

AUTOMATION



WE ARE WELDING

+  
**EWM**  
**REACT**

PRECISION IN MOTION



 YOUR FULL-SERVICE  
SOLUTION.

[www.ewm-group.com](http://www.ewm-group.com)

# EWM REACT.

MAXIMUM PRECISION, FULL CONTROL.



**REVERSING**  
**ACTIVELY**  
**CONTROLLED**  
**TRANSFER**

With EWM React, we're pushing the physical limits of digitally controlled short arcs and increasing the possibilities of what's possible. Our most stable welding process for automated welding is characterised by an active forward/backward movement of the wire and achieves perfect welding results with the help of controlled droplet transfer. The wire moves forward, the short circuit occurs and the wire is actively pulled back. This increases the range of the short arc, and, with low heat input, a higher deposition rate is possible at very high welding speeds. This push/pull movement takes place at a high frequency, making EWM React not only our most stable welding process, but our fastest one as well. EWM React is precision in motion.

## EWM IS YOUR SOLUTION PROVIDER

Our welding technology for automated and mechanised welding already leaves nothing to be desired, but you can expect even more from our automation team as a whole. Come to us with your problem – we have the right solution for you in our repertoire. If not, then we'll develop it. In this way, we're constantly adding more and more services to our range and continually improving our tools.

**// We are welding. We are welding. You get only the best from us.**

### + WE TAKE SERVICE FURTHER

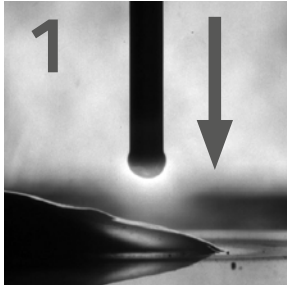
You can rely on our welding technology, our experts and, above all, our service. Whatever your concern may be, we'll make it our focus and find a solution.

### + WE PROVIDE BETTER CONSULTATION

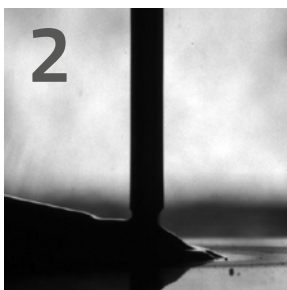
EWM's consultation is as precise as our welding technology. We pass our expertise on to you and handle the analysis, planning and implementation of your project. We provide you with a complete solution giving you full control of your welding results.

# THE ACTIVE WIRE MOVEMENT.

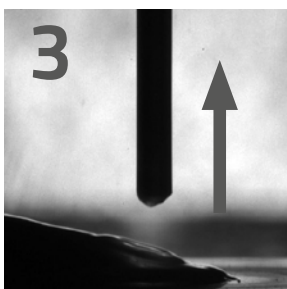
FAST, CONTROLLED, PRECISE.



The wire is actively moved toward the weld pool at high speed. The arc ignites on the molten metal and produces a molten droplet at the same time.



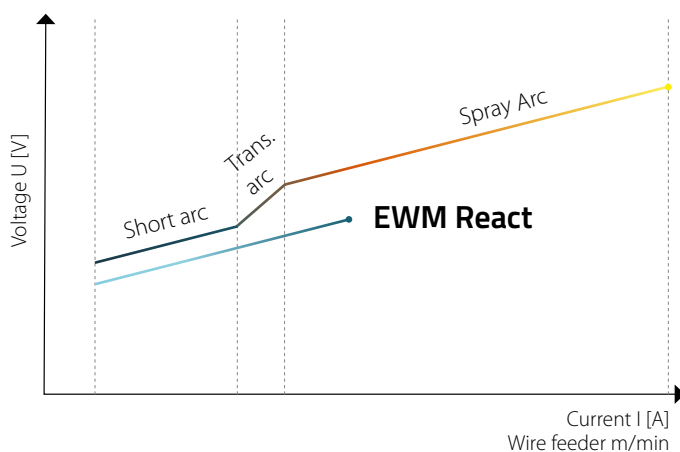
At the moment when the wire comes into contact with the molten metal, the molten droplet in the short circuit is transferred to the weld pool. The RCC module controls the short-circuit resolution.



