

# SUSTAINABLE WELDING

HOW TO SAVE ENERGY, RESOURCES AND COSTS







# TAKE THE INITIATIVE FOR THE ENVIRONMENT.

## MAKE SAVINGS ACROSS THE BOARD WITH BLUEEVOLUTION.

Energy, resources, time and costs. Our sustainability initiative BlueEvolution offers clear possibilities for savings across the board. At EWM, we have been aware of our environmental responsibilities for a long time now and have been putting the necessary measures in place accordingly. We have been combining these measures as part of the BlueEvolution sustainability initiative since 2009. As a leader in arc welding technology, we know the impact the decisions we take today can have on tomorrow. With our resource-saving inverter technology and energy-reducing joining processes, you can unite economic efficiency and environmental sustainability whenever you use your EWM welding technology. It's the best thing you can do today, for tomorrow.

**Robert Stöckl, CSO Chief Sales Officer**



### **MORE PROS +**

- You can increase the duty cycle of your welding machines as we only use efficient inverter technology.
- You have access to innovative welding processes that allow for the best and most effective production possible.
- You can choose from a range of controls to meet your needs and save time and costs when it comes to operation.

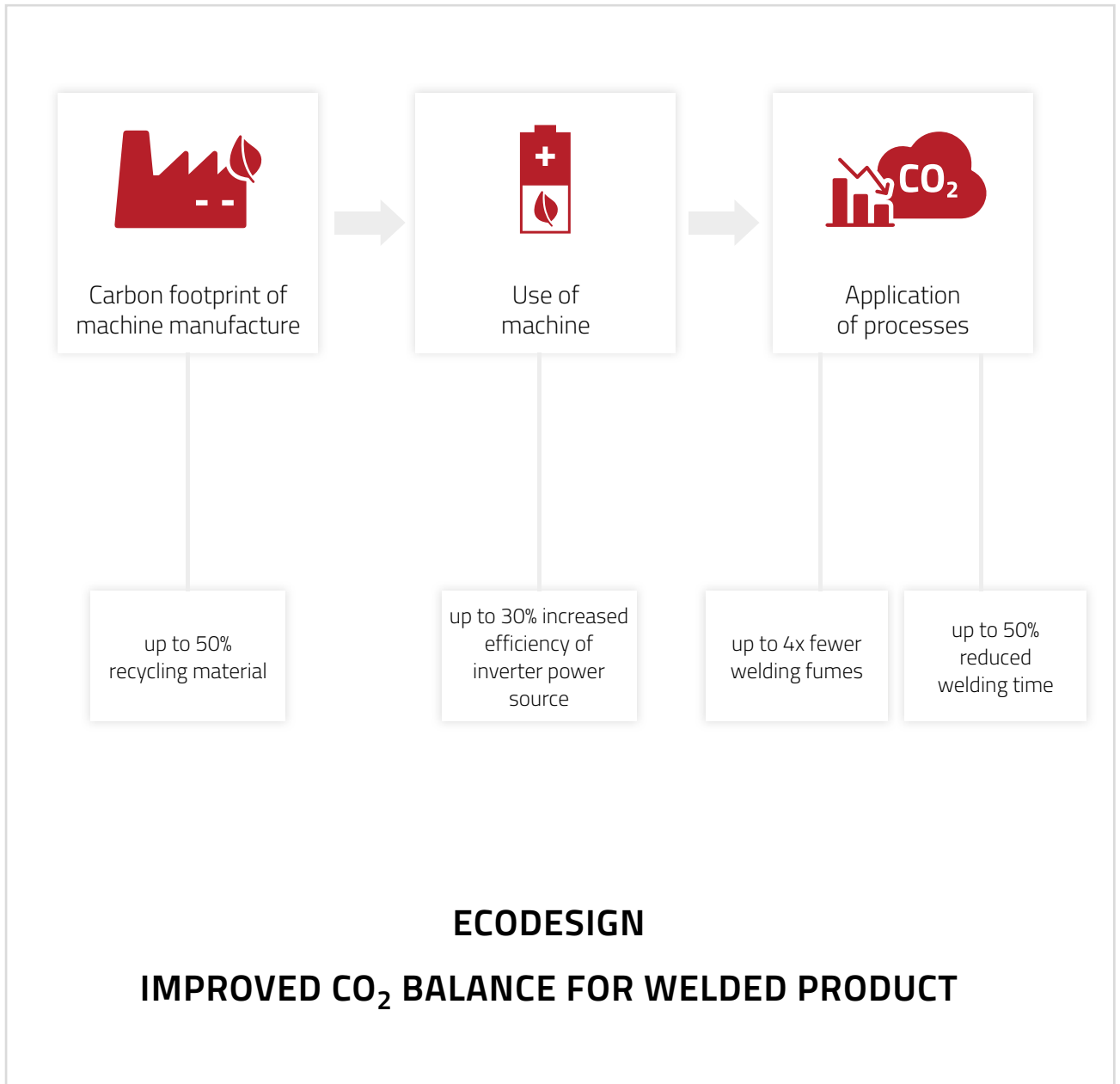
### **FEWER CONS +**

- Reduce your welding fume emissions when working by up to 75% with EWM welding processes.
- Our products and processes also help to reduce the amount of welding passes required.

# SUSTAINABLE WELDING.

## EVERYONE BENEFITS.

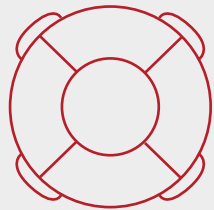
