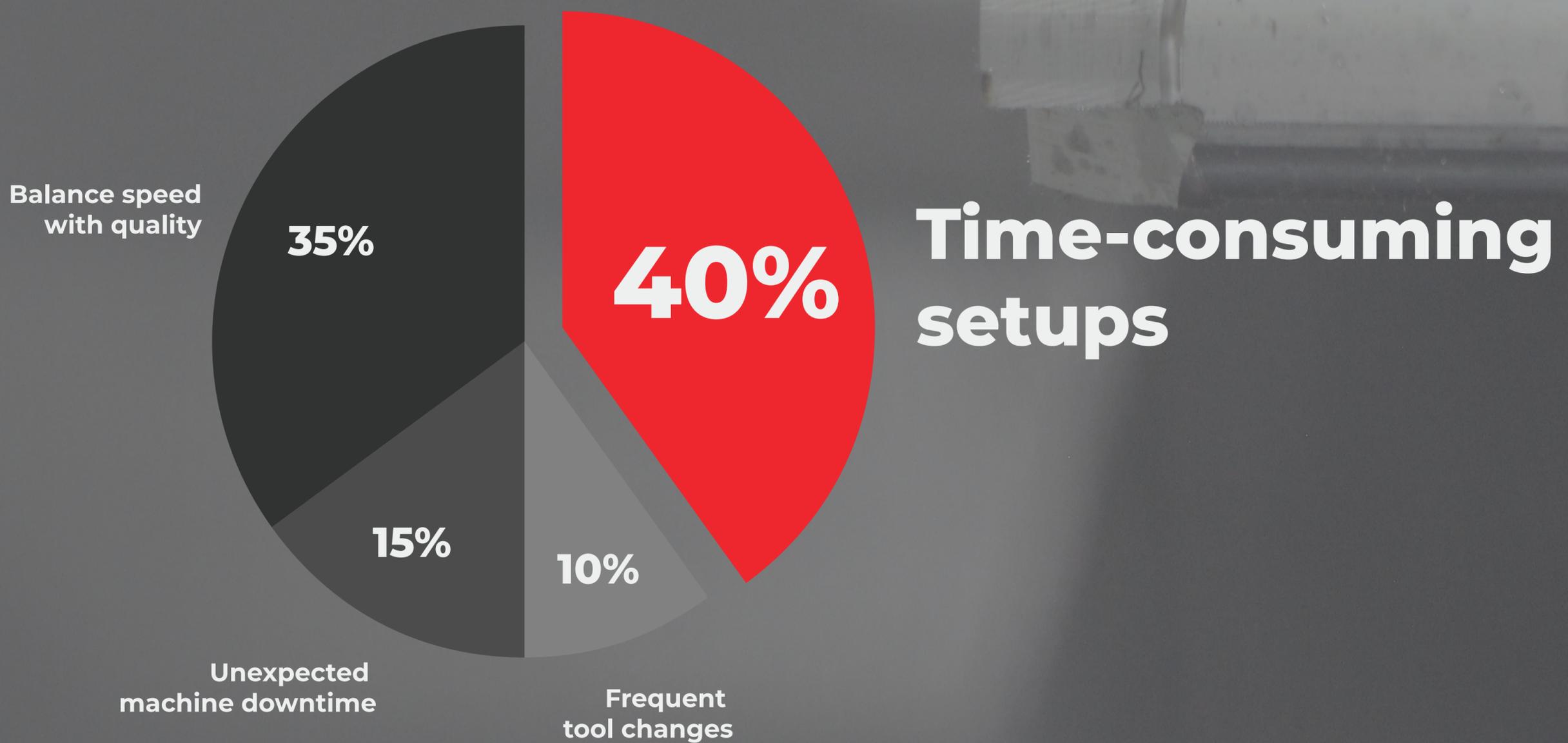
Result

Tool Life / Edge	4	6	pcs
Insert Tool Life	16	24	pcs
Material Removal Rate	398	952	cm3/min

+ 50%
Tool Life Increase

- 58%
Cycle Time Reduction

What is the biggest challenge you encounter when optimizing cycle time in machining?