As a result of the active backward movement, the wire is drawn from the weld pool with high precision and the arc reignites.

+ As soon as the arc is ignited again during step 3, the process starts again with step 1 and is repeated. The full wire movement is carried out individually for every single detached droplet.

## FOR OPTIMAL WELDING RESULTS.

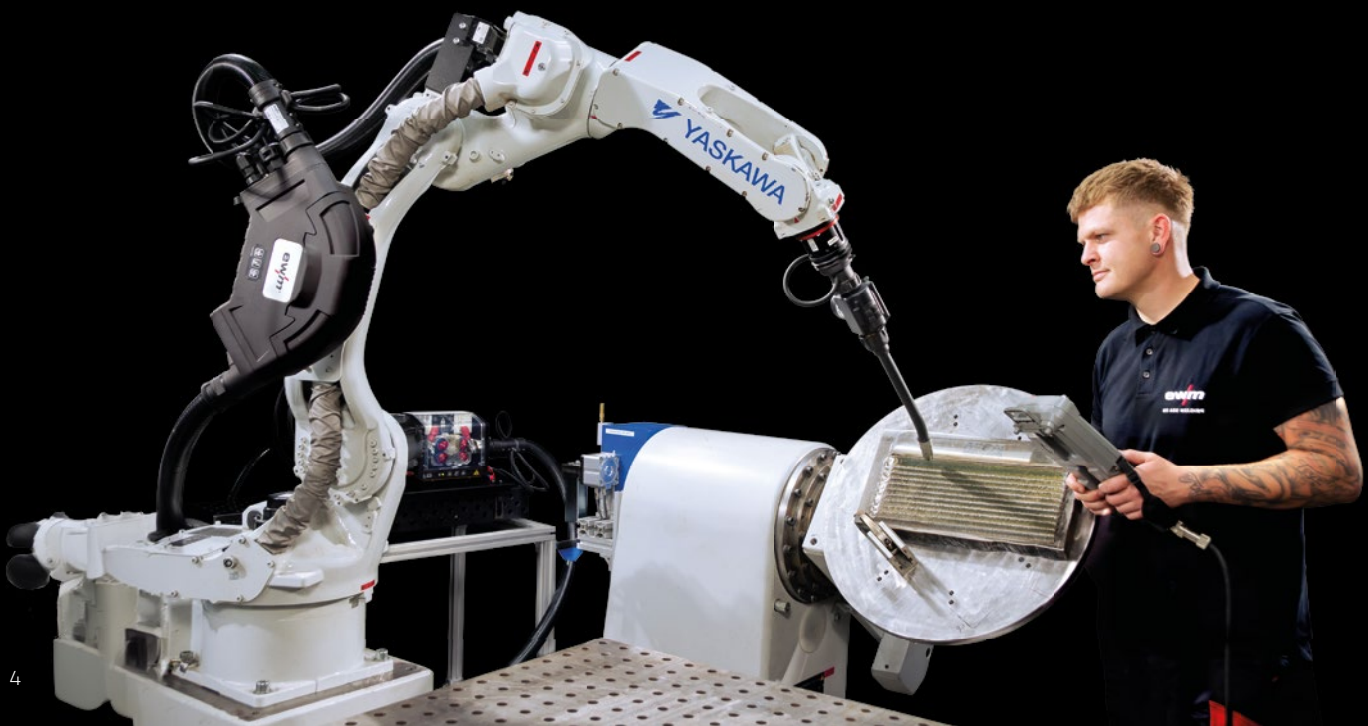
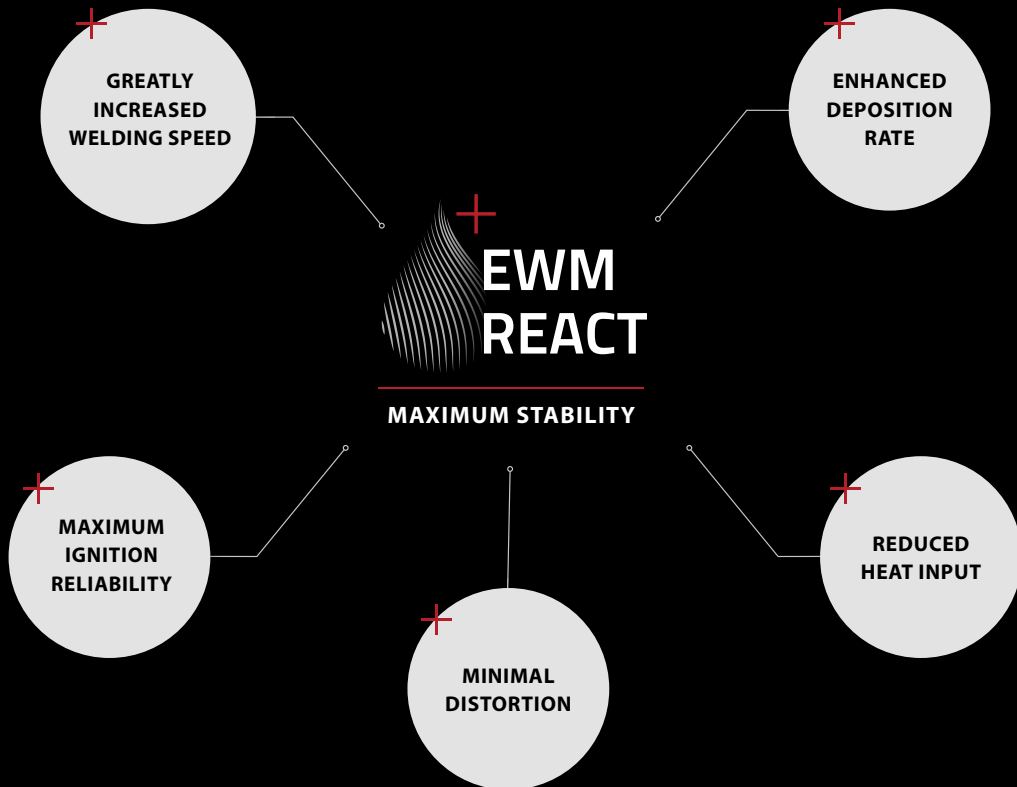


