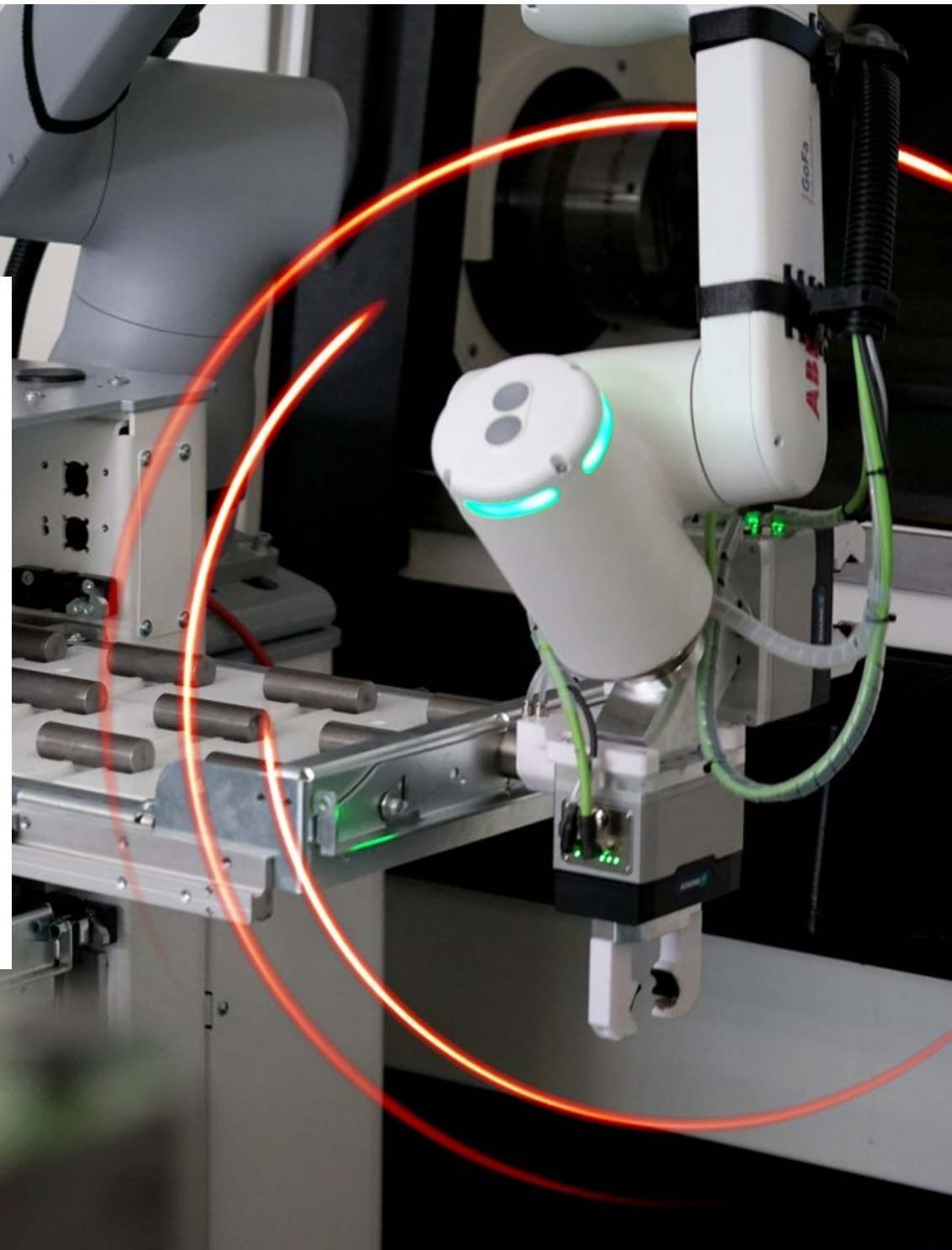


MACHINE TENDING

WHICH MACHINE TENDING SOLUTION IS RIGHT FOR YOU?

A scenario-based guide for manufacturers exploring automation

LET'S GET TO IT



MAKE THE RIGHT MACHINE TENDING CHOICE FOR YOUR CHALLENGE

Every machine tending journey is different. Explore the scenario that best matches your production reality – or work through them all to build a complete picture.

01

The biggest wins from automating machine tending

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02

If you have unpredictable volume and are just getting started with automation

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03

If you need people and robots to safely share the same workspace

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If you're handling too much demand with not enough people

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If you have a complex setup that needs a customized solution

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Quick Match

Not sure which scenario fits?
Find out fast

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Why ABB Robotics

Why manufacturers choose ABB Robotics for machine tending

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SECTION 01

THE BIGGEST WINS FROM AUTOMATING MACHINE TENDING

Whatever your size, sector, or setup, manufacturers who automate machine tending share a familiar advantage. Here's what changes when you make the switch.



The biggest wins from automating machine tending

Machine tending is one of the most labor-intensive, repetitive workflows in any manufacturing operation. With teams repeating cycles multiple times per day, it requires a large, rotating pool of people to keep the operation running.