The main challenges in optimizing cycle time are:

- Inefficient tool paths
- Inappropriate cutting parameters
- Machine limitations

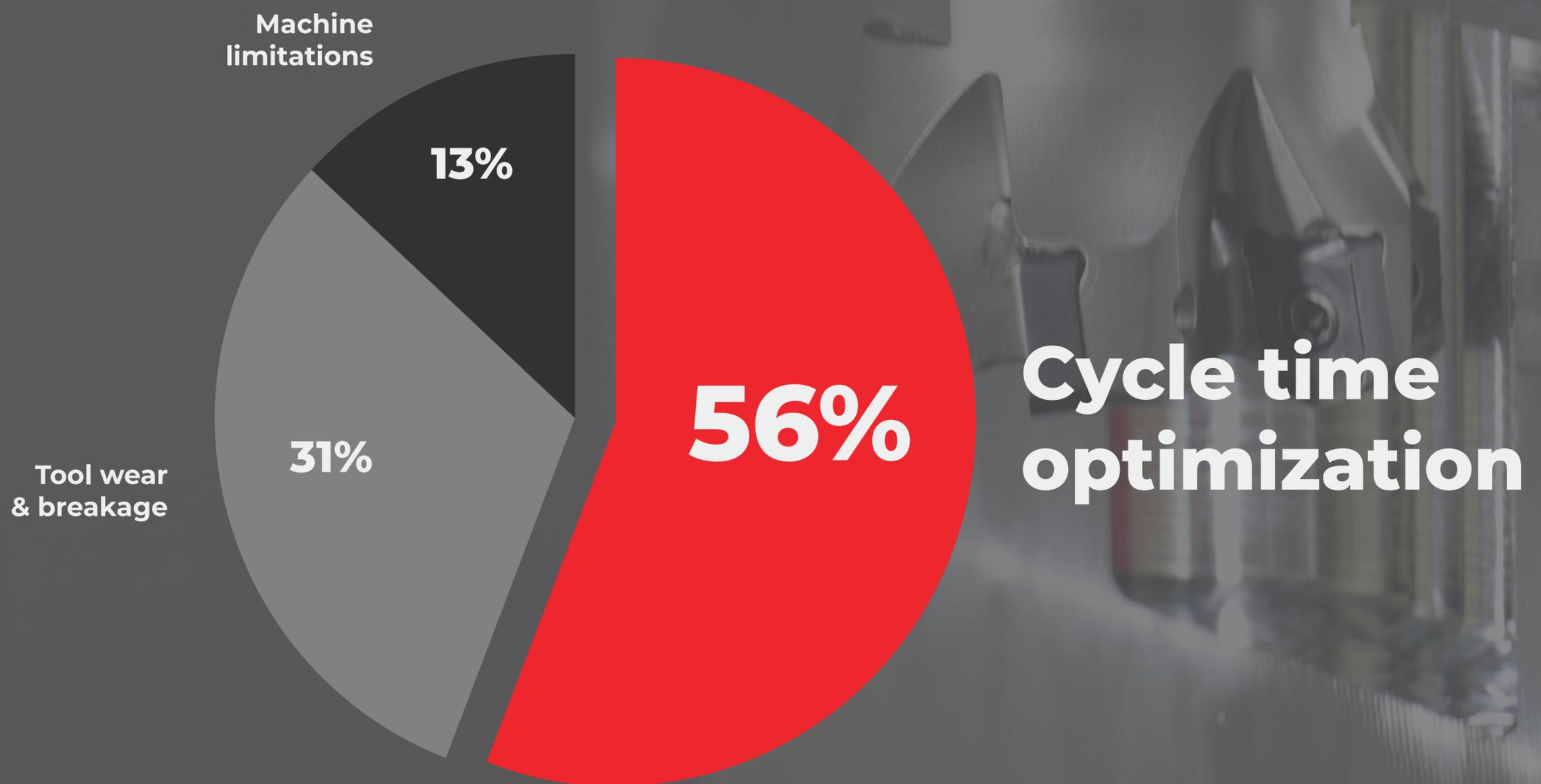
Time-consuming setups impact in cycle time optimization:

- Longer lead times
- Reduced machine availability
- Lower productivity

Strategies for reducing setup time and increasing efficiency:

- Standardization of tooling
- Implementation of automation
- Utilization of simulation and optimizing software

What's the biggest challenge in reducing production costs for CNC machining?