The deposition rate is also significantly greater in comparison to the short arc. To a degree, this even extends into the spray arc range.

# THE ADVANTAGES OF EWM REACT.

## FULL CONTROL OVER DROPLET TRANSFER.

EWM React delivers what you desire in a precise and stable automation welding process. With this welding process, we give you full control over droplet transfer. Instead of falling off the electrode, the droplet passes reliably into the weld pool despite high welding speeds. This results in perfect weld seams which you can rely on – even under the heaviest of loads. We utilise the high deposition rates of the spray arc range and combine them with all the advantages of the short arc. Just as low spatter as the pulsed arc, but cooler in every power range. Speed isn't everything here, though – we take productivity to a new level for you.



MORE

**100 %**

FASTER WELDING

**35 %**

LESS  
HEAT INPUT

**30 %**

LESS  
WELDING FUMES

VIRTUALLY **0 %**  
WELD SPATTER  
IN COMPARISON TO  
SHORT ARC

EXTREMELY  
**STABLE**

IGNITION AND  
WELDING PROCESS

**GAP BRIDGING**  
UP TO **2 mm**

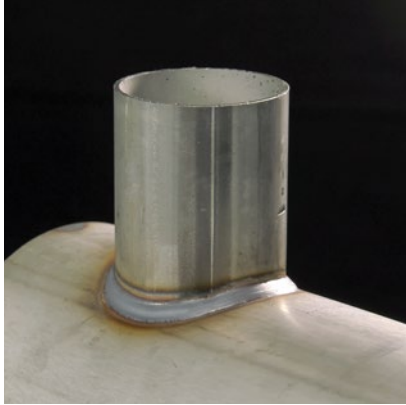
**2 x**

HIGHER DEPOSITION RATE  
IN COMPARISON TO STANDARD SHORT ARC

# AREAS OF APPLICATION.

## AS PRECISE AS A SWISS WATCH – ALWAYS.

Demanding welding tasks are no problem for EWM React. Where precision, process stability and controlled heat input are required, our welding process represents an advanced solution.



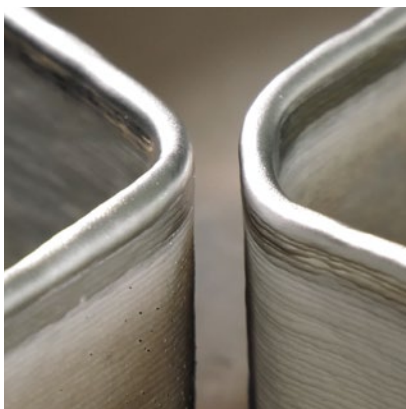
### JOINT WELDING +

Do you weld heat-sensitive components and wish to increase your productivity through higher welding speeds? Are distortion and spatter also problems you regularly encounter? With EWM React Speed and EWM React Positionweld, EWM React offers you different process variants tailored to your requirements. A doubling of the welding speed and a reduction in heat input of up to 35% are often possible, which is particularly important for high-tensile steels and CrNi components.



### CLADDING +

EWM React is the perfect solution to problems which can arise with conventional cladding. Thanks to its low heat input combined with a high deposition rate, the process prevents the lower-alloy parent metal melting when the high-alloy protective layer is applied. High welding speeds aren't a problem either. The result is perfect and extremely corrosion-resistant weld seams.



### WIRE ARC ADDITIVE MANUFACTURING (WAAM) +

The production of large components and complex geometries places high demands on Wire Arc Additive Manufacturing (WAAM). The manufacturing process is already characterised by major advantages such as a wide variety of materials and high material utilisation. Our automation welding process offers many other advantages, especially considerable time savings, a significant cost reduction and an increase in weld seam quality. With EWM React, the material is applied flawlessly layer by layer.

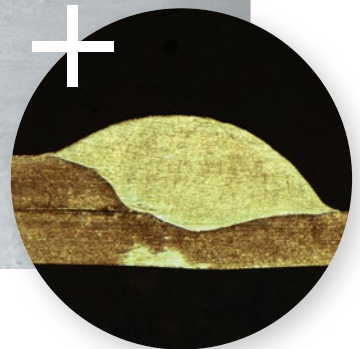
# JOINT WELDING. HIGH-ALLOY CrNi STEEL.

## POSITION PB

- Welding speed up to 250 cm/min
- Up to 35% reduction in heat input

## THE BENEFITS FOR YOU +

- Less distortion
- Increased productivity
- Less finishing work
- Perfect ignition for every component



## POSITION PG

- Welding speeds up to 350 cm/min
- Stable process
- Virtually no spatter
- Welding speed

## THE BENEFITS FOR YOU +

- For all welding positions
- Easy and fast setting with just a few parameters
- A single parameter for all positions
- Ideal malleable look



# JOINT WELDING.

UNALLOYED AND LOW-ALLOY STEEL  
HIGH-TENSILE STEEL.

