

If you run a well-developed shop and find it hard to scale production, you might benefit from a welding cobot. Today, all manufacturers struggle to find skilled welders. The more you get backlogged, the more difficult it gets to take on additional jobs and accurately estimate the time you need to deliver the product. But, cobots can help with that. Read on to learn if your shop is ready for a welding cobot.

If you tick the boxes below, your shop can harness the power of cobots to drastically boost productivity and weld quality.

**You often weld high-mix-low-volume parts.**

---

**Your shop/manufacturing line has sound upstream practices, ensuring the cobot operator has a steady stream of parts ready for welding.**

---

**There is enough space in your shop for a cobot cell.**

**Welders in your shop are backed up by repetitive work and unable to focus on jobs where their skills matter most.**

---

**You want to scale your production, but your backlog keeps growing.**

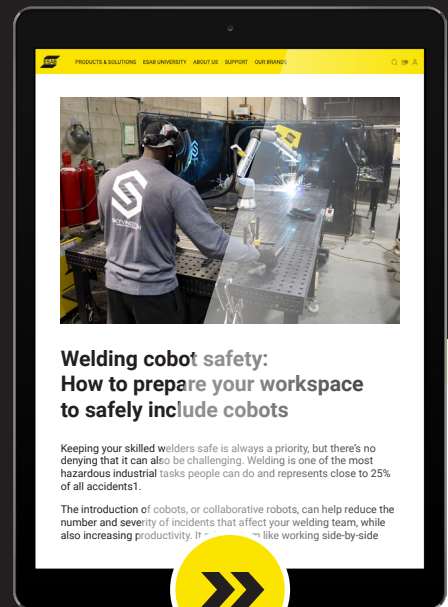
---

**You are ready to take your shop to the next level.**

# WHAT YOU NEED TO GET STARTED

Any shop can benefit from **cobot welding**, but certain prerequisites can ensure a smooth, safe, and productive cobot operation. Luckily, most shops can quickly implement a cobot as they are designed to complement your current operation, not change it.

It's necessary to conduct a thorough risk assessment for all robot installations. For cobots, collaborative robot safety standards ISO-10218 and TS-15066 provide guidance for cobot systems and workplace safety. **Read our article [Welding Safety with Cobots](#)**. Likewise, it's essential to prevent employee arc and fume exposure. When applied correctly, cobots significantly boost arc-on time, which skyrockets productivity but also amplifies fume production. So, it's necessary to use engineering controls and fume capture systems to maintain exposure below permissible exposure limits (PEL).



You will also need enough space for the cobot cell. Almost every shop can fit a cobot, but cobot size should be considered. For example, the ESAB UR10e has a much smaller footprint than the ESAB UR20.

Finally, it's critical to use quality fixtures for consistent weld quality. You can make your own fixtures or outsource this process to a machine shop. You can start with basic jigs and fixtures, but the better your fixtures, the better the cobot's consistency.

# THE BIGGEST SUCCESS FACTORS OF WORKING WITH COBOTS

Your cobot should have as much arc-on time as possible working on the parts that matter the most from the automation standpoint. So, the two most critical cobot success factors are part selection and sound upstream practices. However, many less obvious factors can significantly improve your success with a cobot.

## GOOD UPSTREAM PRACTICES KEEP THE COBOT ENGAGED

Ensuring enough parts are ready for the cobot operator prevents the cobot from sitting idly. All pre-welding preparation steps, like cutting and beveling, should be handled efficiently to keep up with the cobot's welding speed. A cobot can produce parts faster than a human, so part availability is crucial for cobot productivity. Likewise, it's critical to have someone on the cobot whenever welding is required. Cobot programming is easy to learn, so having several people on your team learn how to use a cobot is helpful. This ensures the cobot is ready to weld whenever parts need to be produced, even if your welder calls in sick.



## DELEGATING THE RIGHT WELDING TASK

It can be tempting to automate the most complex parts at first. But, it's much better to automate simple parts during your first week with a cobot. Once you are more familiar with how a cobot works, you will have much better success with complex tasks.