There are several factors to consider when optimizing cycle time

Machine setup

The machine setup should be optimized to maximize the effectiveness of high feed operations. This may involve adjusting the workpiece position or orientation, ensuring proper coolant flow, or making other adjustments to optimize the cutting process.

Workpiece material

The material being machined can have a significant impact on cycle times. Harder materials may require a slower feed rate or different cutting strategies to prevent tool damage or premature wear.

Cutting parameters

The cutting parameters, such as the feed rate, spindle speed, and depth of cut, must be carefully selected and optimized for the specific application. These parameters will vary depending on the workpiece material or tool selection.

Tool selection

Choosing the right cutting tool for the job is crucial.

Need the perfect tool reduce your time cycle? Know more about Tetrafeed.

- Internal coolant system
- Bigger screw size to withstand loads of demanding operations
- Robust insert with large cross section
- Improved wear resistance

SEE HOW



+INFO: palbit.pt/en/tools-highlights/tetrafeed-16420



PALBIT TEST REPORT

MOLD & DIE INDUSTRY

+15% Tool Life Increase

-68% Cycle Time Reduction

SEE HOW

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BLOCK ROUGHING

Material: Steel Ck45
Operation: Rough Milling

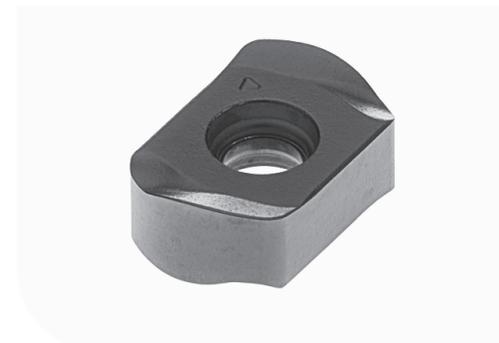
Competitor

Palbit

Tool Details

Inserts	Competitor Insert	
Toolholder	Ø40, Z4	
Cutting Dia.	Dc	40
No. Pockets	Z	4
No. Edges / Insert		6

XNKU 06T310-MP PHS740
050A16320-06-07-022040



Cutting Parameters (Tool)

Spindle Speed	N	1 400	850	rpm
Cutting Speed	Vc	176	134	m/min
Linear Feed	Vf	600	4 500	mm/min
Feed per Tooth	fz	0,11	0,88	mm/tooth
Cutting Width	ae	70%	70%	%Dc
Depth of Cut	ap	1,5	0,5	mm