## POSITION PB

- 70 cm/min welding speed
- 23% reduced heat input in comparison to pulse and transitional arc
- Significant reduction in weld spatter

## THE BENEFITS FOR YOU +

- Safe welding of high-tensile materials
- Low heat input
- Compliance with the required cooling time  $t_{8/5}$
- Increased productivity

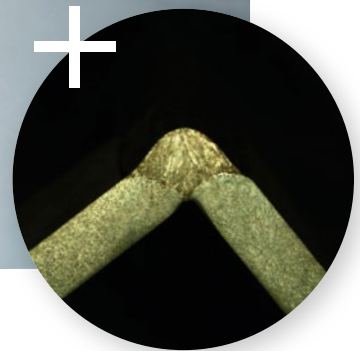


## POSITION PB

- 310 cm/min welding speed
- Virtually no spatter
- Minimal distortion

## THE BENEFITS FOR YOU +

- Increased productivity
- Virtually no finishing work
- Attractive weld appearance



 All results were welded with filler materials from EWM.  
[www.ewm-sales.com](http://www.ewm-sales.com)





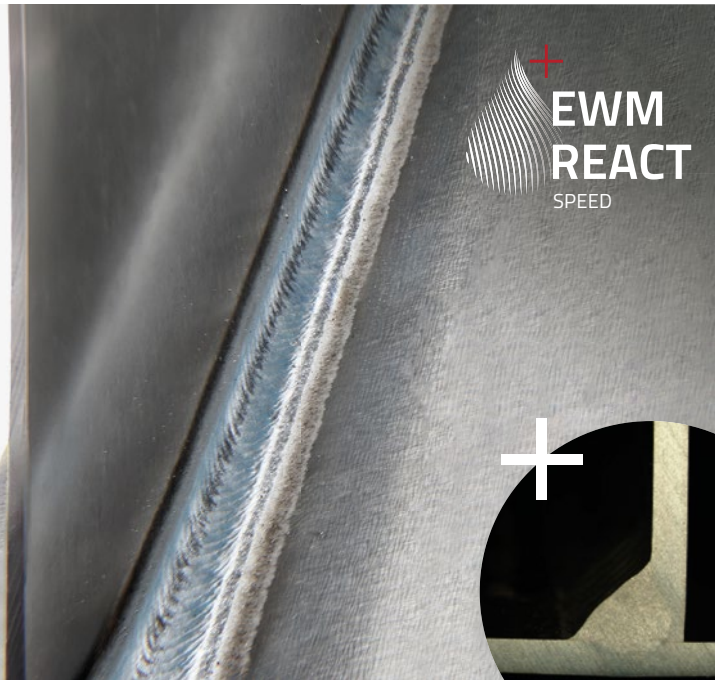
# JOINT WELDING. ALUMINIUM.

## POSITION PB

- 80 cm/min welding speed
- Excellent wetting of the sidewalls of the joint

## THE BENEFITS FOR YOU +

- Significantly less cleaning required
- TIG-like appearance
- Virtually no burn-through
- Very easy parameter setting