As with any manual workflow, this means capacity and speed are limited by shift patterns, potential absences – and the talent available to the business. Every gap in the schedule can lead to lost output, revenue, and profit. Those skilled positions are also getting harder to fill, with around 2.1 million manufacturing roles projected to be unfilled worldwide by 2030.^[1]

Automation of the machine tending workflow helps to remove this dependency, ensuring machines are loaded and output is consistent, while freeing people for the skilled tasks that actually need them.

What changes when you automate machine tending

- 60% less time spent on repetitive tasks ^[2]
- Round the clock, continuous operations
- Up to 20% energy savings ^[3]



^[1] Manufacturing Institute, 2023

^[2] <https://new.abb.com/news/detail/116084/prsrl-abbs-new-machine-tending-cell-simpli-fies-automation-to-offset-labor-shortag-es>

^[3] ABB Robotics, Cobots in machine tending boosting efficiency for SMEs

The biggest wins from automating machine tending

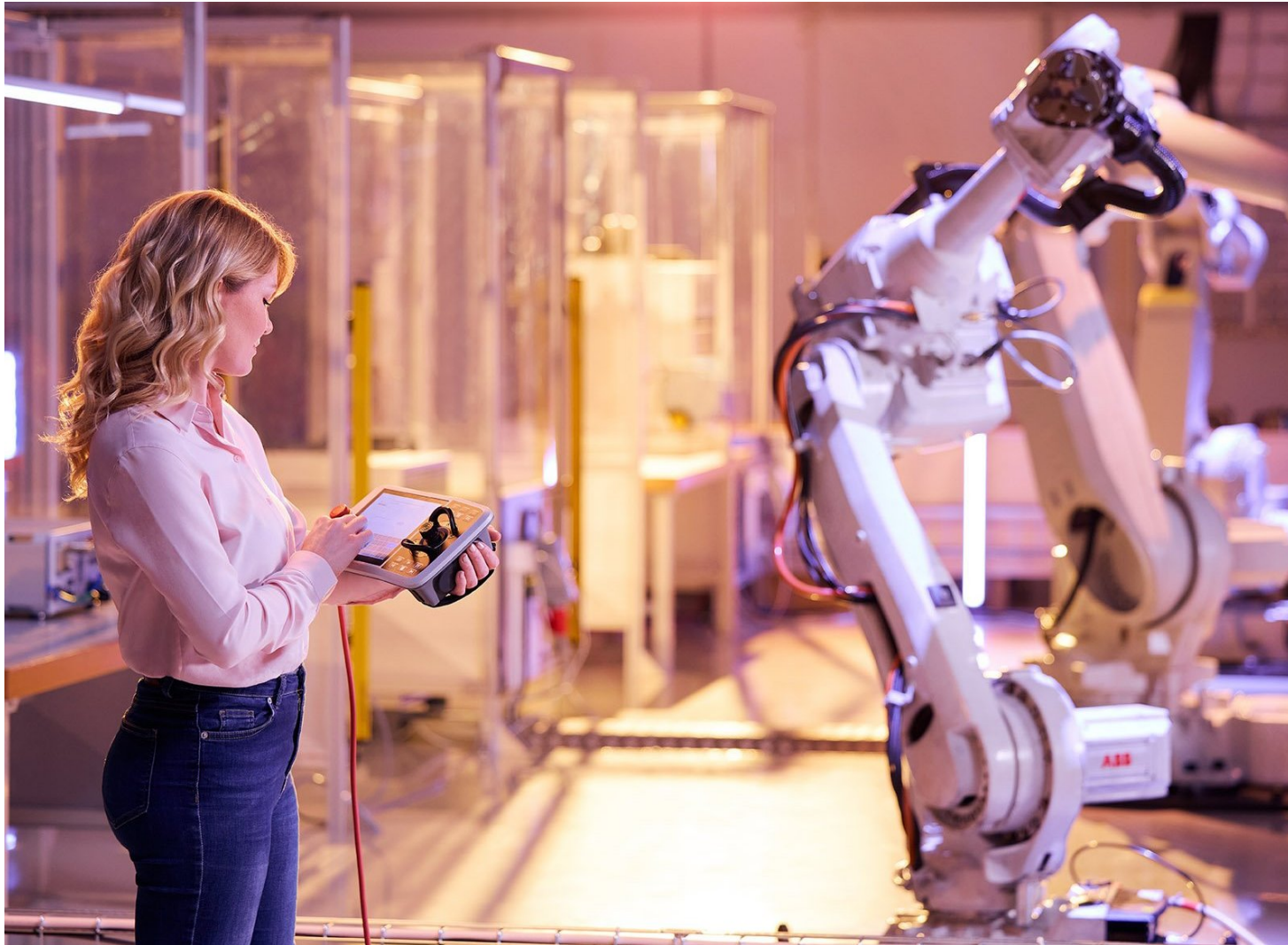
MOVING TOWARDS AUTOMATION

There is no single right way to make the transition to automated machine tending. Some manufacturers start with a single robot, while others need a complete, pre-engineered cell from day one. Many start small, then expand as confidence and output grow. What is right for your operation depends on your volumes, floor layout, workforce, and how complex your parts and processes are to handle.