Identifying and delegating the right tasks to a cobot is the key to success. It's helpful to get input from your welders on what should be automated, as they know best what tasks are taking up most of their time. Cobots provide the biggest productivity boost when used for small to medium-sized batches of parts that cause the production bottleneck. These are often repetitive, simple-to-weld parts. But, depending on the task, a cobot can also work with complex joints.





## **| MAXIMIZING WELD QUALITY, NOT JUST PRODUCTION VOLUME**

Many shops experience a 2-10 times boost in production volume of high-mix-low-volume parts with cobots. However, using a cobot to also maximize weld quality can improve your bottom line. High weld accuracy applied consistently over the welded batch eliminates costs of rework and part rejection by the customer.

Good fixturing and joint preparation are the keys to achieving high welding quality consistently. Investing in high-quality jigs and fixtures and operator training on using them will help you produce high-quality welds every time. Likewise, consistent joint preparation ensures the weld deposited by the cobot produces uniform results. Uneven edge bevel might lead to more distortion, burn-through, or undercut.

For example, a V-groove joint with intermittent points where too much material was removed could lead to the weld metal volume being insufficient, which can cause an undercut at the weld toe. On the opposite end, intermittent areas with too much material can cause the overfill of weld metal, leading to increased weld stresses and distortion. So, it's critical to provide parts to the cobot operator with a relatively consistent joint preparation.



## **| CREATIVE APPROACH TO COBOT APPLICATION**

Thinking creatively with cobots can help you gain an additional productivity boost. Some good examples are:

- Setting up a cobot to weld multiple parts on the table in one go.
- Having the robot weld a part in the fixture on one side of the table while the operator is loading/unloading the second part on the other side.
- Combining the cobot with manual welding on the same part.
- Having one operator run multiple cobots.
- Welding a big number of parts on a large table using the cobot with an extended reach (i.e., ESAB UR20). This frees up a lot of time for the operator to put attention elsewhere (i.e., weld something else manually).
- Using the cobot's data to analyze the production and understand how operators perform various tasks. That way, you can assign tasks that best fit every operator.

## **| NURTURING AN EMPOWERING CULTURE**

Cobots are a powerful tool in the hands of experienced welders and fabricators. But, they are not in the driver's seat. Creating a workplace culture that embraces cobots as tools that empower welders and increase their value goes a long way in helping your team feel enthusiastic about a cobot addition.

So, it's critical to communicate to your team that the cobot is there to help them, not replace them. A cobot allows their skills to come to light by giving them a tool that crushes the dull and boring parts of their job. Once everyone agrees on that notion, a cobot becomes a welcome addition to the team.