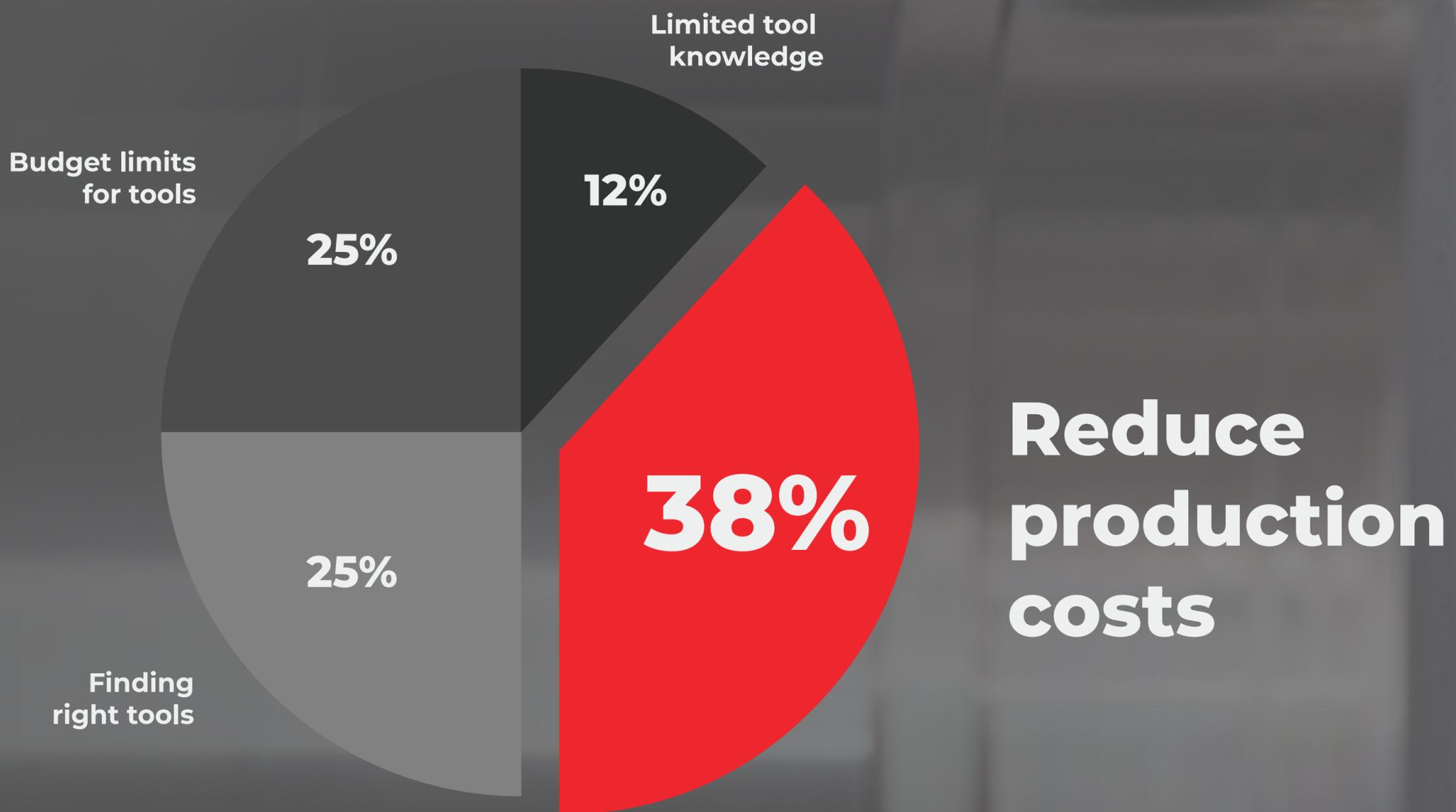
Result

Tool Life / Edge	18	31	pcs
Insert Tool Life	108	124	pcs
Material Removal Rate	25	79	cm3/min

+ 15%
Tool Life Increase

- 68%
Cycle Time Reduction

Which of the following do you feel is the biggest challenge when it comes to balancing tool life and cost in CNC machining?



The challenge of finding the perfect balance between tool life and cost

- High-performance tools with shorter tool life can increase costs
- Low-cost tools with longer tool life may compromise productivity and quality

Palbit's approach to balancing tool life and cost

- Selection of advanced materials and coatings
- Optimized tool geometries
- Multi-Purpose Tools to optimize tool inventory