This guide is designed to help you find the scenario that fits your needs – and take you through what you need to get started.

Unlock a typical return on investment in 18–24 months

[Find out more](#)



SECTION 02

UNPREDICTABLE VOLUME AND JUST GETTING STARTED WITH AUTOMATION

If your operation faces production demand that shifts regularly, automation can help you build a more adaptable, flexible way of working.



Unpredictable volume and just getting started with automation

DOES THIS SOUND FAMILIAR?

You have a highly variable order book, with different levels of demand and different machine requirements each shift. Without automation, you have to try and balance demand against team capacity, some weeks running flat out while during others it's difficult to justify employing a full crew.

Your need:

Ideally, during moments of high demand, you want the ability to rapidly deploy spare capacity to deliver on the order, without having to call in extra people or redesign the machine setup.

What you need your machine tending solution to be able to do in this scenario

- Move easily between machines when orders or priorities change
- Get set up quickly without a multi-day hit to your production
- Flexibly handle a range of parts without specialist reprogramming
- Fit into tight floor space without reorganizing the whole workshop



Unpredictable volume and just getting started with automation

WHY POWA™ WORKS

ABB Robotics PoWa is the fastest cobot in its class, intentionally designed for a high-mix, variable-volume machine tending environment.

- Redeploy between machines in under 60 minutes with plug-and-play setup that needs no specialist to install or configure
- Fast cycle times even when volumes spike unexpectedly, with top speeds exceeding 5 m/s at rated payload
- One product family covers most parts manufacturers use, with six payload variants ranging from 7 kg to 30 kg
- A smaller footprint that is easier to move, with fenceless operation and built-in Power and Force Limiting that eliminates the need for fixed guarding
- Built for real shop floor conditions, with IP65/67 to protect from coolant, dust, and demanding environments
- Scale without switching platforms – you can start with one unit and grow within the same product architecture



Unpredictable volume and just getting started with automation

GET FULL FLEXIBILITY OVER YOUR ENVIRONMENT AND OPERATION

With PoWa™, operators can set up new parts themselves, without stopping production or calling in outside help.

- Lead-through programming lets operators physically guide the robot when adapting to new parts
- Wizard Easy Programming walks through new part setup step by step
- Customizable software templates enable programmers and system integrators to accelerate deployment and cut costs
- New parts and sequences can be added with our offline programming software, RobotStudio
- Basic engineering skills are enough for a team to manage the robot from day one
- All major components arrive pre-assembled and pre-tested so you can be up and running in under a day