How can we make welding technology more sustainable without losing sight of economic efficiency? Our sustainability initiative, BlueEvolution, shows you just how efficiency and working in an environmentally friendly way can go hand in hand. The initiative helps you to do your part in reducing CO<sub>2</sub> emissions, proving that a weld seam is only perfect if made in a way that saves energy and resources.



# BlueEvolution.

## THE EWM ENVIRONMENT INITIATIVE.

With our resource-saving inverter technology and energy-reducing joining processes, we unite economic efficiency and environmental sustainability. For you, this means: you save material. You save time. You use less energy. You reduce your costs. And you increase the quality of your welding. Join our BlueEvolution and become:



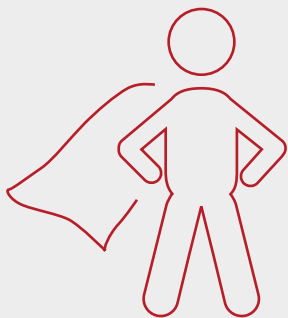
### RESOURCE RESCUERS.

EWM inverter technology allows lighter and more compact machines to be built. This results in less material consumption, and resources like copper, aluminium and steel are conserved. This also corresponds to the action plan of the Ecodesign guidelines for resource-conserving recycling management with high requirements on the reparability and recyclability of products.



### ENERGY WINNERS.

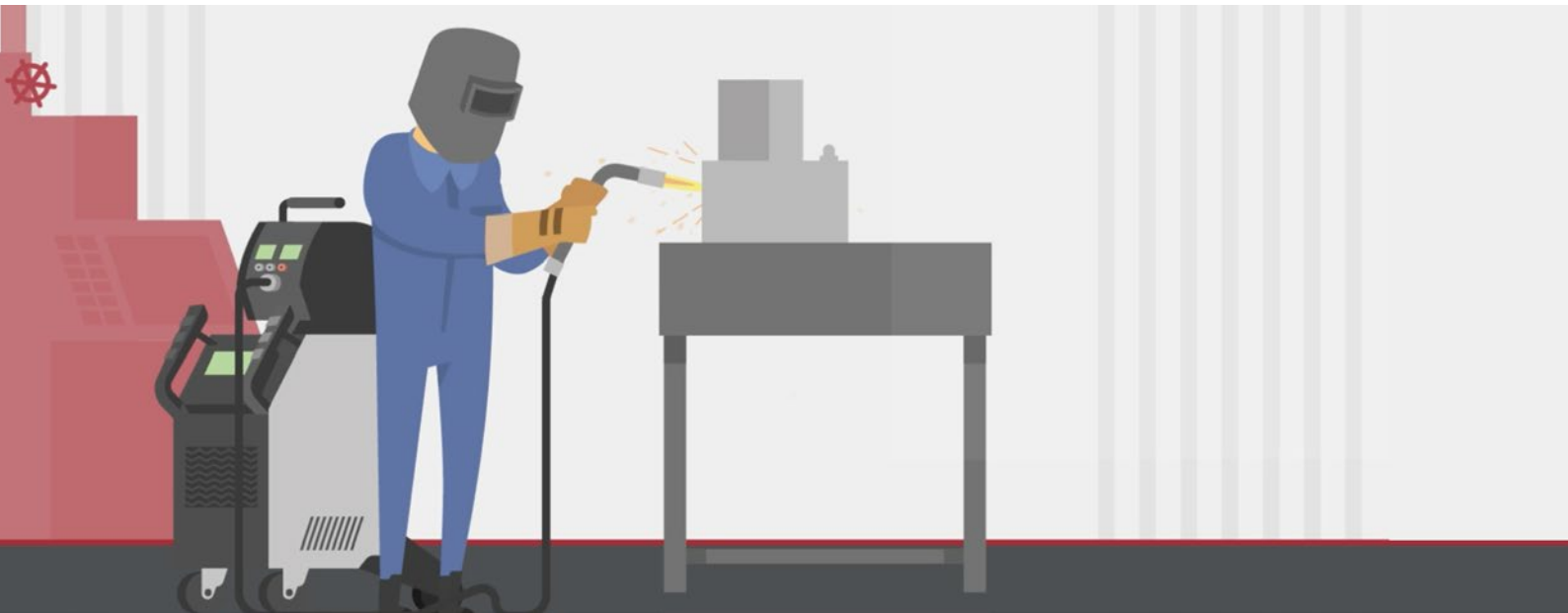
When used in conjunction with power-saving EWM joining processes, the high efficiency of our inverter technology saves primary energy and therefore cuts electricity costs. These savings are also enhanced by weld seam geometries which use less wire and gas. Take advantage of shorter welding times and reduced need for post weld work to save CO<sub>2</sub> and become an energy winner.