Multicut

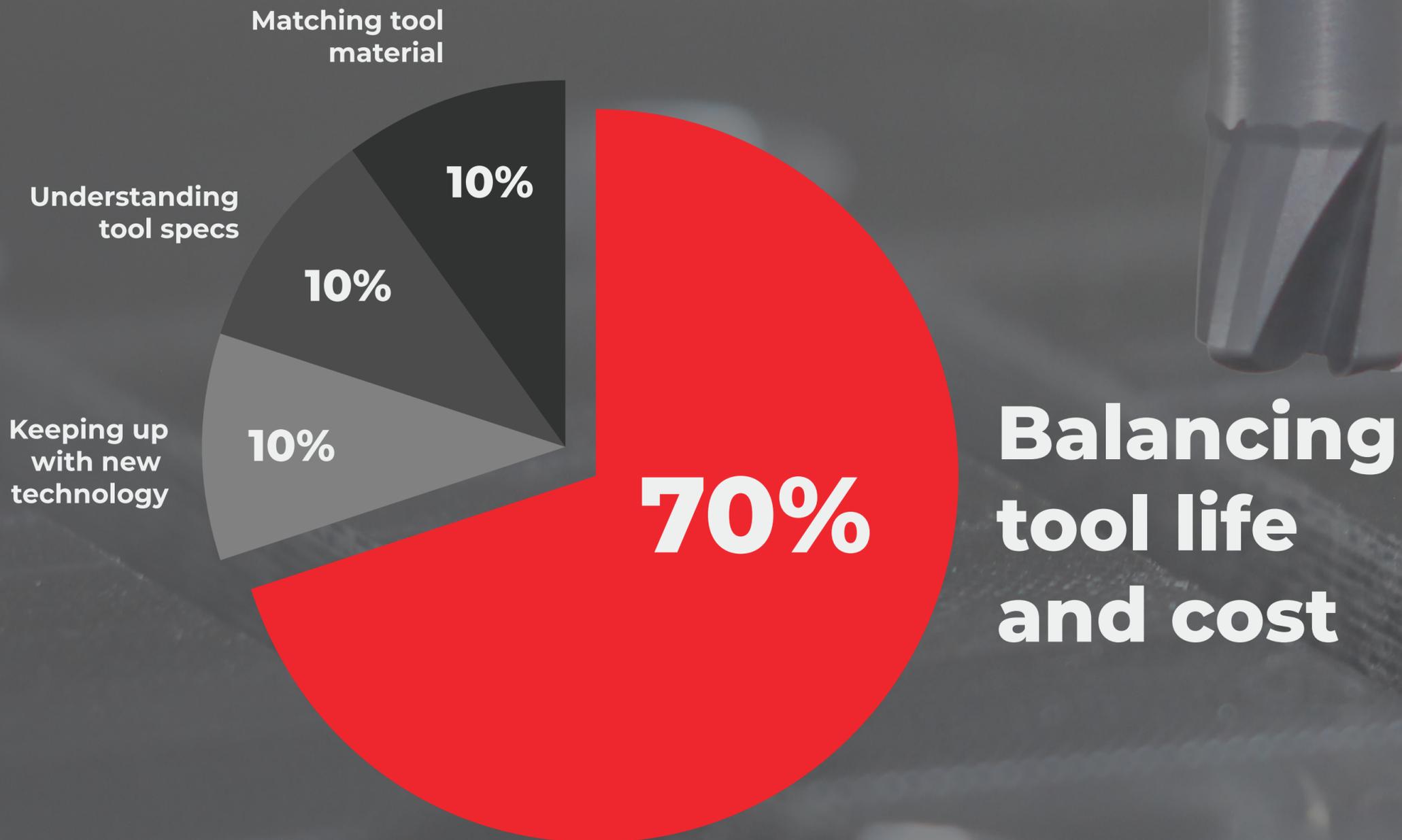
The Ultimate Multi-Purpose Drilling and Turning Solution

- Minimize your tool changeover time
- Reduce your inventory costs
- Reduce downtime

+INFO: palbit.pt/en/tools-highlights/multicut



What challenges do you face when choosing the right cutting tool for the job?



The challenges in selecting the right cutting tool are:

- Understanding material properties
- Evaluating tool performance
- Assessing tool life and cost

Our DOMX insert combined with the GS chipbreaker is the perfect combination to increase productivity and quality, as well as to enhance process optimization.

Consultation with cutting tool experts

Our technical development department is always focused on the needs of the industry. As a result of our expertise we have created the new DOMX insert.

Review of case studies and success stories

A review of case studies and success stories in the cutting tool industry could reveal valuable insights for Palbit to maximize the benefits of DOMX.

Trial and evaluation of tooling solutions

Through the trial and evaluation of tooling solutions, Palbit can determine the most effective way to use DOMX, and ensure that their customers are fully benefiting from its capabilities, further solidifying their position as a leader in the cutting tools market.

