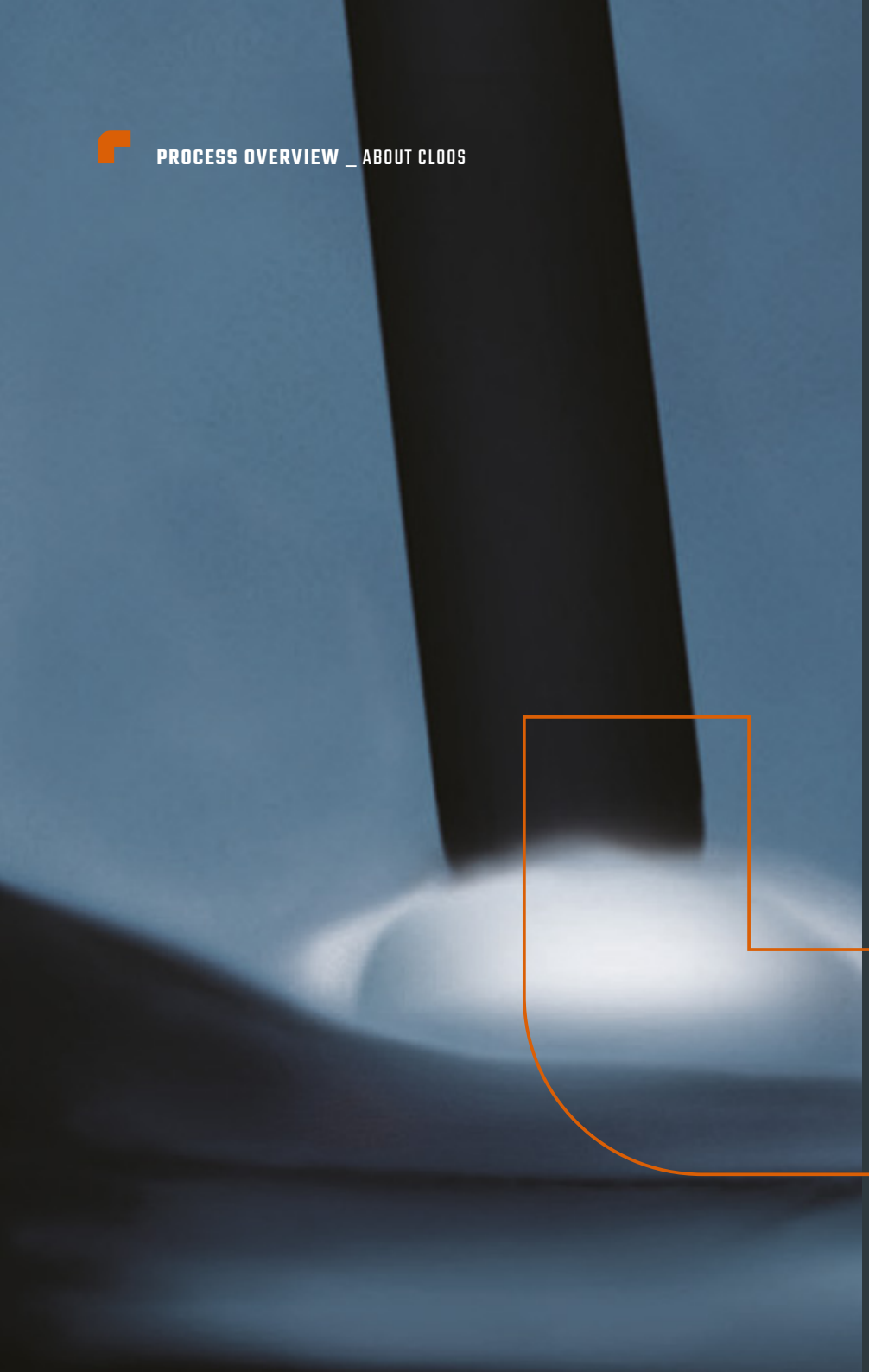
WELDING

A wide range of technologies for the most demanding requirements

Discover the wide range of proven and innovative welding processes – for manual and automated applications. Maximum precision, efficiency and quality for every challenge.

CONNECT WITH US!

CONTENTS



CLOOS

WE CREATE **CONNECTIONS**

The CLOOS Group is an international company headquartered in Haiger, Germany. With around 1.000 employees worldwide, CLOOS provides welding expertise for industrial applications that demand the highest standards of durability and quality in efficiency-driven industries.

As a global product and solution brand, CLOOS combines specialised knowledge from welding applications, robotics, automation and software in customised solutions for medium-sized companies as well as for large international automotive, commercial vehicle and agricultural machinery manufacturers.

CLOOS not only provides the crucial technical edge needed to maintain long-term competitiveness, but also acts as a problem-solver, working alongside its customers to tackle tomorrow's challenges today.

With 10 production sites and over 60 sales and service centres – including North and South America, Asia and Australia – customers worldwide rely on solutions from CLOOS.

KEYFACTS

CLOOS in facts and figures

1.000 employees
(550 employees
in Germany)

230 Mio €
Group revenue

85 %
Export share

90 %
Vertical integration
of main components

About
100 Jahre
of experience,
founded in 1919

Engineered in
GERMANY
Headquarters
Haiger, Germany

10
Production sites
on 3 continents

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SUPERIOR PROCESS-KNOW-HOW

CLOOS' outstanding strength lies in the welding process. This is where we bring together all our experience, knowledge and innovative strength to solve your challenges.

Whether thick or thin, aluminium or steel, manual or automated – the wide range of processes offers the right welding process for every individual product requirement, including upstream and downstream steps such as cutting and grinding:

- MIG/MAG WELDING
- TIG WELDING
- LASER WELDING

Only those who strike the right balance between hardware and process can turn welding into a decisive competitive advantage in manufacturing. At CLOOS, we have been committed to this task with heart and mind since 1919.

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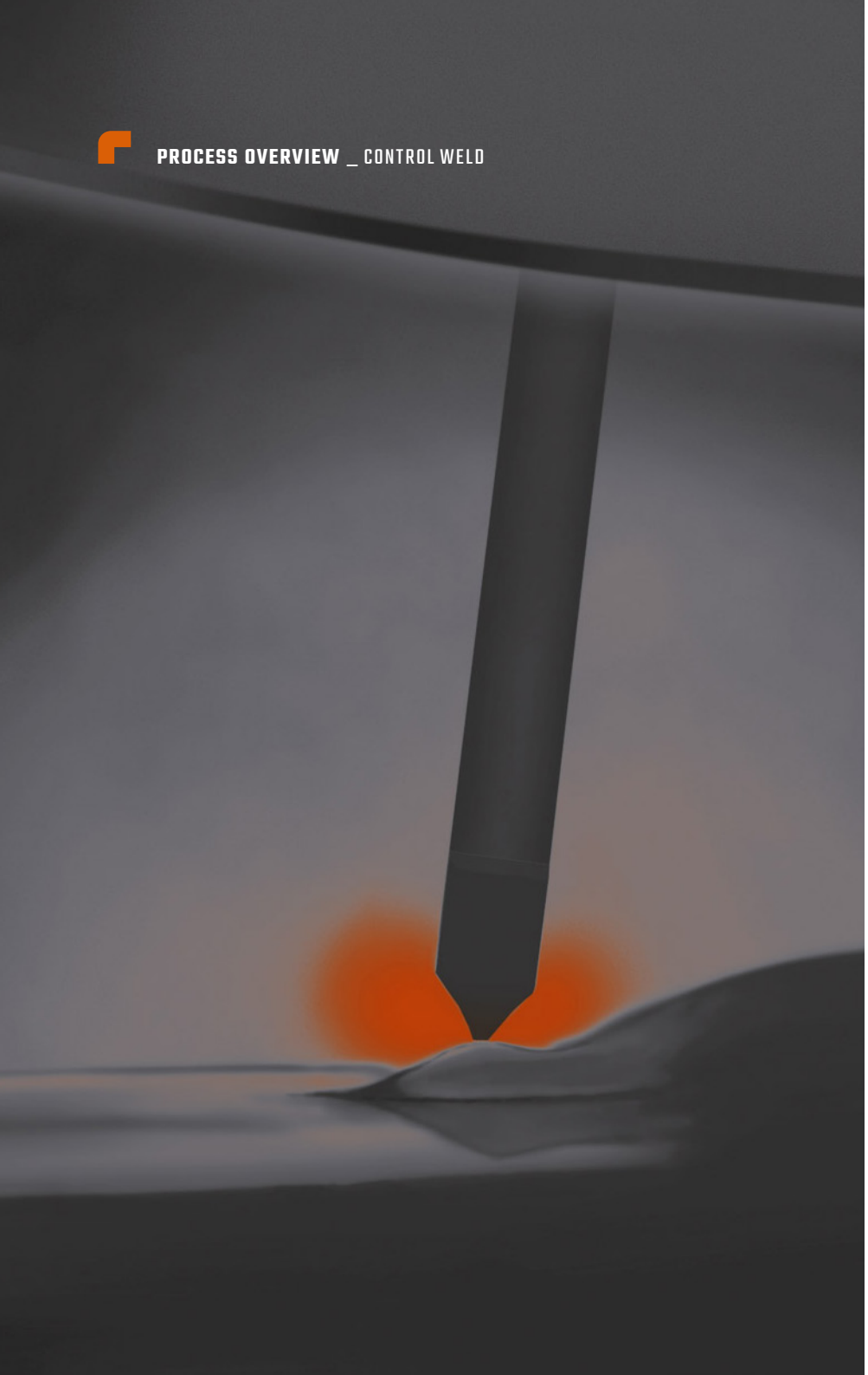
MIG/MAG WELDING

Versatile, powerful and economical –
the standard for industrial welding applications.