### EMISSIONS HEROES.

Innovative EWM welding processes produce fewer harmful welding fume particles and therefore cut down on emissions – thus improving working conditions for everyone utilising these welding processes. A reduction of the passes to be welded also cuts down on welding times. This not only reduces emissions but avoids their production from the outset.

# UNLOCK YOUR BUSINESS'S HIDDEN POTENTIAL



## REDUCED COSTS.

Advanced technology not only reduces CO<sub>2</sub> emissions, it's also eligible for funding. Purchases and investments make up the smallest portion of operating costs. In practice, however, these have a significant impact on non-productive times, new acquisitions, energy and the environment.



## OPTIMISED WELDING PREPARATION.

Weld seam preparation is an important step for producing the optimum weld seams. Smaller included angles result in reduced preparation times and quicker weld times. Another positive side effect is that less filler material is used. EWM welding machines help to save time here.



## MORE EFFICIENT PROCESSES.

Thanks to innovative welding processes, fewer raw materials and less energy are used which can be seen in reduced costs. EWM's innovative process variants help to achieve exactly this.



## REDUCED ENERGY CONSUMPTION.

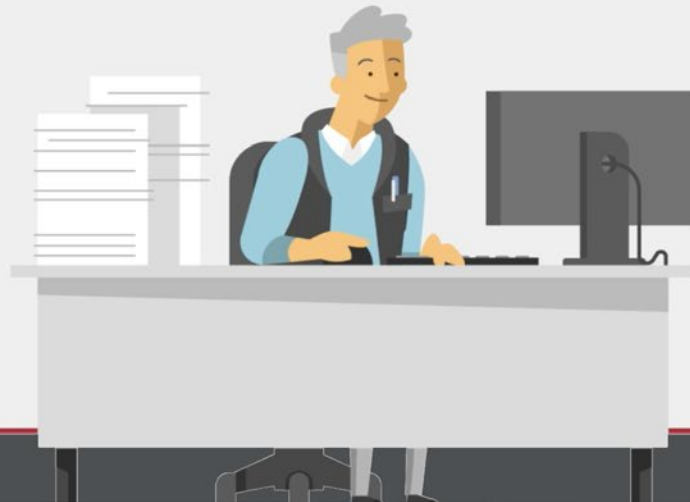
EWM inverter welding machines are extremely electrically efficient, helping you to use energy more efficiently. With gas and electricity costs constantly rising, it's even more important to keep your energy consumption as low as possible by using efficient technology.



## REDUCED GAS CONSUMPTION.

Using DGC, or digital gas control, you can prevent welding mistakes caused by too much or too little gas. Say goodbye to porous weld seams and excessively expensive production.