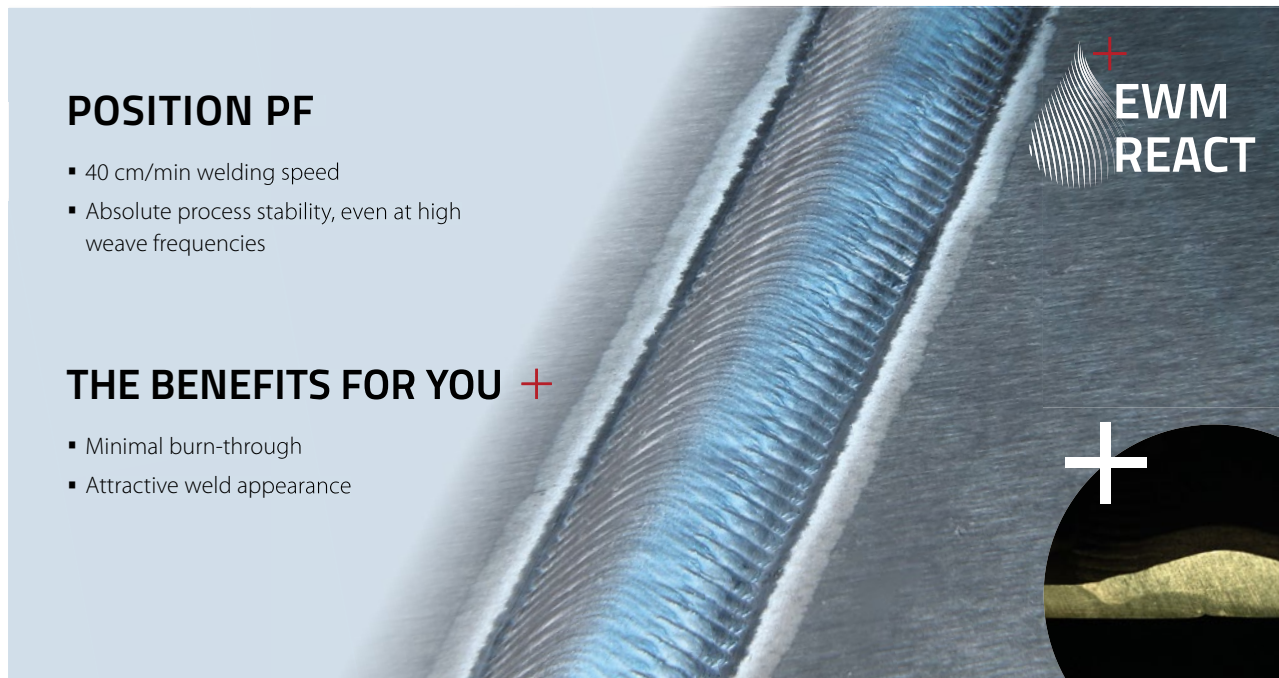


## POSITION PF

- 40 cm/min welding speed
- Absolute process stability, even at high weave frequencies