Explore PoWa™ 1910

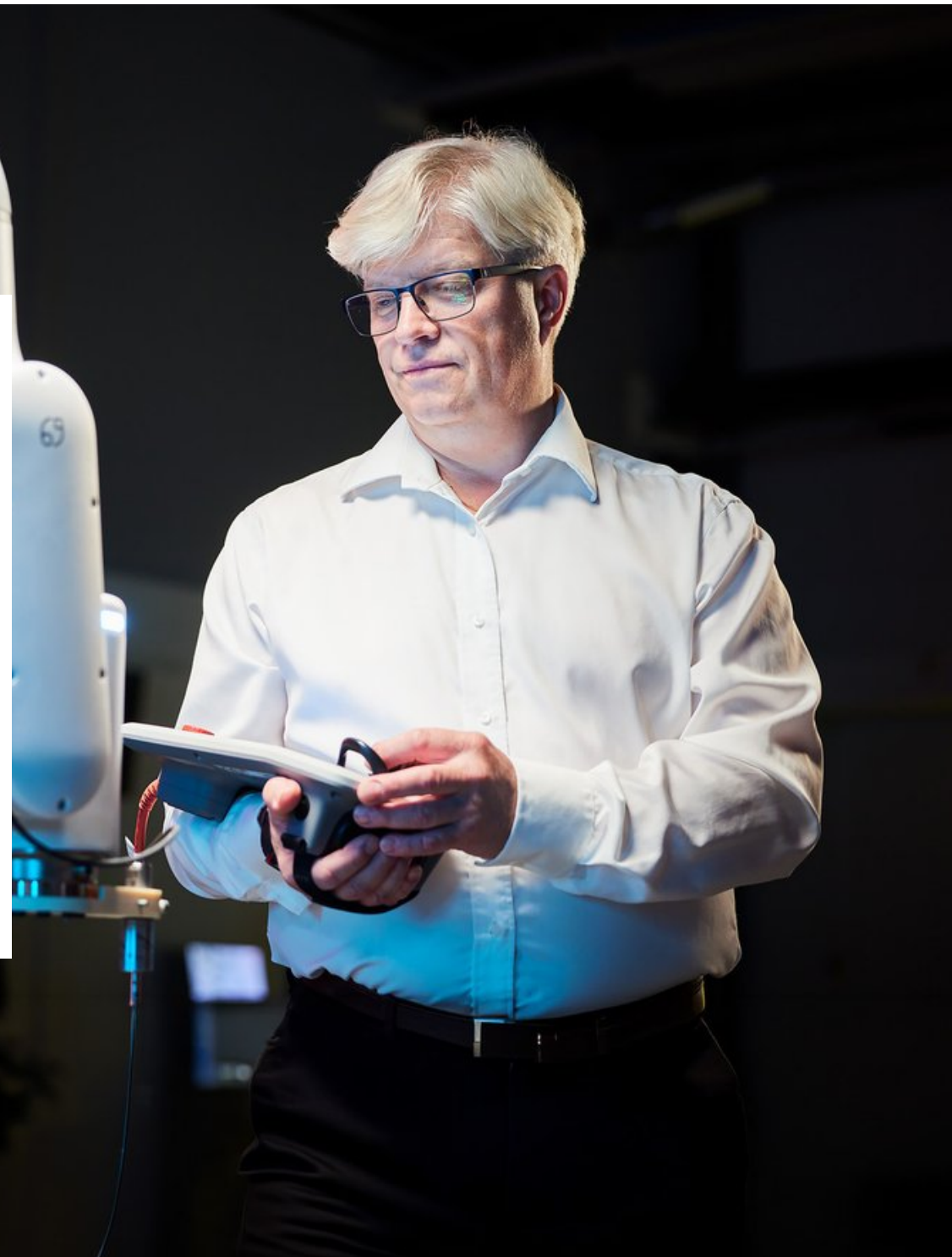
Explore PoWa™ 1920



SECTION 03

PEOPLE AND ROBOTS SAFELY SHARING THE SAME WORKSPACE

When your floor layout, part mix, or workflows mean that people and automation need to share the same space, the first concern is often safety compliance and collaborative design.



People and robots safely sharing the same workspace

DOES THIS SOUND FAMILIAR?

Your floor layout, part mix, or production workflow means that people and automation need to share the same space. Whether that's operators inspecting parts, switching jobs mid-run, or working in a facility where dedicated safety fencing isn't practical, robots must be able to work around your people.

Your need:

A collaborative solution that meets the highest safety standards for shared workspaces, helping you to safely automate machine tending workflows without sacrificing precision or repeatability.

What this scenario demands

When people and robots share the same workspace, a robot's design, safety certification, and software all need to be built for that mix. Look for a solution that delivers:

- Certified safety architecture that meets the highest standards for shared workspaces
- Best-in-class repeatability for applications that require precise, consistent part positioning
- Immediate contact detection that stops the robot the moment a person is nearby
- Flexibility to handle high-mix environments without constant reprogramming



People and robots safely sharing the same workspace

WHY GOFA™ WORKS

GoFa is ABB Robotics' collaborative robot designed for shared workspaces. It meets the highest safety standards for environments where people and automation work alongside each other – without the need for barriers or fixed fencing.

- Anyone working nearby is protected by integrated torque sensors in every joint stopping the robot on contact
- Fully certified for shared workspaces, meeting Category 3, Performance Level d — the highest safety standard available
- Precise, consistent part positioning every cycle, with best-in-class position repeatability at ± 0.02 mm
- Over 10× greater path accuracy than comparable collaborative robots, with GoFa Ultra Accuracy delivering 0.03 mm precision
- Adaptable across high-mix, lower-volume environments without the need for specialist reprogramming