## LONGER-LASTING CONSUMABLES.

At EWM, all components are designed to ensure they perfectly complement one another and you benefit from their long service life. This affects the entire welding process – from welding machine and torch to consumables, saving you both time and costs.



## FEWER REPAIRS.

We are confident in the durability of our products. That's why we offer warranties of up to five years after registration for our inverter technology – even in three-shift operation. 24 hours a day, seven days a week. That speaks for itself.



## LESS POST WELD WORK.

Use your time more wisely instead of wasting it on avoidable post weld work due to inaccurate weld seams. For example, you can reduce unnecessary weld spatter on the material by using EWM welding processes.



## PROTECT WELDING STAFF.

Using EWM's innovative process variants reduces harmful welding fume emissions by up to 75%, protecting the environment, you and your welding staff.



## IMPROVED QUALITY MANAGEMENT.

Our ewm Xnet welding software is the quality management system for our welding technology. It identifies potential errors during the active welding process, allowing you to immediately counteract them. This saves both time and money as it avoids any potential complaints as part of the subsequent quality control process, preventing them before they even arise.

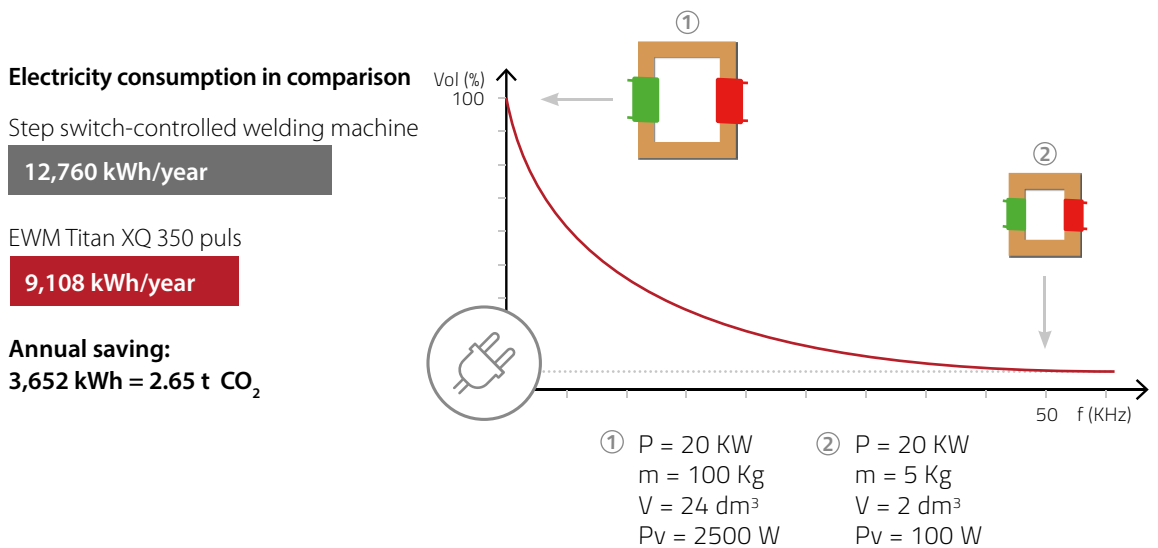
# ENVIRONMENTALLY FRIENDLY WELDING.