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CONTROL WELD

MIG/MAG universal process **with a wide range of applications**

Control Weld is a versatile MIG/MAG process. At low power, a short arc is formed, which is particularly advantageous when joining thin-walled workpieces and in constrained positions. In the spray arc range, the process is more energy- intensive, has a higher deposition rate and brings more heat into the base material.

MATERIALS

- Steel
- Chromium-nickel
- Coated steel sheets
- Heat-resistant steels
- High-strength steels
- Special alloys

YOUR ADVANTAGES

- Versatile process
- Compensation of material tolerances through good gap bridging in the short arc range
- Little reworking due to low spatter ejection in the spray arc range

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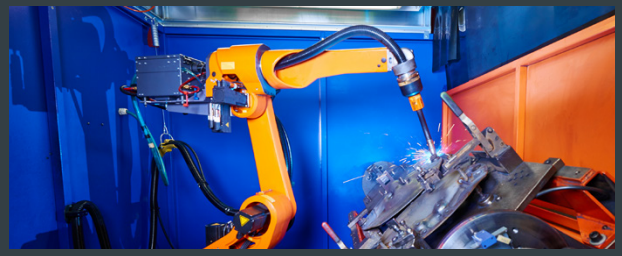
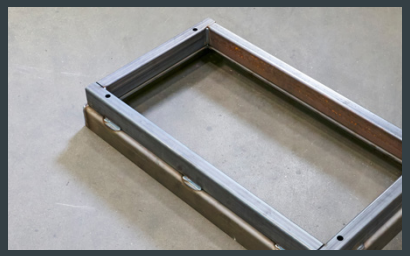
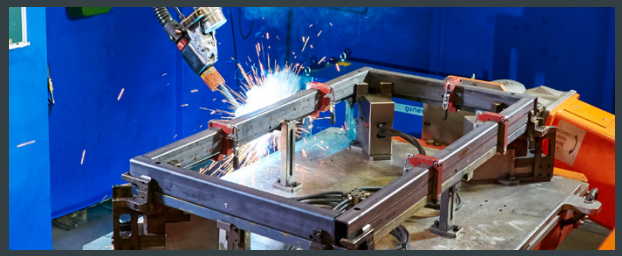
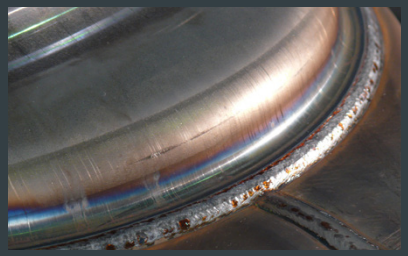
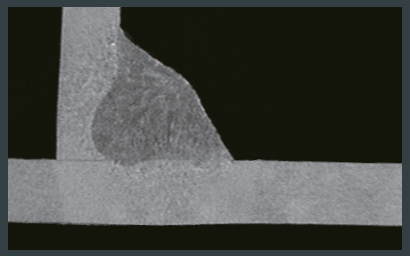
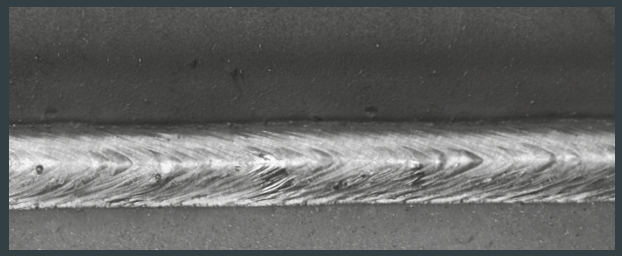
REFERENCES

Kuhn S.A.
Cover discs

Langmatz GmbH
Manhole cover

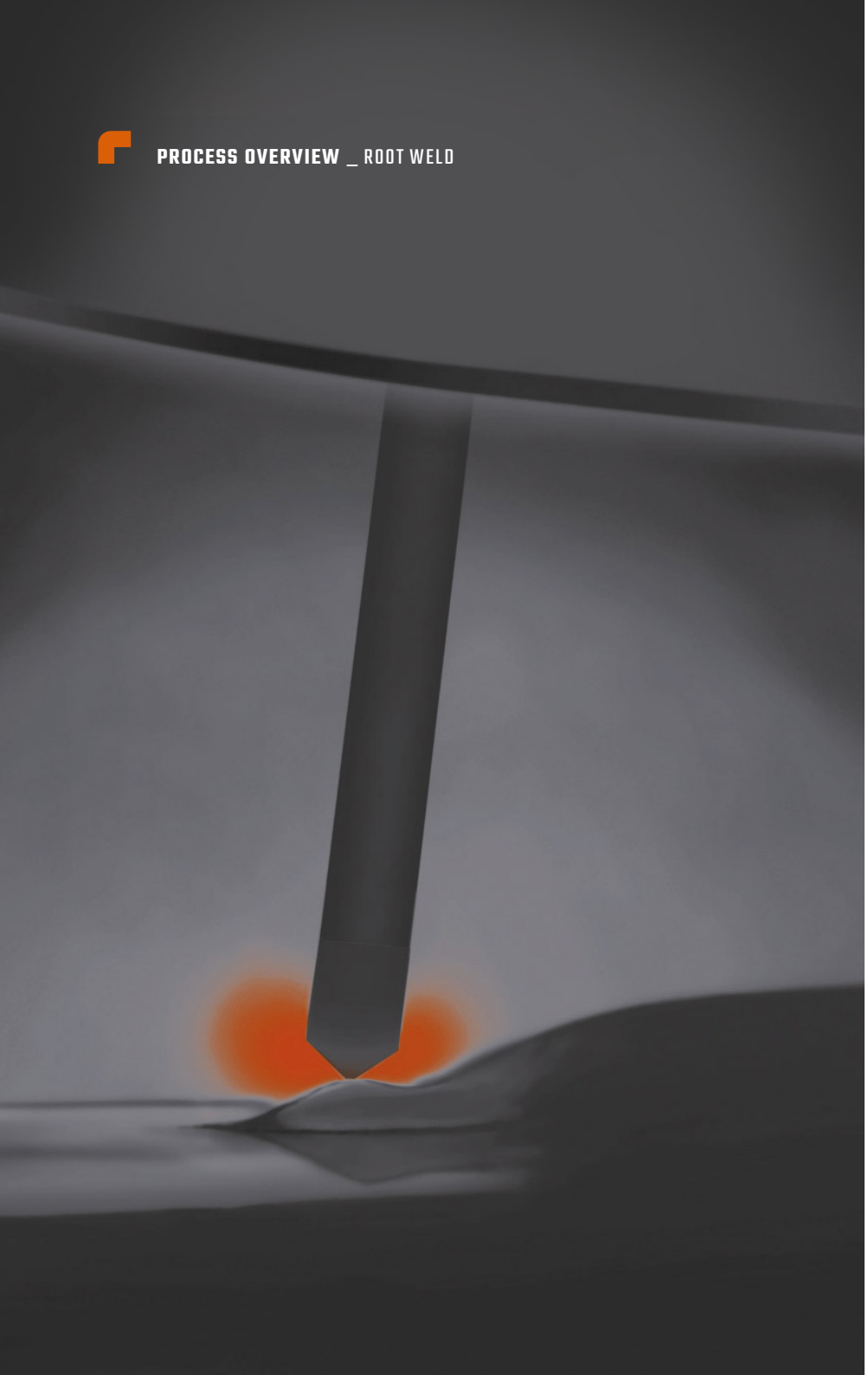
voestalpine AG
Axle bridge

APPLICATION EXAMPLE

Material	Steel
Welding speed (cm/min)	50
Welding current (A)	198
Wire feed (m/min)	5,6



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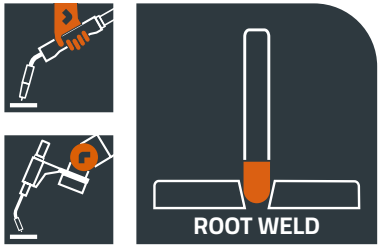


ROOT WELD

Stable, energy-reduced process **for welding in all welding positions**

Root Weld is an energy-reduced, controlled MIG-MAG short arc welding process that is suitable for the special requirements of any welding position, especially in constrained positions and V-seam root layers. Thanks to optimised process control in the lower power range, Root Weld produces a stable and smooth arc that is easy for the welder to use in any welding position.