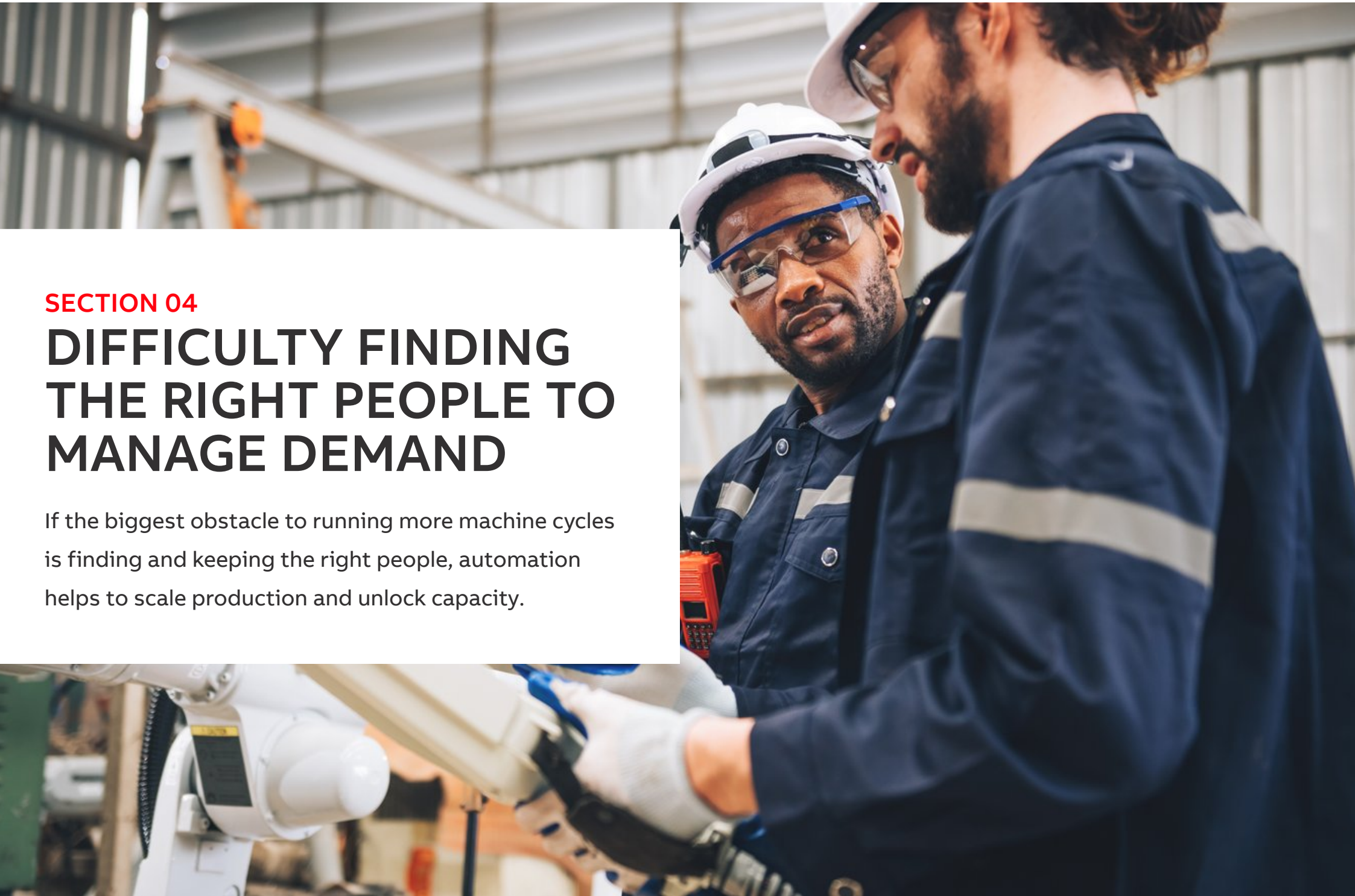
Explore GoFa™



SECTION 04

DIFFICULTY FINDING THE RIGHT PEOPLE TO MANAGE DEMAND

If the biggest obstacle to running more machine cycles is finding and keeping the right people, automation helps to scale production and unlock capacity.



Difficulty finding the right people to manage demand

DOES THIS SOUND FAMILIAR?

Manual machine tending is shift dependent – and the right people to load, wait, unload, and repeat across nights and weekends are getting more difficult to find consistently. When there are gaps in the schedule, machines that could be running sit idle and the output you could be producing isn't being optimized.

Your need:

A way to keep machines running across extended shifts without adding headcount – and without tying up your best people on work that doesn't make the most of their skills.

What changes when you automate this workflow

Manual machine tending follows a repeatable rhythm process – it is consistent but physically demanding work that it is fully dependent on having the right skills and people available.

Automation takes the loading and unloading off your team's hands. The robot runs the cycle consistently, without any dead time, so you can run overnight and across weekends without extra staff. Plus, your operators can focus on tasks that demand more of their attention and skill.

75%+

Spindle utilization achievable with automated machine tending

60%

Reduction in time your team spends on machine tending tasks

Difficulty finding the right people to manage demand

WHY OMNIVANCE™ MACHINE TENDING CELL WORKS

OmniVance is a compact, pre-engineered machine tending cell, including a robot, gripper, tray system, controller, and software in a single, integrated package. It is built to reduce your dependency on scarce skills and capacity that otherwise limit extended production runs.

- Pre-assembled and pre-tested before delivery – installation is fast and does not require specialist knowledge
- High tray capacity allows the cell to run extended cycles, nights, and weekends
- Built around GoFa™, so it works safely alongside your team without barriers or fencing
- Consistent, repeatable loading and unloading every cycle to reduce variation
- Portable design can move between machines as production priorities change

Unlock flexibility and simplicity in manufacturing



Difficulty finding the right people to manage demand



“What if we need to move machines to a different setup?”

OmniVance™ Machine Tending Cell is designed to fit around your existing floor layout. With a compact footprint and portable design, you can reposition between machines without a major installation project. If your production priorities shift to a different part, machine, or shift pattern, OmniVance doesn't require a new layout to operate.

“What if we don't have anyone who can program a robot?”

OmniVance™ Machine Tending Cell uses the same lead-through programming and Wizard Easy Programming as the rest of the ABB Robotics portfolio. Your operators physically guide the robot through its movements – with no coding, specialist knowledge, or lengthy training program needed. Basic engineering skills are enough to get the cell running from day one.

SECTION 05

COMPLEX SETUP REQUIRING A CUSTOMIZED SOLUTION

Not every machine tending challenge fits a standard cell. When your setup is more complex – such as custom cells, existing PLCs, multiple machines, or specific customer parts – you need automation partners who can help match the right robot and configuration to the task.