SEE HOW



+INFO: palbit.pt/en/tools-highlights/domx

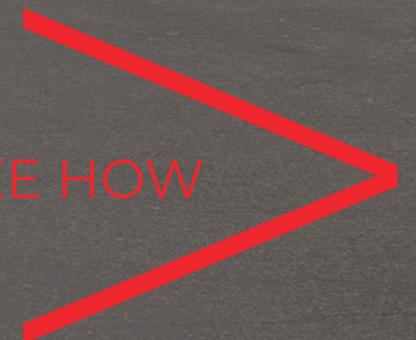


PALBIT TEST REPORT

AEROSPACE INDUSTRY

+55% Tool Life Increase

SEE HOW





SHAFT

Material: Inconel 625
Operation: Longitudinal Turning (Roughing)

Competitor

Palbit

Tool Details

Inserts

Competitor Insert

DOMX 1506R1-GS PHH910

No. Edges / Insert

4

4

Cutting Parameters (Tool)

Cutting Dia.	N	55	55	mm
Spindle Speed	Vc	492	492	rpm
Cutting Speed	Vf	85	85	m / min
Feed per Rev	fz	0,12	0,12	mm/tooth
Linear Feed	ae	59	59	mm / min
Depth of Cut	ap	0,6	0,6	mm

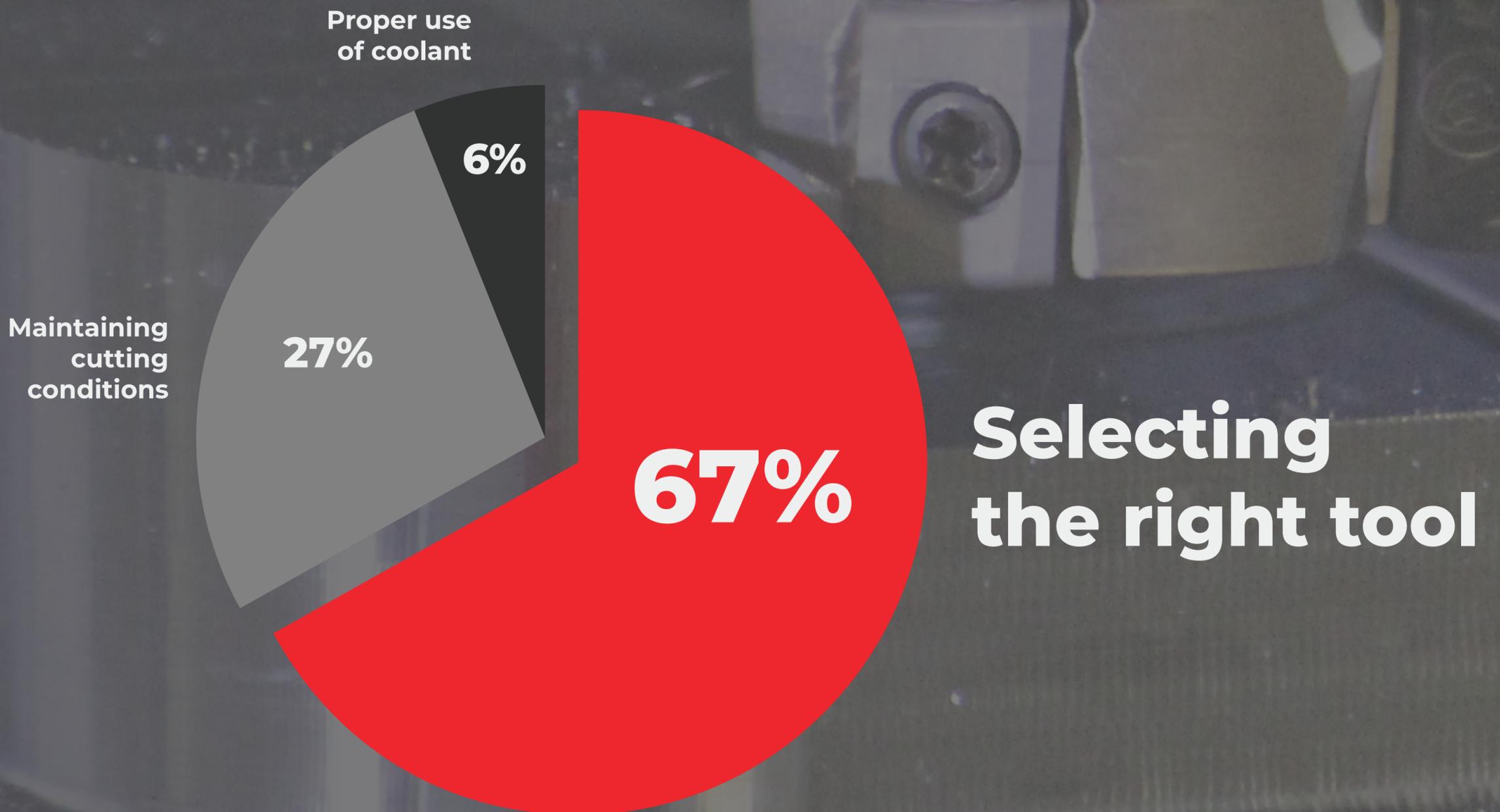
Result

Tool Life / Edge	15	23	pcs
Insert Tool Life	60	93	pcs
Material Removal Rate	6	6	cm ³ /min

+ 55%
Tool Life Increase



What daily challenges do you face to avoid tool wear?