MATERIALS

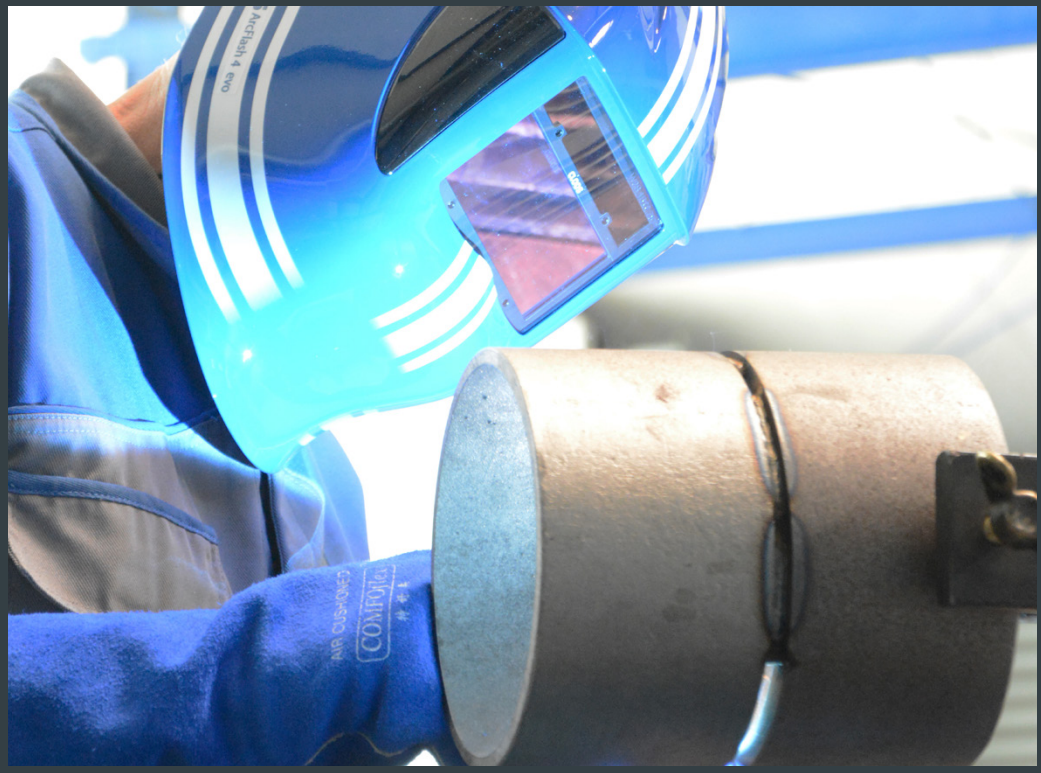
- Steel
- Chromium-nickel
- Coated steel sheets
- Heat-resistant steels
- High-strength steels

YOUR ADVANTAGES

- Root welds in all welding positions with optimum gap bridging
- Extremely stable short arc, which does not require any special knowledge on the part of the welder when joining in constrained positions
- Easily controllable weld pool, improved seam formation

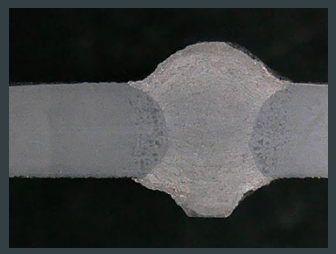
REFERENCE

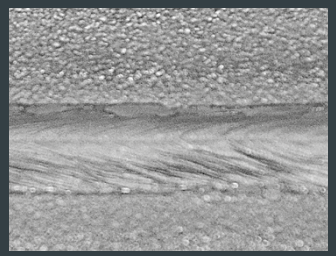
Pipeline construction

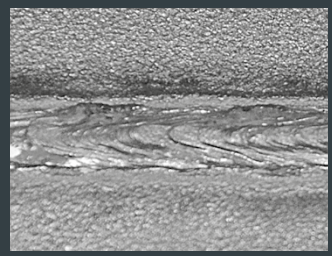


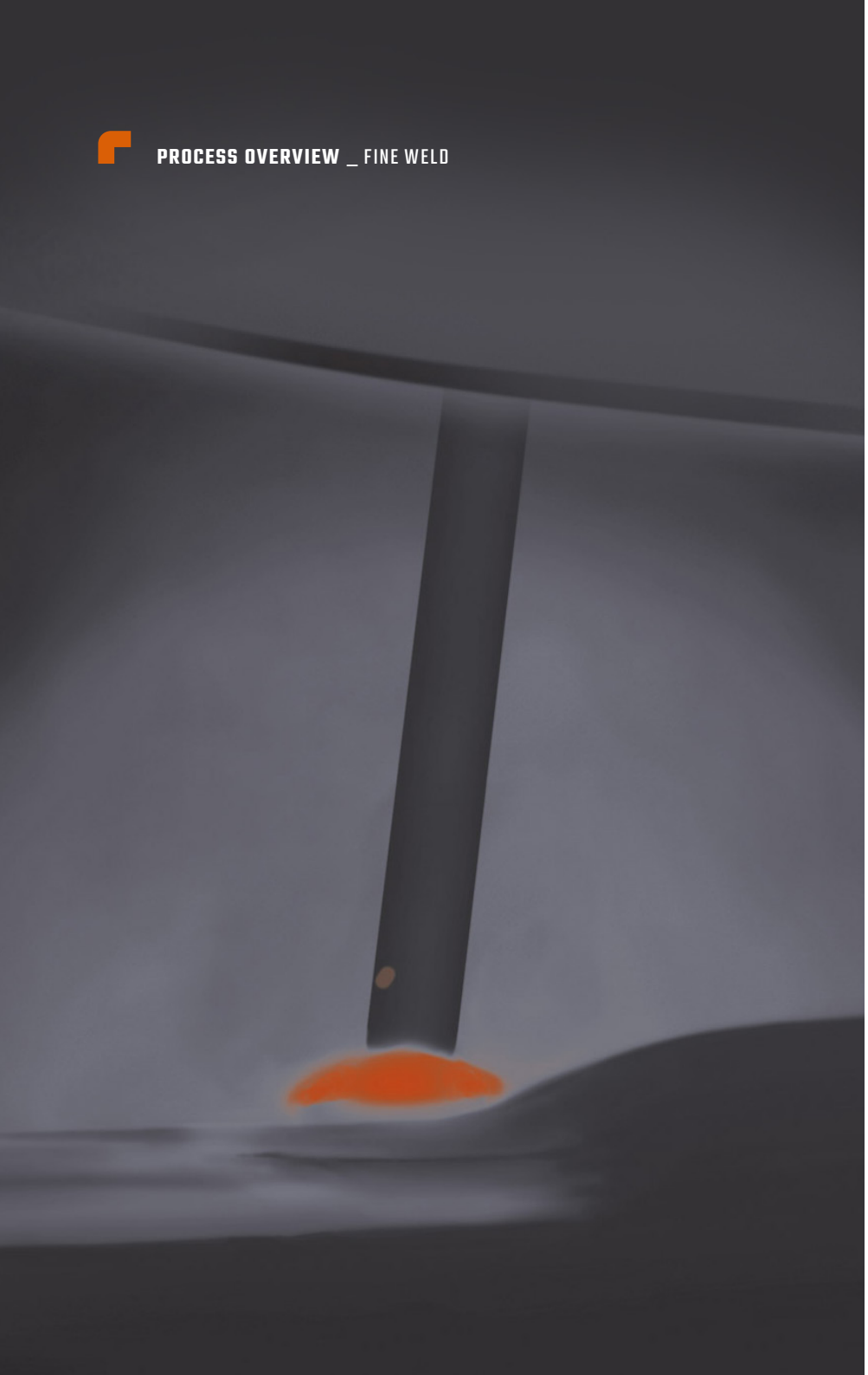
APPLICATION EXAMPLE

Material	Steel
Welding speed (cm/min)	32
Welding current (A)	162
Wire feed (m/min)	4,0









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FINE WELD

Energy-reduced short arc **for low-spatter welding in thin sheet metal applications**

Fine Weld generates an energy-reduced, regulated and therefore low-spatter short arc under CO_2 and mixed gas. It is perfectly suited for thin sheet metal.