## THE BENEFITS FOR YOU +

- Minimal burn-through
- Attractive weld appearance

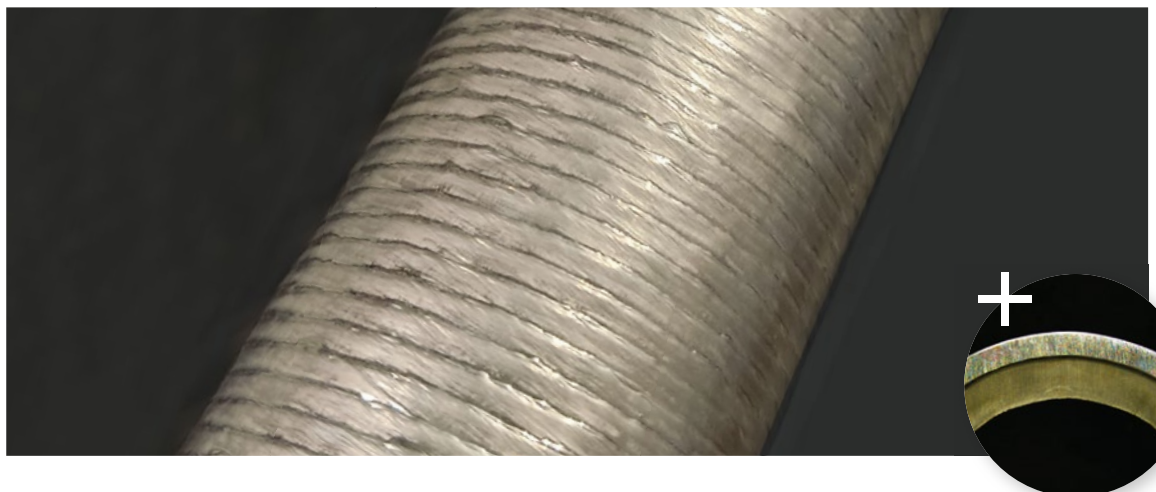




# CLADDING.

## CONVENTIONAL CLADDING.

EWM React solves the problems of conventional cladding, where high deposition rates often lead to severe melting of the parent metal. The result: lower performance reduces productivity. Thanks to its low heat input and stable arc, EWM React easily enables significantly higher welding speeds in comparison to the short arc. The result is more resilient weld seams with a high surface quality and high corrosion resistance thanks to low dilution of the parent and surface materials, combined with very high deposition rates (up to 120% in comparison to short arc), which means significant savings on production costs and an increase in productivity at the same time.



### FACTS

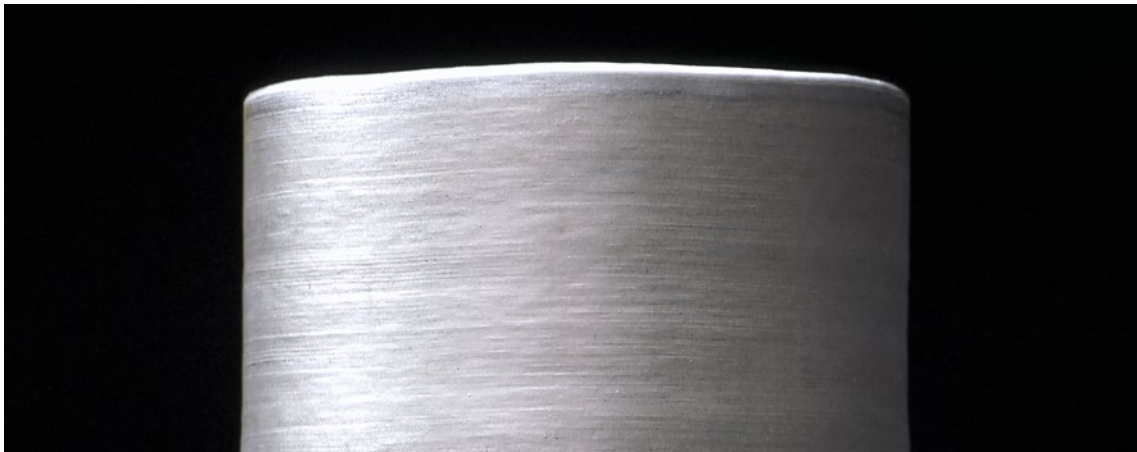
- Less than 1% Fe content Single layer with a thickness of 2 mm
- Smooth surface
- Up to 6.8 kg/h deposition rate
- Up to 120% higher deposition rate in comparison to the short arc

### THE BENEFITS FOR YOU +

- Optimal corrosion resistance
- High productivity
- Efficient use of materials
- Also possible with pure argon or Ar/He shielding gas

# WIRE ARC ADDITIVE MANUFACTURING (WAAM).

What the general public know as 3D printing is what is known in specialist circles as additive manufacturing. Wire Arc Additive Manufacturing (WAAM) is the term applied when metal is used as the production material. EWM React helps you to save lots of time and money in this process. Our stable welding process also provides the properties which are absolutely necessary in order for the material to be applied layer by layer without any defects. The result: you can weld more and have less finishing work to do.



## FACTS

- 5 m/min welding speed, 1.2 mm wire diameter, AlMg4.5Mn
- 3 mm wall thickness
- Perfect surface with no finishing work

## THE BENEFITS FOR YOU +

- Controlled, minimal heat input
- Stable and constant welding process
- High deposition rate

 All results were welded with filler materials from EWM.  
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# THE COMPONENTS.