The importance of selecting the right tool

- Prolonged tool life
- Consistent part quality
- Reduced tool changeovers

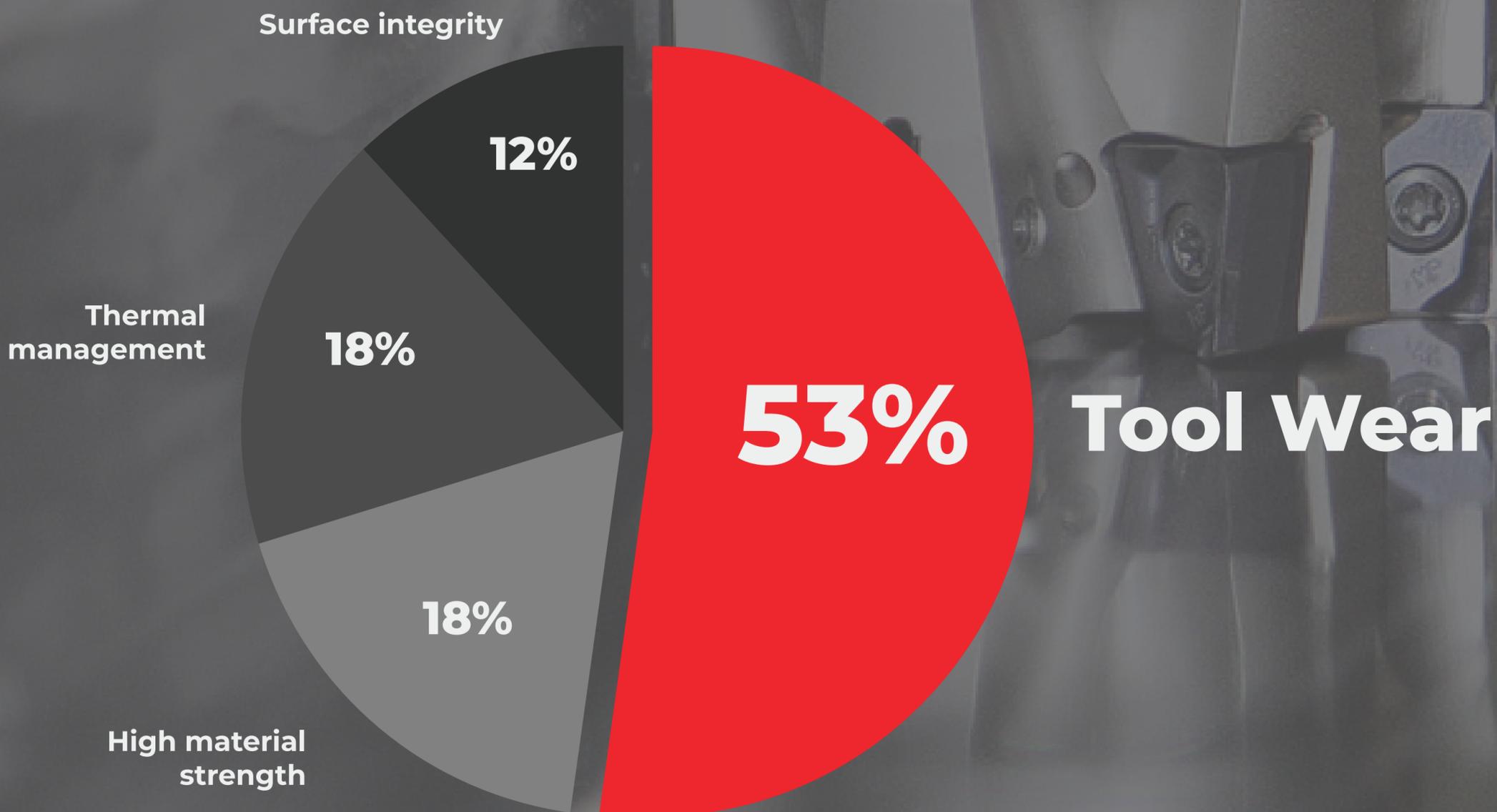
Common causes of tool wear

- Excessive cutting forces
- Inadequate cooling and lubrication
- Poor cutting edge preparation

How to minimize tool wear in daily operations

- Regular tool inspection and maintenance
- Proper cutting parameter adjustment
- Effective cooling and lubrication management

What are the biggest hurdles you face when working with cutting-edge materials in machining?



The biggest hurdles when machining advanced materials

- High material hardness
- Poor thermal conductivity
- Abrasive nature of the material

The Plus 90845 can combine both geometries SNH(K)X and ONH(K)X on the same toolholder

The Plus 90845 is the solution that has been designed to overcome the challenges presented by difficult machining conditions.

This tool has been specifically developed to withstand increased cutting forces and temperatures, making it ideal for use in demanding machining environments.

Its unique design incorporates advanced materials and coatings that improve tool life and reduce wear and tear.

With the Plus 90845, frequent tool replacements become a thing of the past, resulting in improved productivity and reduced costs.

This cutting-edge tool offers a reliable and efficient solution for those seeking to overcome the challenges of difficult machining conditions.