MATERIALS

- Steel
- Chromium-nickel
- Coated steel sheets
- Heat-resistant steels
- High-strength steels

YOUR ADVANTAGES

- Less reworking due to minimised spatter formation
- Compensation of material tolerances through good gap bridging
- Less reworking due to low distortion
- Can be used in thin sheet metal applications, even under CO_2

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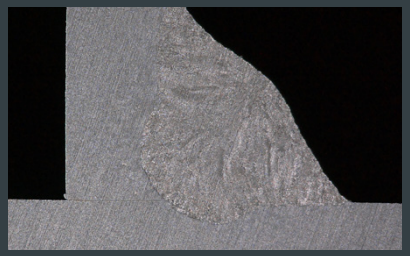
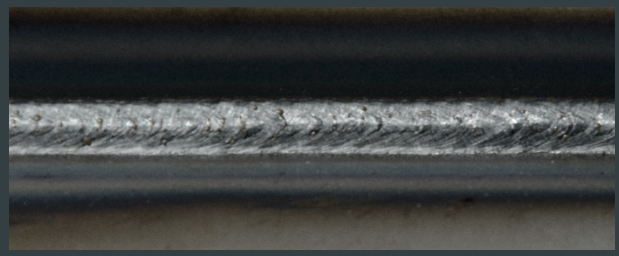
REFERENCE

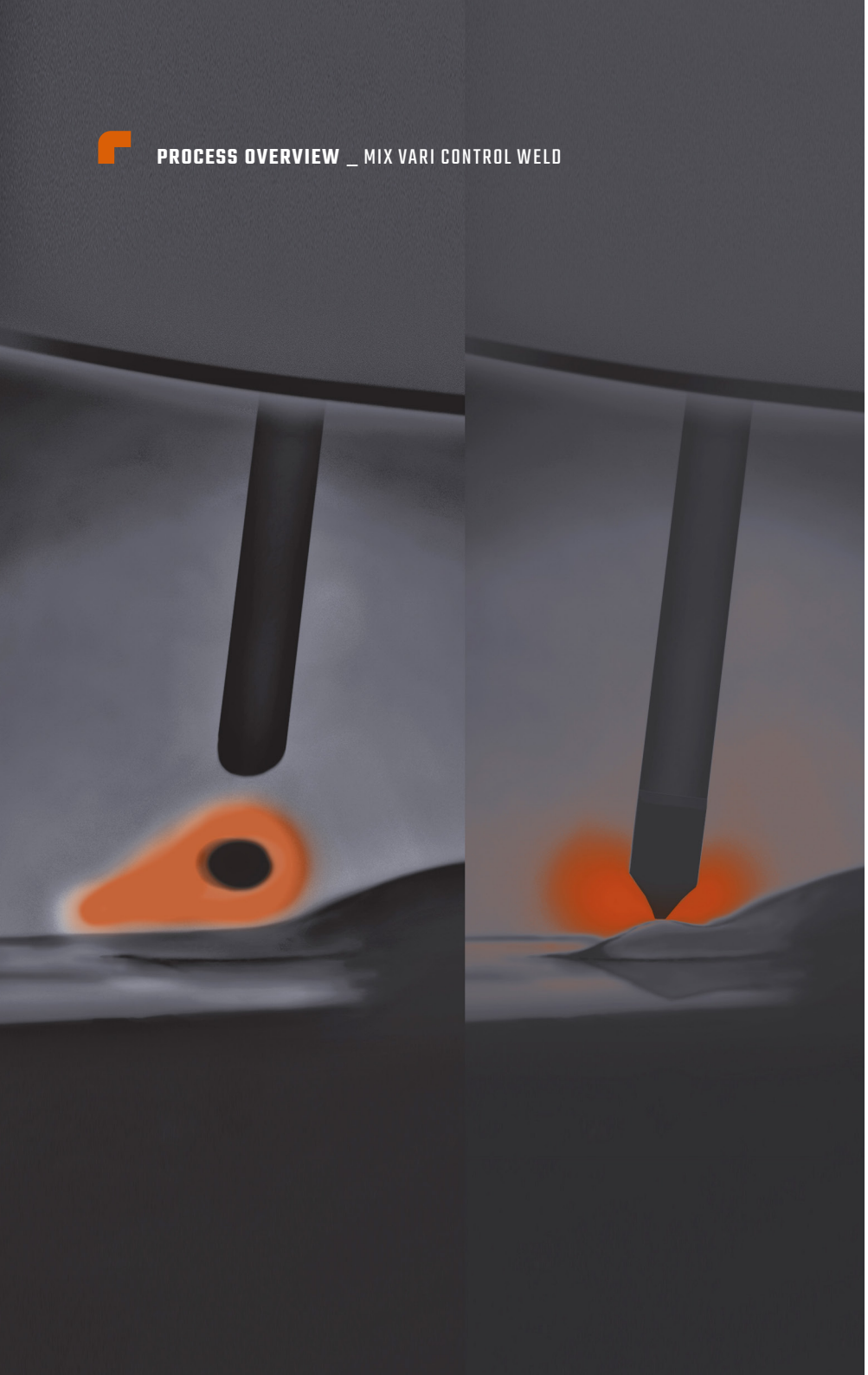
Furniture industry

APPLICATION EXAMPLE

Material	Steel
Welding speed (cm/min)	65
Welding current (A)	102
Wire feed (m/min)	3,7







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MIX VARI CONTROL WELD

Mix of short arc and pulsed arc **for welding in forced positions and on vertical seams**

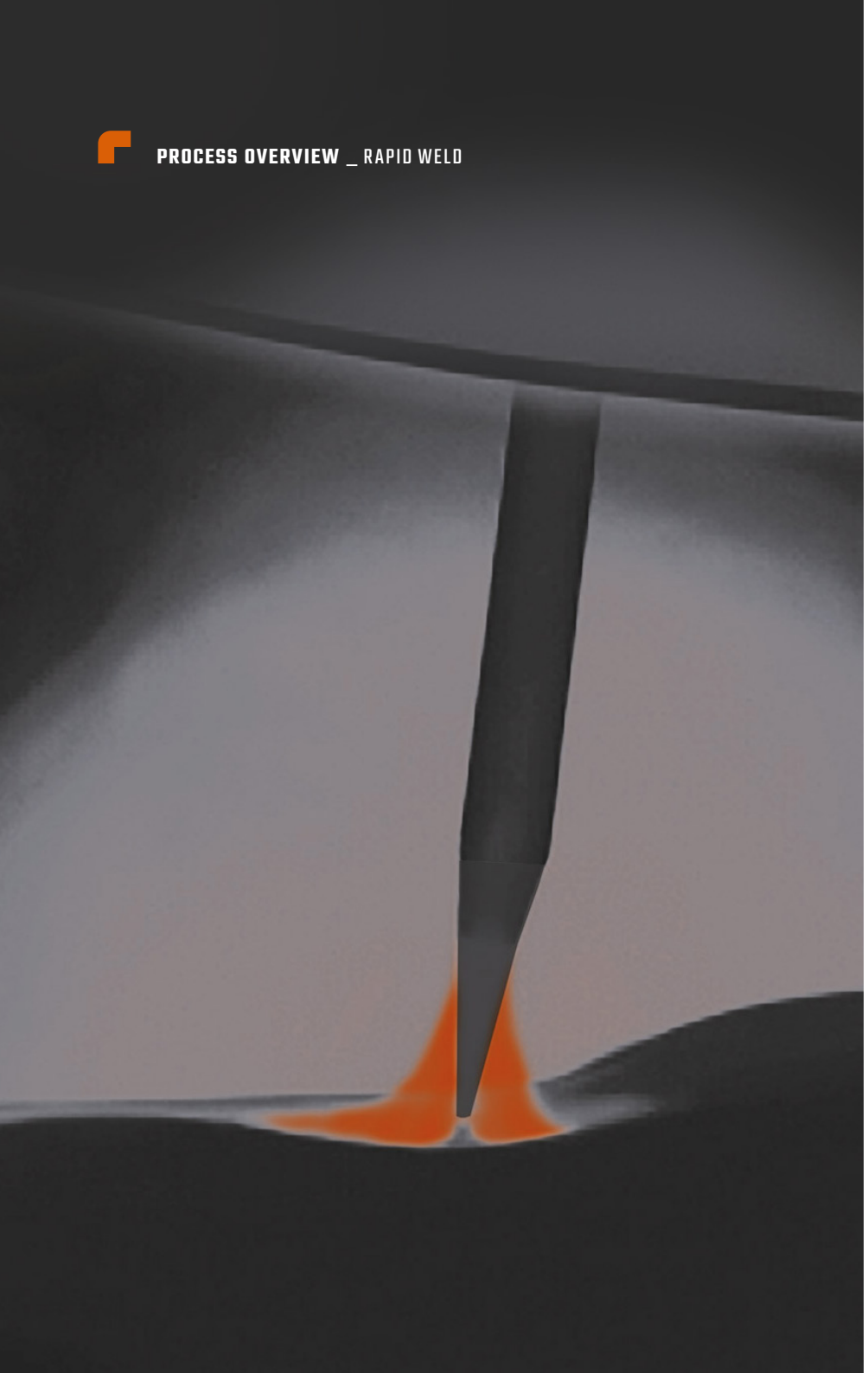
Mix Weld is a combination of the short arc Control Weld and the pulsed arc Vari Weld. Switching between the two processes enables optimum control of the heat input. While optimum gap bridging and root coverage are achieved in the Control Weld phase, the Vari Weld phase is used for flank bonding. The length of the phases is variable and can be adjusted to the requirements of the weld seam.