## SAVE RESOURCES BY WELDING SUSTAINABLY.

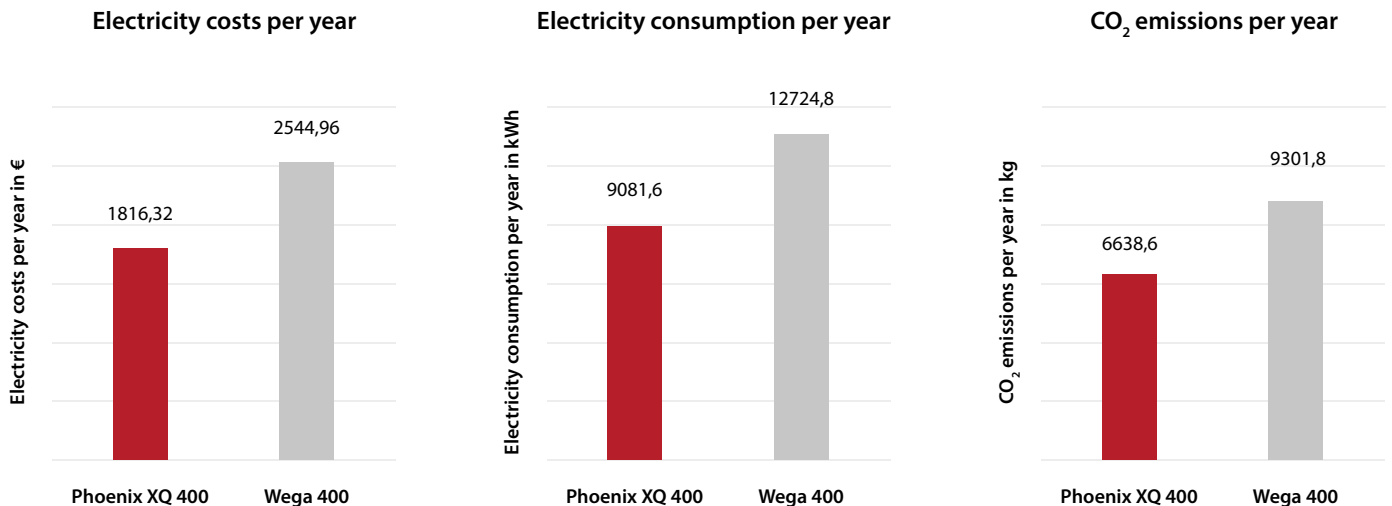
This much is true: it is worth comparing step switch-controlled machines with inverter technology. Changing to inverter technology pays for itself. The smaller the transformer, the more efficient the welding machine.

### LOWER ENERGY COSTS

Transductor or magnetic amplifier-based power sources, step switch-controlled machines, thyristor technology or so-called secondary choppers lead to high energy loss. The only way to significantly reduce energy consumption and, in turn, achieve a more positive balance of operating costs is by using modern inverter technology.



## INVERTER TECHNOLOGY VS. STEP SWITCH-CONTROLLED MACHINES





# COST-EFFICIENT WELDING.

## REDUCE COSTS BY WELDING EFFICIENTLY.

forceArc<sup>®</sup> XQ and forceArc<sup>®</sup> puls XQ are two innovative welding processes that stand out thanks to their significantly lower included angle in comparison to standard welding processes. This means fewer welding passes, reduced weld volume, faster weld times and a reduced wire consumption.

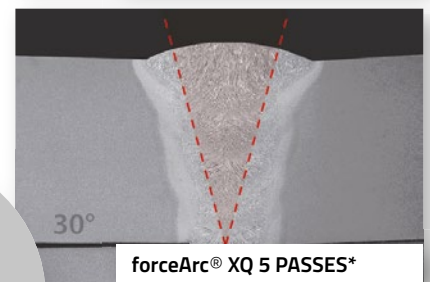
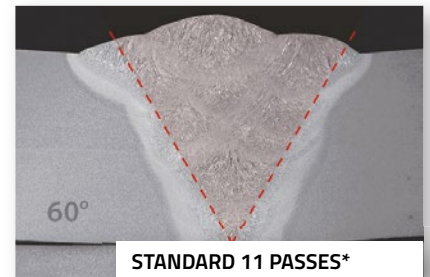
Both welding processes are low-heat and directionally stable with a powerful arc with deep fusion penetration for the upper power range. Suitable for unalloyed, low-alloy and high-alloy steels as well as high tensile, fine-grained steels.

### THE BENEFITS TO YOU:

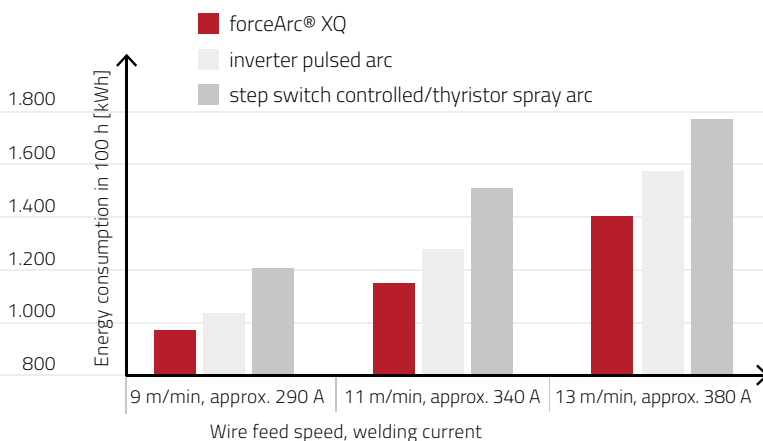
- Cost savings thanks to reduced weld volume
- Energy cost savings
- Less spatter means less finishing work
- Less undercut thanks to highly dynamic current control
- Fewer harmful emissions thanks to reduced welding fumes