Complex setup requiring a customized solution

DOES THIS SOUND FAMILIAR?

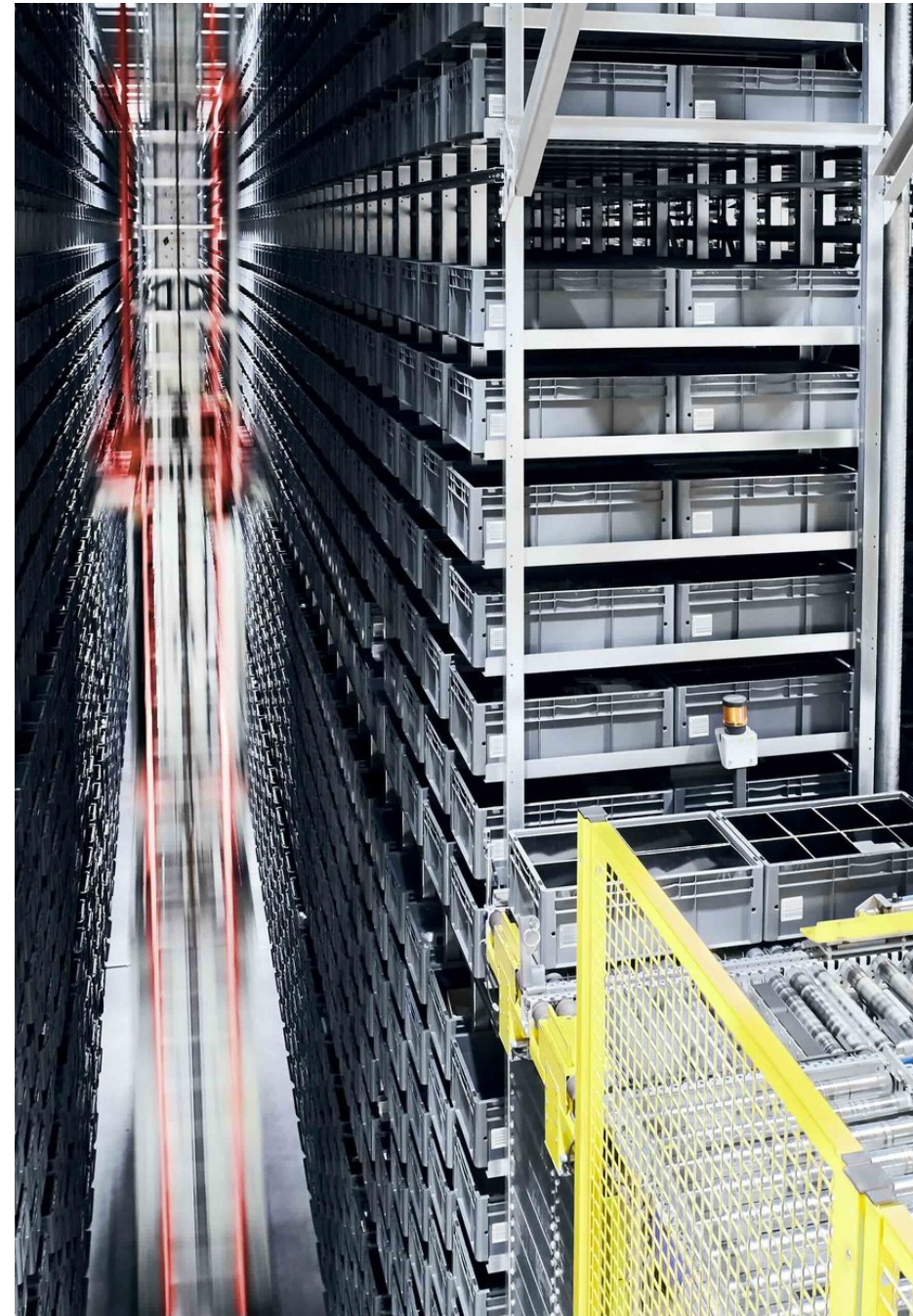
Your production setup doesn't fit a standard cell. You might have existing control systems to integrate, multiple machines that need to work together, or parts with specific handling requirements that a one-size solution cannot cover.

Your need:

First, you must undergo a clear, evidence-based assessment of your actual environment, so that whatever you invest in is specified correctly from the start.

Where to start with a complex machine tending project

If your setup is complex, don't start by choosing a robot, but by understanding your environment. You have to specify the machines, parts, space, systems, and demand you work with, to reach the right specification for automation. Without this initial assessment, you could face unexpected integration challenges and a lengthy commissioning schedule that undermines the long-term business case.



Complex setup requiring a customized solution

WHAT OUR FEASIBILITY ASSESSMENT COVERS

Step 1:

We assess your existing machines to establish what you have, how it operates, and what robotic tending integration requires.

Step 2:

We evaluate your parts by weight, size, and geometry, then use that to specify the right grip strategy and reach.

Step 3:

We map your workspace to determine where the robot can go, what it can access, and what floor redesign may be needed.