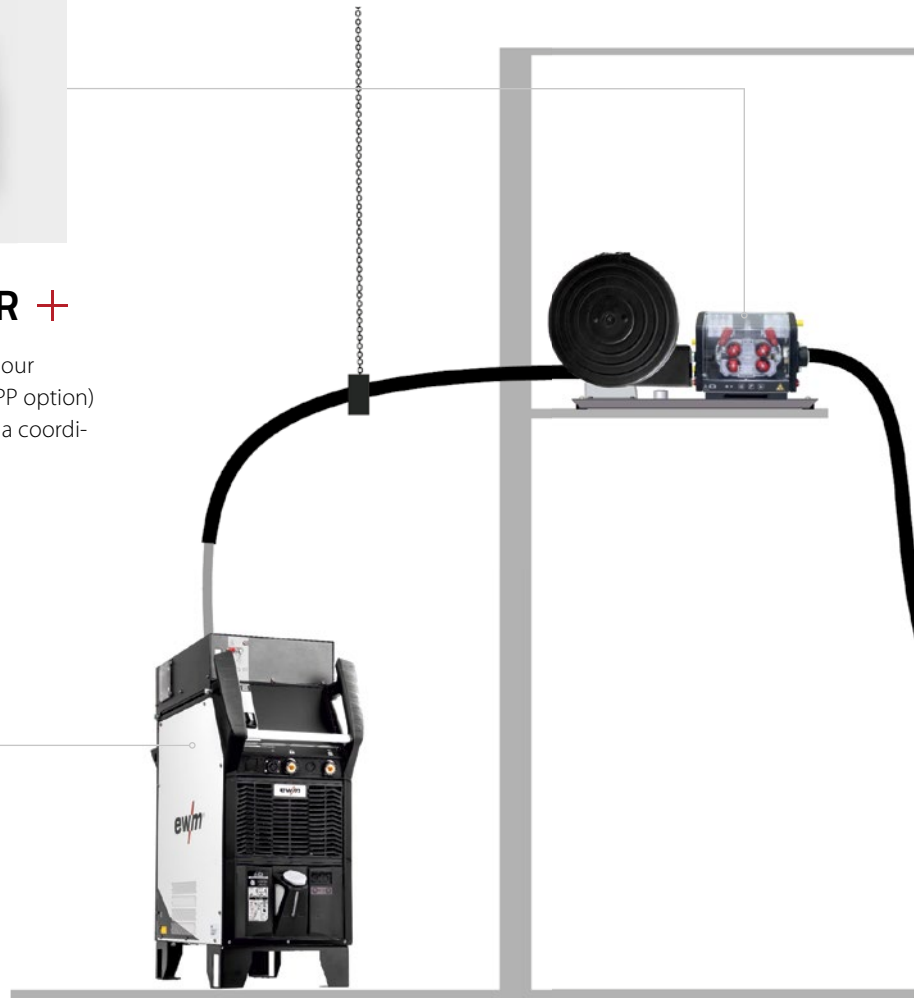
## PERFECT HARMONY.

We provide all the components you need for EWM React from a single source – from the drum to the roll to the contact tip. In addition to the main components, your system is rounded off with the necessary accessories in the form of an intermediate hose package with PP control and customised welding torch necks.



### THE WIRE FEEDER +

Interference-free and unwavering, our M Drive 4 Rob 5 wire feeder (with PP option) ensures a constant wire supply via a coordinated average value.



### THE POWER +

The strong basis for the perfect weld seams created in the end is our power source: the Titan XQ R with integrated RCC module and EWM React licence.



## THE ROBOT + WELDING TORCH

The driving force behind the reversing wire movement is a highly dynamic motor. It pushes the wire towards the workpiece at a high rate and actively pulls it back again. Available for conventional or hollow-wrist systems.



## THE WIRE BUFFER +

Between the wire feeder and the robot welding torch, the wire buffer acts as a link between the individual components to compensate for the active wire movement.



WE ARE WELDING

We'd be happy to consult with you: [react-now@ewm-group.com](mailto:react-now@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, support you in achieving perfect results from your welding tasks.



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The contents of this document were researched, checked and edited with care. It is still subject to changes, writing errors and mistakes, however.