### Up to 60% total cost savings

When comparing forceArc<sup>®</sup> XQ to standard spray arc.



\* TWI test results



◀ Save energy costs by using EWM technology: the forceArc<sup>®</sup> XQ process saves approx. 4 kW compared with conventional welding machines at the same deposition rate of 13.0 m/min (1.2 mm; G3Si1).

# SAVE THE ENVIRONMENT, PROTECT YOUR HEALTH.

YOU CAN TAKE THE FOLLOWING MEASURES.

## CHOOSE THE RIGHT WELDING PROCESS

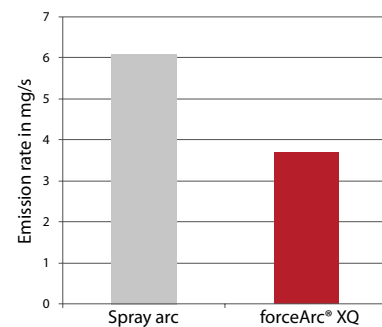
EWM's innovative procedure variants significantly reduce welding fume emissions, helping massively to protect welders' health. They also help you to significantly reduce raw material and energy consumption. Intelligent control processes require fewer passes, which simultaneously means shorter welding times and reduced welding fume particles. This avoids emissions before they even occur.

## RESULTS OF THE TU DRESDEN STUDY



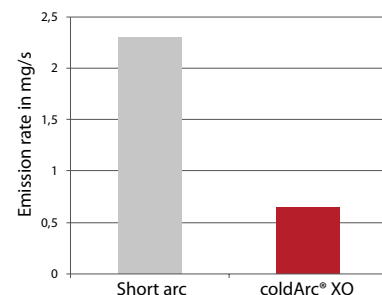
### FORCEARC® XQ / FORCEARC® PULS XQ

Using forceArc® XQ can reduce emissions by up to 40% thanks to the higher welding fume deposition on the workpiece surface. That means these emissions do not enter the air at all.



### COLDARC® XQ / COLDARC® PULS XQ

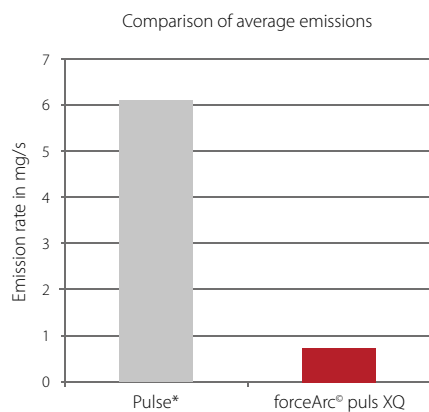
The coldArc® XQ process generates significantly fewer emissions than the short arc process while delivering the same deposition rate. Welding fume emissions are reduced by up to 75%.



## WELDING HIGH-ALLOY CrNi STEELS

In its lower power range, the forceArc® puls XQ process achieves the emission rates of a pulsed arc. The advantages of forceArc® puls XQ become increasingly more apparent at higher power rates. At a wire feed speed of 13 m/min, the emission rate of forceArc® puls XQ drops to a rate 4.5 times slower than the pulsed arc process, helping to protect the welder's health significantly.