MATERIALS

- Steel
- Coated steel sheets
- Heat-resistant steels
- High-strength steels

YOUR ADVANTAGES

- No special requirements for the welder when welding vertical seams, as no pendulum movements are necessary
- Optimal adjustment of the arc by varying the phase length of the two processes
- High welding speed for vertical welds, as no pendulum movements are required



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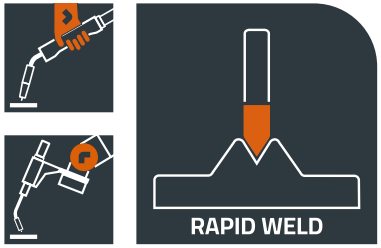

RAPID WELD

Focused spray arc **with high deposition capacity and deep penetration**

Rapid Weld is a highly focused spray arc that achieves penetration in sheet thicknesses of up to 6 mm. The longer stickout and high arc pressure ensure optimum root coverage and reliable penetration. For sheet thicknesses that require seam preparation by means of a bevel (HV seam), the chamfer can be made with a smaller opening angle. This can significantly reduce the number of passes required to fill the weld seam.

MATERIALS

- Steel
- Coated steel sheets
- Heat-resistant steels

YOUR ADVANTAGES

- Cost savings from 5 mm material thickness thanks to deep penetration due to high arc pressure
- Lower seam preparation costs for sheet thicknesses over 5 mm due to smaller opening angle
- Narrower opening angles of the chamfer reduce the number of layers and thus reduce welding time
- Increased efficiency due to less material and lower energy costs

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REFERENCES

Viessmann Group
Boiler

Terex Cranes Germany GmbH
Boiler

GOLDBECK GmbH
Base frame

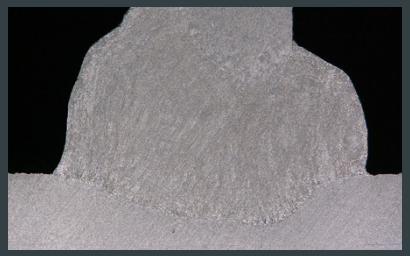
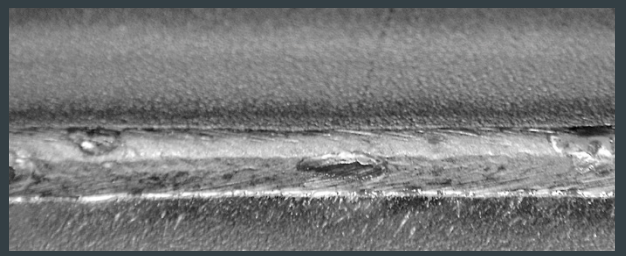
APPLICATION EXAMPLE

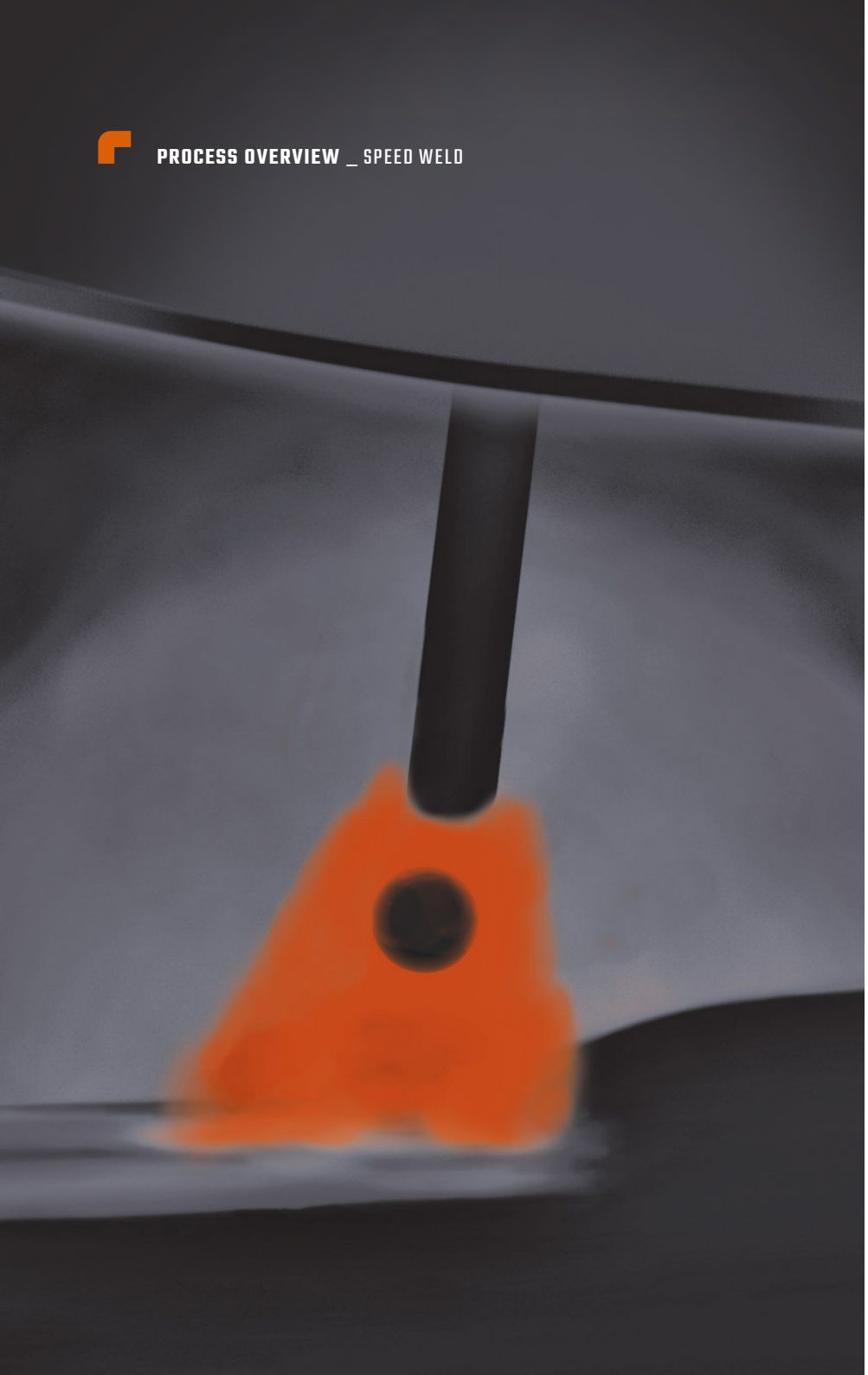
Material	Steel
Welding speed (cm/min)	32
Welding current (A)	356
Wire feed (m/min)	12,1









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SPEED WELD

Voltage-regulated pulsed arc **with high deposition capacity for sheet thicknesses > 2 mm**

Speed Weld is a voltage-regulated pulse arc for welding tasks with sheet thicknesses of 2 mm and above. It enables increased deposition performance for all weldable materials. The special feature of the welding process is a powerful, small arc that achieves deep penetration at high welding speeds.