Step 4:

We identify integration risks upfront so there are no surprises once commissioning begins.

Step 5:

We provide a clear recommendation of the right robot configuration, automation partners, outcomes, and the best path to get there.

Complex setup requiring a customized solution

ABB ROBOTICS' INDUSTRIAL ROBOTS AND COBOTS – BUILT FOR DEMANDING APPLICATIONS

For customized machine tending cells, ABB Robotics offers both collaborative robots and industrial robots – so you can make an informed choice based on your precise application.

- Cobots for shared workspaces and high-mix environments, with best-in-class repeatability and integrated safety certification
- Industrial robots for high-speed, high-payload applications that require high throughput and cycle time

The right robot for your application is determined by **your parts**, **your process**, and **your floor**.

Explore Cobots

Explore IRB 2600

Explore IRB 4600



Complex setup requiring a customized solution

GOT A MACHINE TENDING CHALLENGE WE HAVEN'T ANSWERED?

Post your question and one of ABB Robotics' machine tending specialists will get in touch to take you through the solution.

Ask our specialists



SECTION 06

NOT SURE WHICH SOLUTION IS THE RIGHT MATCH?

Here is a quick way to find your starting point.

Not sure which solution is the right match

WORK OUT WHAT YOU NEED BELOW



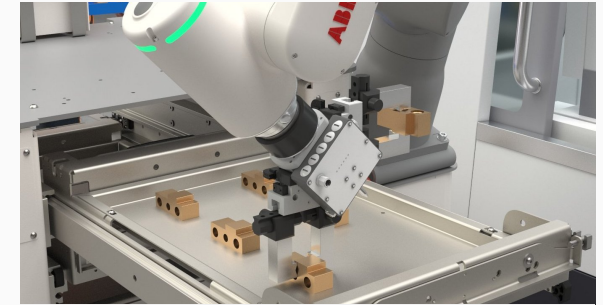
PoWa™ is the right starting point if:

- You need a cobot with high speed and flexibility
- You need to redeploy quickly and often
- You need a customized machine tending cell
- Your volumes and production mix change regularly
- You need to ensure compliance to ISO 10218



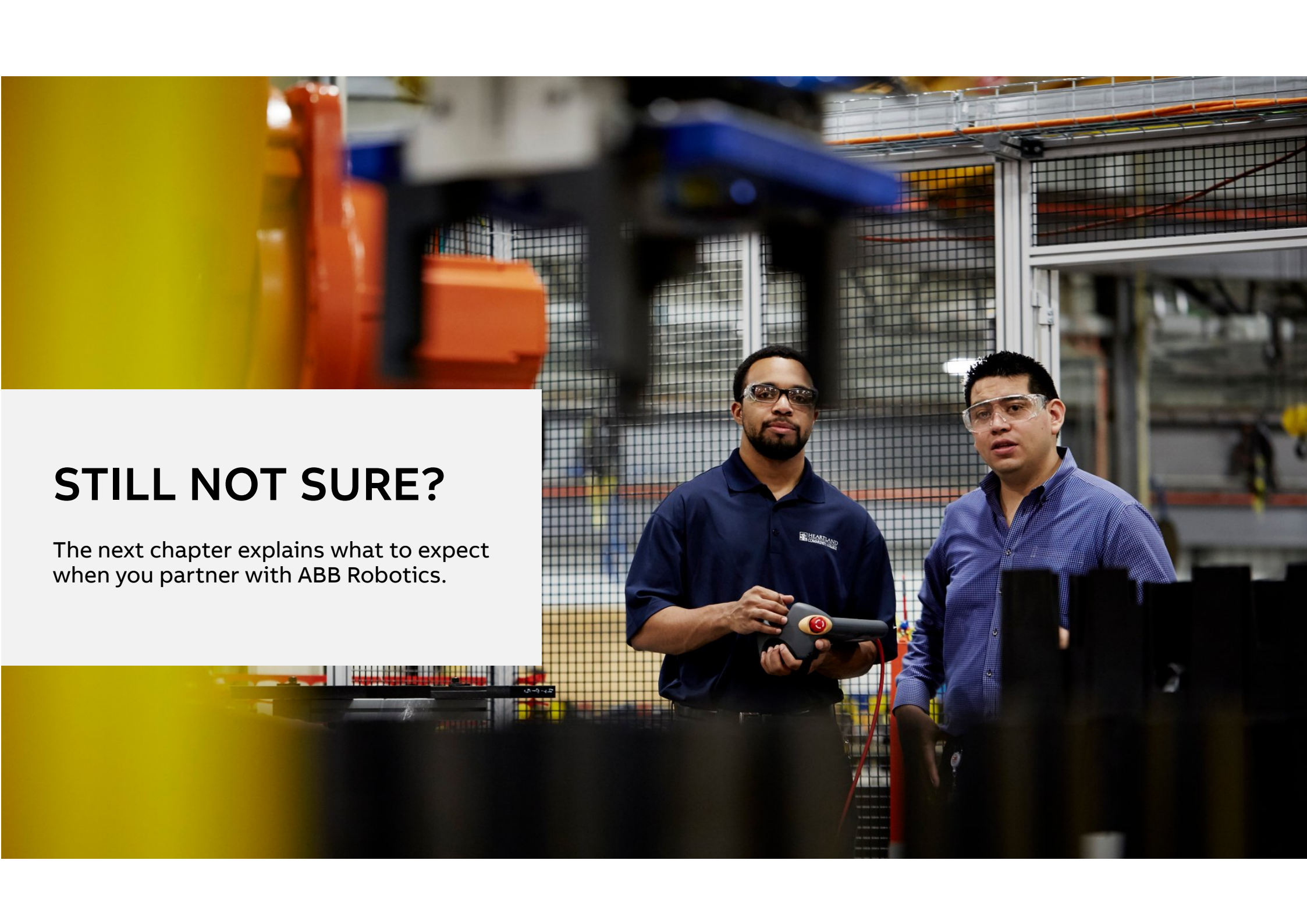
GoFa™ is the right starting point if:

- People and robots share the same workspace regularly
- You need fast lead-through for regular reprogramming
- You need precise collision detection and force limitation
- You need collaborative performance without fixed fencing
- You need to ensure compliance to ISO 10218



OmniVance™ Machine Tending Cell is the right starting point if:

- You struggle with staffing machine tending across shifts
- You want a complete, pre-engineered cell that's ready to run
- You need to run extended cycles overnight or at weekends
- You need something portable enough to move between machines as priorities change
- You need to ensure compliance to ISO 10218

A photograph of two men in a factory or industrial setting. The man on the left is wearing a dark blue polo shirt with a logo, safety glasses, and a beard. He is holding a black remote control device with a red button. The man on the right is wearing a blue checkered button-down shirt and safety glasses. They are standing in front of a large industrial machine with orange and blue components, enclosed in a metal safety cage. The background shows more of the factory environment with various pipes and structures.

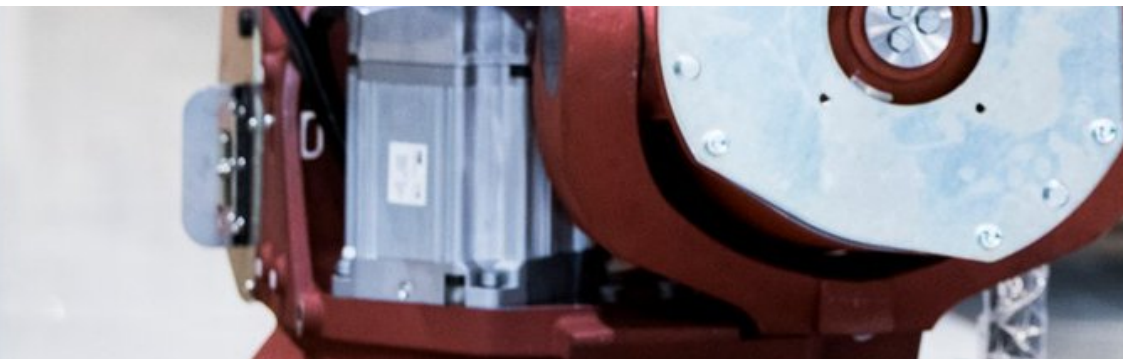
STILL NOT SURE?

The next chapter explains what to expect when you partner with ABB Robotics.

SECTION 07

WHY CHOOSE ABB ROBOTICS FOR MACHINE TENDING?

With software, services and deep application knowledge, we deliver a suite of robots designed to drive efficiency and performance – with the global expertise to bring it all together.



Why choose ABB Robotics for machine tending

THE ABB ROBOTICS ECOSYSTEM

A machine tending application is much more than a robot – the right tooling, the right software, and the right support in place from day one. ABB Robotics brings all of it together, so you don't have to piece together a solution from multiple vendors and can get every element working as one:

- Tested and validated tooling and grippers that you can trust, matched to your setup
- Plug-and-play accessory installation to simplify your automation journey and deliver speed to value
- Standardized interfaces that simplify integration and reduce risk
- Software that covers programming, monitoring, and remote diagnostics
- Built-in safety architecture validated for your specific workspace
- Local engineering support bolstered by deep application knowledge across industries and machine types

An ecosystem behind your success

We can get you up and running fast, with a network of trusted automation partners and systems integrators who add value and ensure your solution is right for your setup.



Why choose ABB Robotics for machine tending

TALK TO AN EXPERT ABOUT YOUR MACHINE TENDING

You don't need to have it all figured out before you get in touch. ABB Robotics' machine tending specialists start with your setup, so whether you are dealing with a staffing gap, unpredictable volumes, a need for safe human-robot collaboration, or a complex integration challenge, the conversation starts with what you want to solve.

What to expect from your first conversation

- A clear assessment of whether automation makes sense for your current setup
- Guidance on which scenario – or combination of scenarios – fits your production reality
- A clear view of what is involved in getting started, including timelines and investment levels
- No obligation and no pressure to commit before you are ready

Talk to an expert

Discover the right setup for your operation