## RESULTS OF THE RWTH AACHEN STUDY

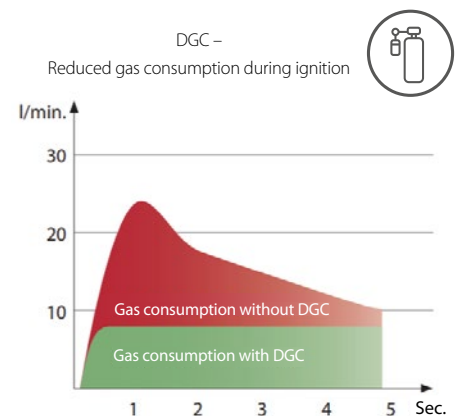


\* – Mean value as per German Building Trade's Employers' Liability Association information sheet 593 – Harmful substances during welding and related processes (BGI 593 – Schadstoffe beim Schweißen und bei verwandten Verfahren)

## REDUCED GAS CONSUMPTION

DGC stands for digital gas flow control and it describes the efficiency generated through gas savings thanks to more precise settings on the welding machine. EWM welding torches' laminar gas supply reduce shielding gas consumption by an additional 20–25%.

- Achieves efficiency through gas savings thanks to accurate settings and control
- Prevents welding errors caused by too much or too little gas
- Constant gas flow rate thanks to electronic adjustment
- No gas blast with turbulence when igniting the arc as the electrical valve opens and closes gently
- Simplified calculation by recording the exact gas consumption via the ewm Xnet software (optional)





# DIGITISATION IN WELDING BUSINESSES

## WITH ewm Xnet

Making Industry 4.0 a reality is easy with the innovative ewm Xnet welding management system – no matter your company's size or focus. The advantages are plain to see: improved networking of products and people improves efficiency and quality while reducing costs and saving resources. By choosing ewm Xnet, you are adding measurable value throughout your welding company's entire value chain. Thanks to intelligent monitoring and transparency in planning, production, quality management, welding coordination personnel, final costing and administration processes, you can always keep track of everything.



## RAISE QUALITY

- Documentation of the welding parameters and the welders of every run provides long-term, traceable welding quality
- WPS connection to the component, real-time parameter monitoring directly on the welding machine and clear assignment of required welder qualifications all minimise the number of errors
- Precise specifications from EWM component management and the WPQR manager ensure that the correct parameters are always set



## REDUCED COSTS

- Consumption values for power, shielding gas, welding consumables and welding time are recorded to recognise potential savings
- Minimal downtimes thanks to prompt maintenance instructions
- Transparent processes ensure constructive controlling with the option of precise final costing



## INCREASE PRODUCTIVITY

- Longer arc times per layer improve efficiency
- Paperless transfer of all relevant data and WPS directly to the workplace reduce non-productive time
- Preset welding parameters reduce the number of error corrections
- Prompt, consumption-oriented maintenance notices, e.g. for torch consumables, result in fewer unnecessary downtimes





# EWM maXsolution®.

## WE'RE HERE FOR YOU.

With our extensive innovation and technology consultation package, EWM maXsolution®, we identify (previously) unused optimisation potential within your welding processes. Measures tailored to your individual needs strengthen the foundations for sustainable success. From a detailed analysis of individual processes or a quick check of work routines through to full optimisation of production, with EWM, you always get custom solutions tailored to your needs.



### SAVE TIME AND MONEY

Save time and materials with optimised processes: by objectively analysing areas such as production, design and documentation, we will work with you to uncover and detect potential for optimisation and create a basis for effective improvement plans.



### ASSURE QUALITY

We'll also assist you when it comes to quality management: with innovative processes, improvements to existing processes and by helping your employees gain qualifications. "Unproductive" periods spent on reworking or complaints are minimised – with the right equipment and the appropriate control systems.



### INCREASE PRODUCTIVITY

Ideal workflows maximise your productivity: fast, secure and cost-efficient procedures focused on value-adding activities for greater efficiency in resource use cement your competitive edge.



### PROTECT THE ENVIRONMENT AND YOUR EMPLOYEES

Low-emission, energy-saving welding processes and the best possible workspace design allow you to act responsibly in the interests of the environment and your employees, helping you to effectively secure your business' future.

**The sum of our shared experience, the launchpad for your success drive.**



## MORE INFORMATION

You can download our free e-book with valuable tips, practical examples and solutions on our website.

WELDING WITH EWM MEANS:  
WE'RE HERE FOR YOU!





WE ARE WELDING

We're happy to help: [sales@ewm-group.com](mailto:sales@ewm-group.com)

EWM is your partner for the best welding technology. With EWM, you'll weld more efficiently, more reliably and produce higher-quality results. EWM's innovative systems, high-performance welding procedures, digital technologies and services, as well as expert consultation, all support you in achieving perfect results from your welding tasks.



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