MATERIALS

- Steel
- Chromium-nickel
- Aluminium
- Coated steel sheets
- Heat-resistant steels
- High-strength steels

YOUR ADVANTAGES

- Wide range of applications for all materials in the range of sheet thicknesses from 2.5 mm
- High arc pressure guarantees deep penetration and optimum weld seam quality at high welding speeds
- Less reworking due to minimised spatter formation
- Good flank bonding for fillet welds and optimum weld seam quality

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REFERENCES

Terex Cranes Germany GmbH
Base frame

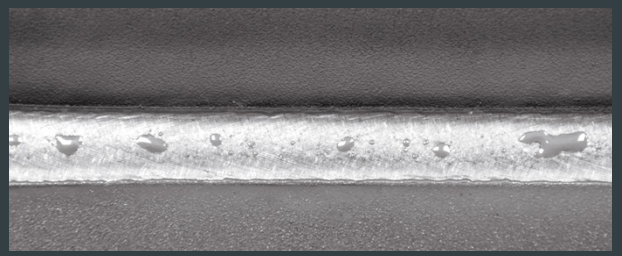
Steel- und Metallbau IHNEN GmbH & Co. KG
Spinner beam

HUCH Behälterbau
Hot water boiler



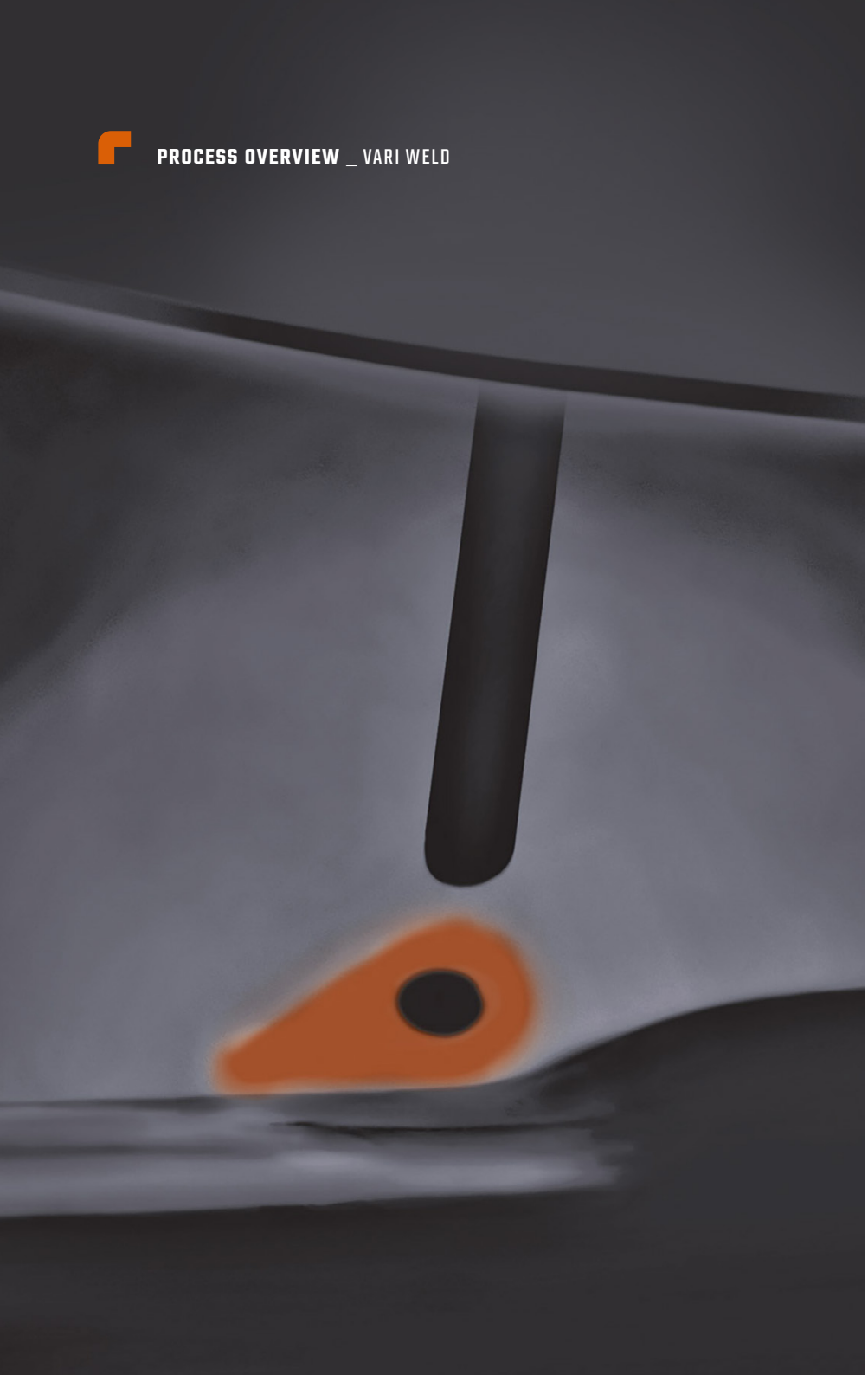






APPLICATION EXAMPLE

Material	Steel
Welding speed (cm/min)	60
Welding current (A)	325
Wire feed (m/min)	12,0



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VARI WELD

Current-controlled pulsed arc **for thin sheet metal and special materials**

Vari Weld is a current-controlled pulsed arc that achieves optimum results in the lower and medium power range. It has an almost spatter-free arc and is well suited for critical materials.

MATERIALS

- Steel
- Chromium-nickel
- Aluminium
- Coated steel sheets
- Heat-resistant steels
- High-strength steels
- Special alloys

YOUR ADVANTAGES

- Wide range of applications for all materials, especially in the lower and medium performance range
- Less reworking due to minimised spatter formation
- Good flank bonding, optimum weld seam quality for fillet welds

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REFERENCES

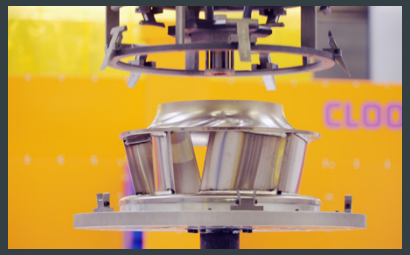
LTI-Metalltechnik GmbH
Fan wheel

AGCO GmbH
Tractor cab

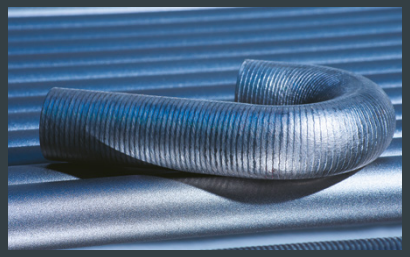
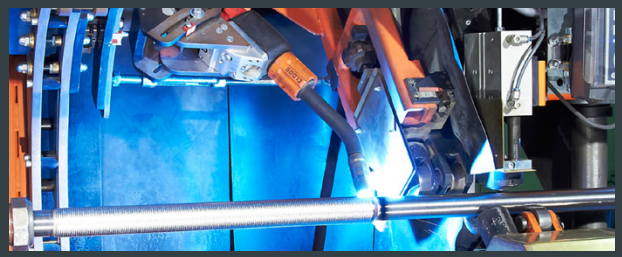
Wessel GmbH
Boiler and apparatus construction
Heat exchanger tube