---

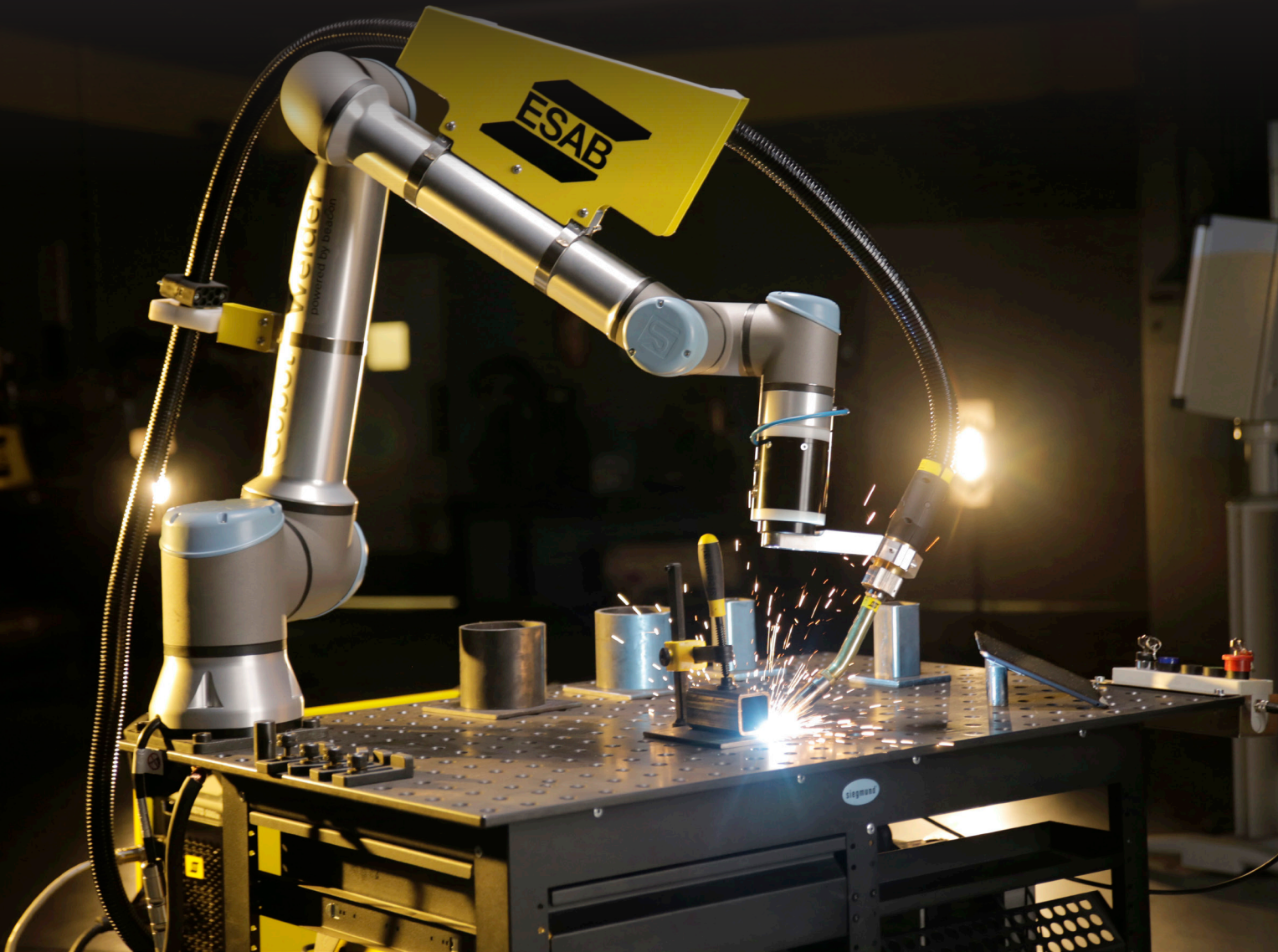
## **WHAT CAN YOU EXPECT AFTER COBOT DEPLOYMENT IN YOUR SHOP**

In the first few hours of cobot installation, you will realize just how easy it is to program and how fast it can weld. At first, you should use it for simple parts, like fillet welds on T and L profiles, tube-to-plate welds in flat position, flanges, brackets, and other simple-to-weld parts. You will immediately see the productivity boost. Most shops figure it all out in just a few hours and have the cobot welding simple production parts within the first day.

After a few weeks of cobot experience, you can start using the cobot to weld large and complex parts. Sometimes, it makes sense to use a cobot for the weld precision alone. For example, you can bring large parts like structural beam elements, trusses, plates, and other complex parts to the robot to harness its welding precision.

Besides productivity and weld quality, cobots bring many intangible benefits. First, you won't be afraid to bid on large projects, knowing you can handle the volume. But, more importantly, you will get more repeat customers thanks to increased weld quality, improved employee mood, consistent weld quality as fatigue is no longer a factor, improved safety, increased competitiveness in the market, and many other benefits that cannot be quantified.

**THE ESAB COBOT SOLUTIONS**  
ARE DESIGNED TO ACCOMMODATE  
VARIOUS SHOP SIZES AND NEEDS.



READY TO TAKE  
YOUR SHOP TO  
THE **NEXT LEVEL?**

**Request a Virtual Demo** or  
discuss your options with our team.

Contact us today, and our team  
will help you get started.