SEE HOW





PALBIT TEST REPORT

RAILWAY INDUSTRY

+40% Tool Life Increase

SEE HOW





GEAR SHIFT RAIL

Material: 16MnCr5
Operation: Face milling roughing

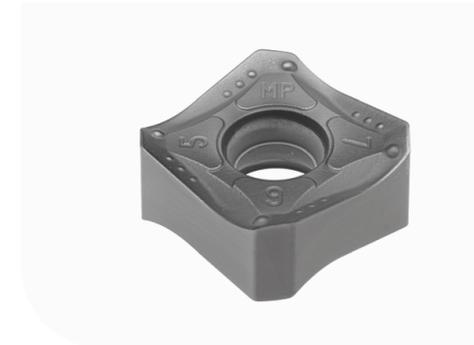
Competitor

Palbit

Tool Details

Inserts	Competitor Insert	
Toolholder	Ø50, Z5	
Cutting Dia.	Dc	50
No. Pockets	Z	5
No. Edges / Insert		8

SNKX 1206 ANSN-MP PH7920
050A90845-04-06-022040



	50	mm
	4	
	8	

Cutting Parameters (Tool)

Spindle Speed	N	1 450
Cutting Speed	Vc	228
Linear Feed	Vf	900
Feed per Tooth	fz	0,12
Cutting Width	ae	70%
Depth of Cut	ap	3,5

	1 450	rpm
	228	m/min
	900	mm/min
	0,16	mm/tooth
	70%	%Dc
	3,5	mm

Result

Tool Life / Edge	500
Insert Tool Life	4 000
Material Removal Rate	110

	700	pcs
	5 600	pcs
	110	cm ³ /min

+ 40%
Tool Life Increase

WANT TO LEARN MORE?

visit our knowledge center

palbit.pt/en/knowledge-center



DISCLAIMER

The data presented in this ebook is based on polls conducted on Palbit's LinkedIn page over the past few weeks. While we have taken great care to ensure the accuracy of the data, we cannot guarantee the complete reliability of the results. The sample size of respondents may not be representative of the entire population, and the responses may be subject to bias or other limitations.

The test reports correspond to real operations and results reported by customers.

The information presented in this ebook is for informational purposes only and should not be relied upon for any decision-making purposes.