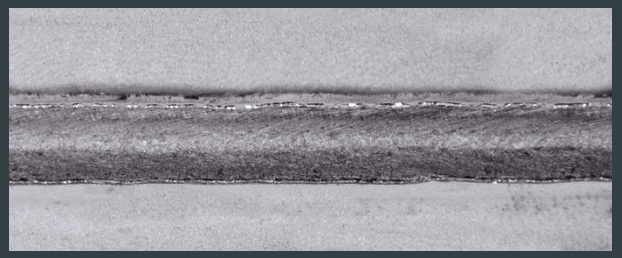
APPLICATION EXAMPLE

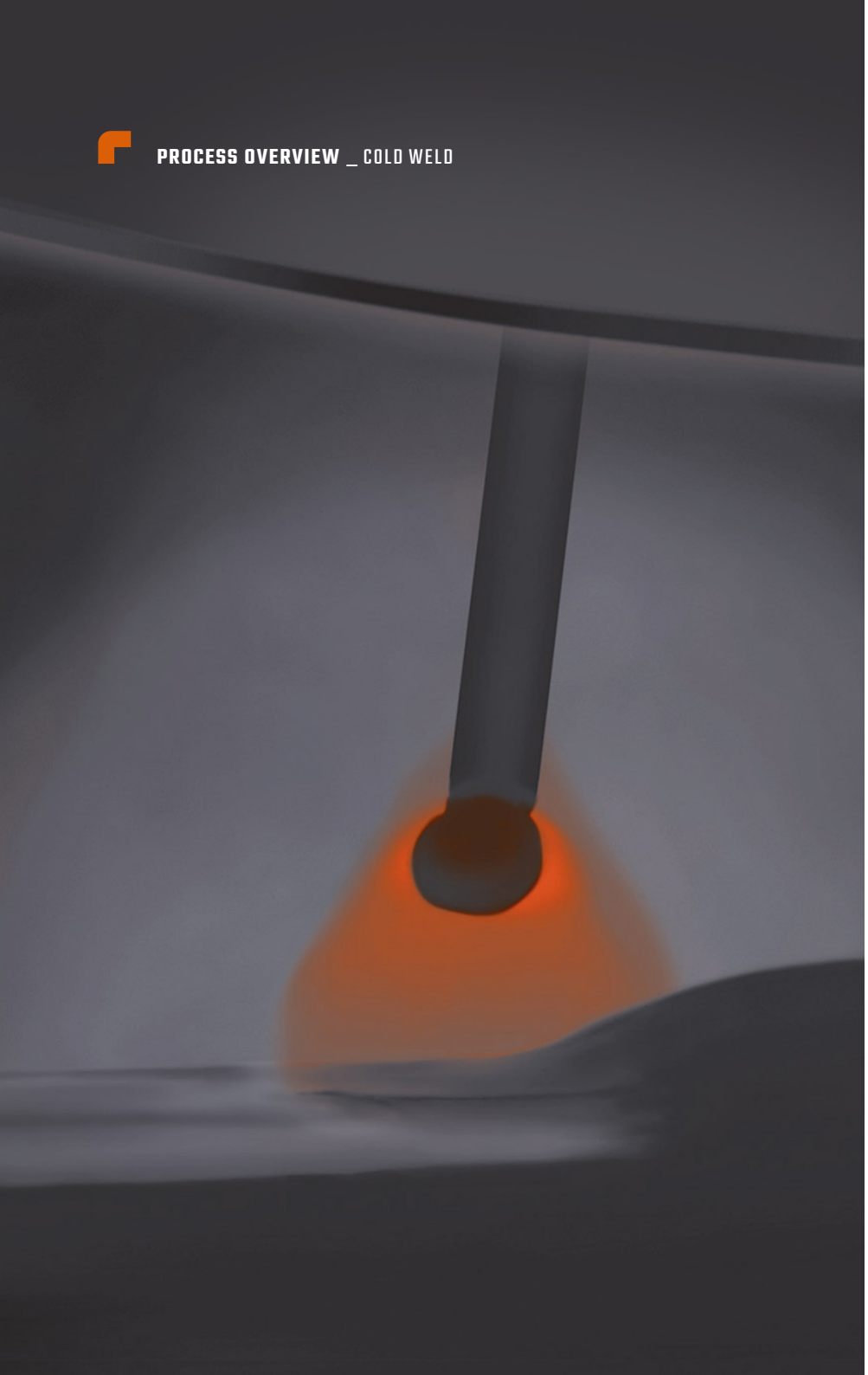
Material	Steel
Welding speed (cm/min)	50
Welding current (A)	246
Wire feed (m/min)	8,7









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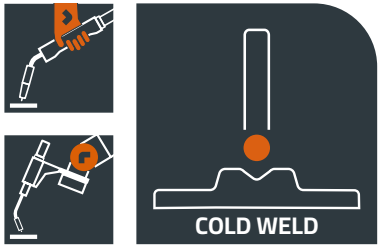

COLD WELD

Energy-reduced pulsed alternating current arc **with optimally controllable heat input**

Due to its controllable heat input, Cold Weld is ideal for demanding materials in the thin sheet metal sector. During the negative current phase, the alternating current arc extracts heat from the molten pool and forms a drop at the end of the welding wire. In the positive current phase, the heat is directed into directed into the molten pool and the drop merges into it without contact. The controllable ratio between heat input and heat extraction allows you to generate an arc that can be optimally adjusted to the requirements of heat-sensitive materials.

MATERIALS

- Steel
- Aluminium

YOUR ADVANTAGES

- Excellent weld seam quality thanks to precise heat control of the arc to meet the requirements of heat- sensitive materials
- Less reworking due to minimal distortion
- Increased cost-effectiveness thanks to higher welding speeds
- Highly directionally stable and insensitive to magnetic influences (blow effect)

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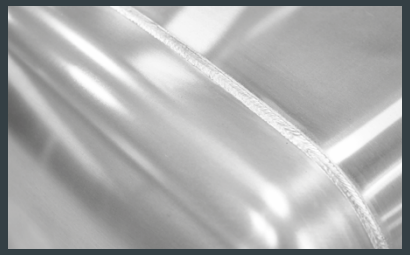
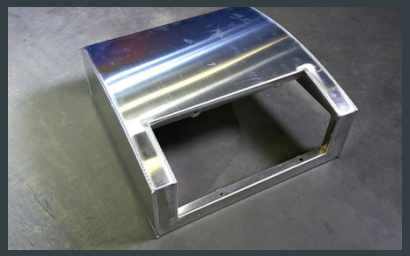
REFERENCES

AKP Otomotiv
Fuel tank

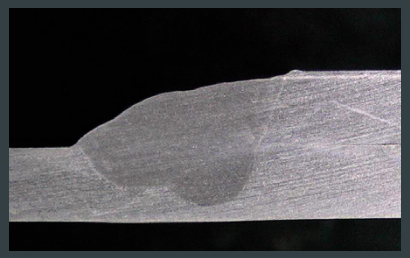


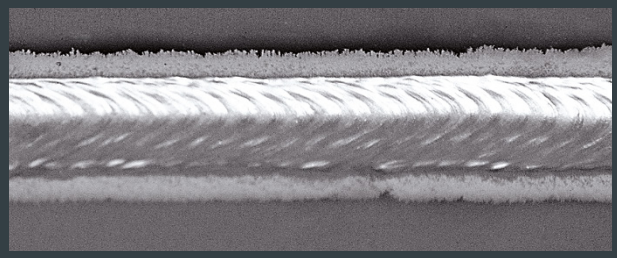
Matyssek Metalltechnik GmbH
Cover

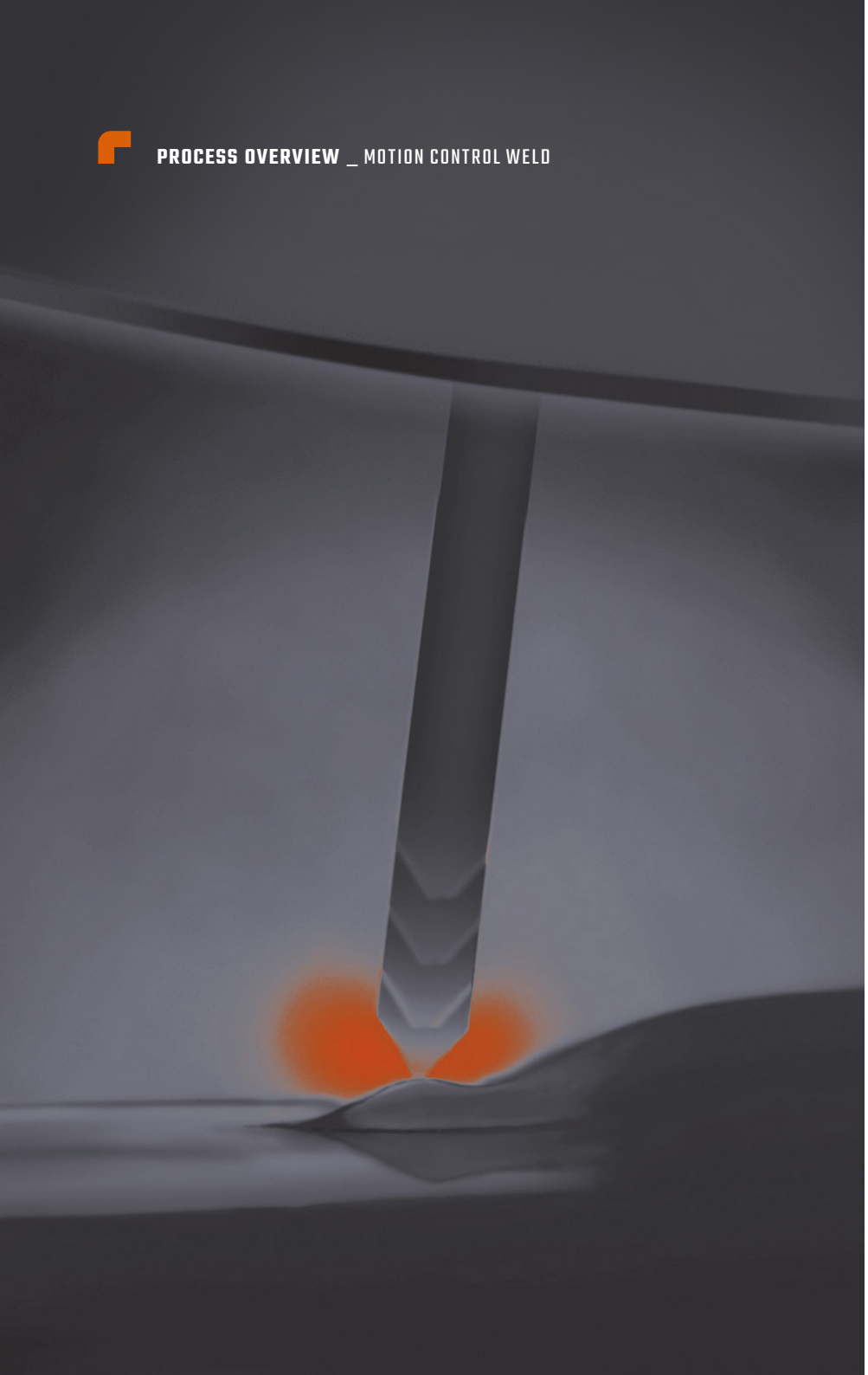


APPLICATION EXAMPLE

Material	Aluminium
Welding speed (cm/min)	80
Welding current (A)	134
Wire feed (m/min)	3,8







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MOTION CONTROL WELD

Energy-reduced, low-spatter short arc **with reversing wire for thin sheet metal applications**

MoTion Control Weld is a short arc with reversing welding wire. The welding wire is moved back and forth at a frequency of up to 180 Hz. This results in extremely high process stability in the lower power range. The process is therefore suitable for welding thin sheet metal, build-up welding and additive manufacturing.

MATERIALS

- Steel
- Chromium-nickel
- Coated steel sheets
- Heat-resistant steels
- High-strength steels
- Special alloys

YOUR ADVANTAGES

- High process stability and high-quality visual seam appearance thanks to reversing welding wire in thin sheet metal up to 2 mm
- Less reworking due to minimised spatter and smoke formation
- Excellent weld seam quality thanks to precise heat control
- Less reworking due to low distortion
- Efficient welding production thanks to up to 40% higher welding speed

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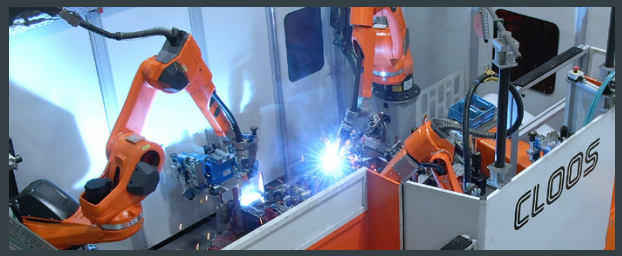
REFERENCES

Henke GmbH
Light box cover

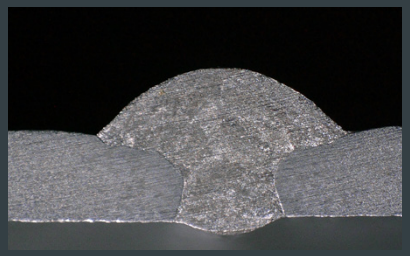
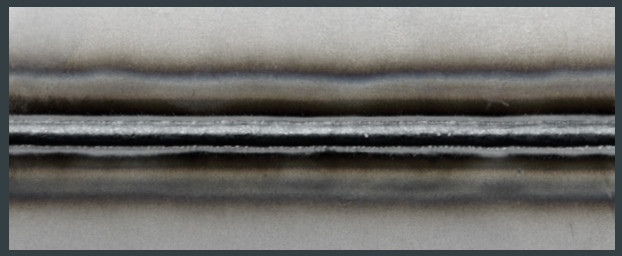
AGCO GmbH
Tractor cab

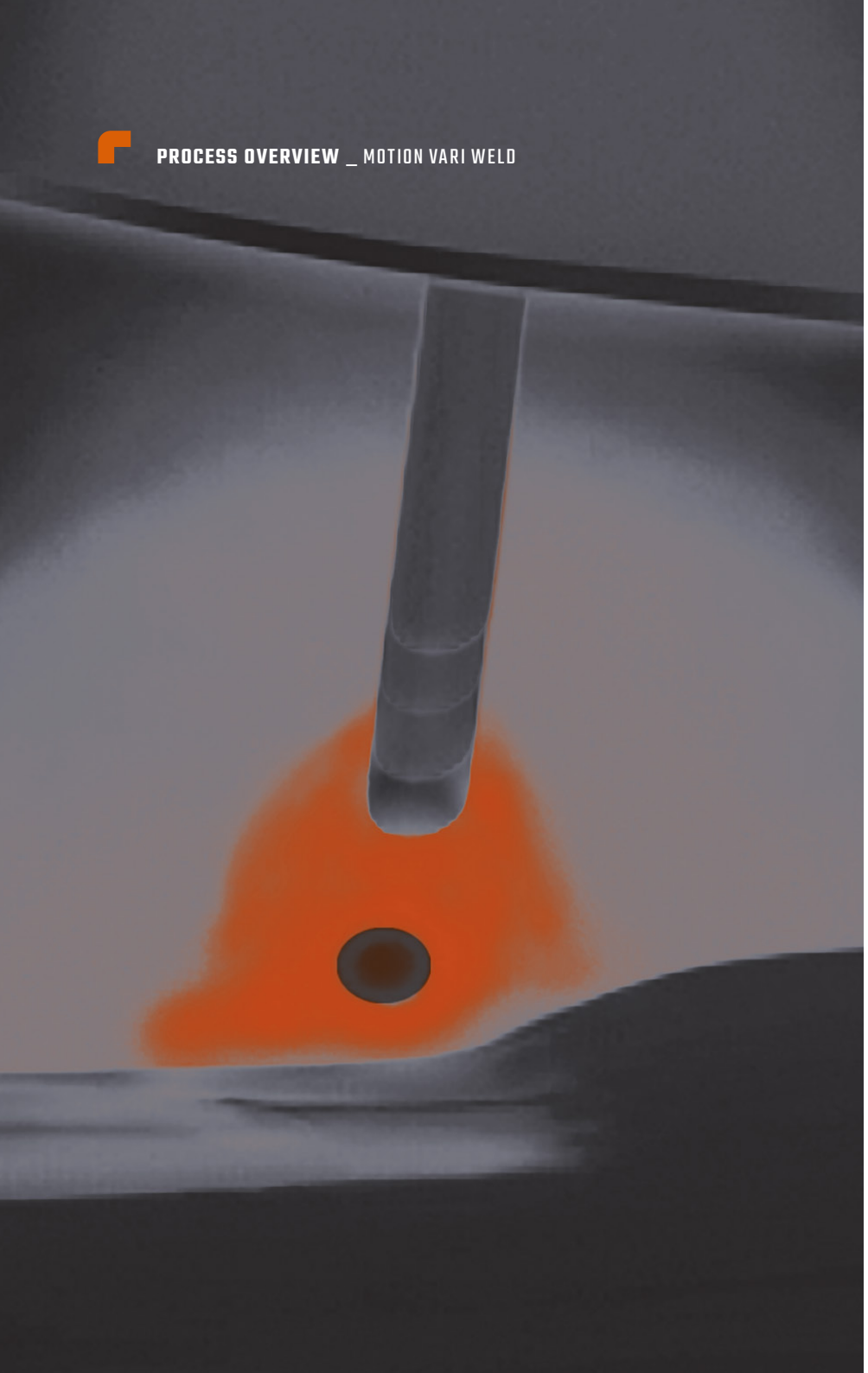


APPLICATION EXAMPLE

Material	Chromium-nickel
Welding speed (cm/min)	60
Welding current (A)	129
Wire feed (m/min)	5,3



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MOTION VARI WELD

Energy-reduced, low-spatter pulsed arc **with reversing wire for aluminium applications**

MoTion Vari Weld is a pulsed arc with reversing welding wire. The welding wire is moved back and forth at a frequency of up to 180 Hz. This results in extremely high process stability in the lower power range. The process is therefore suitable for welding thin sheet metal, build-up welding and additive manufacturing with all common materials, especially aluminium and special materials.

MATERIALS

- Chromium-nickel
- Aluminium
- Special alloys

YOUR ADVANTAGES

- High process stability and high-quality visual seam appearance thanks to reversing welding wire in thin sheet metal from 1.5 mm
- Less reworking due to minimised spatter and smoke formation
- Excellent weld seam quality thanks to precise heat control
- Less reworking due to low distortion

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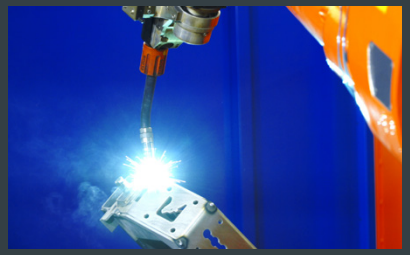
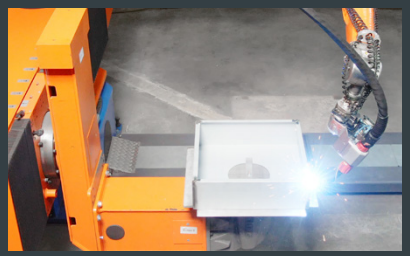
REFERENCES

Henke GmbH
Roof rack

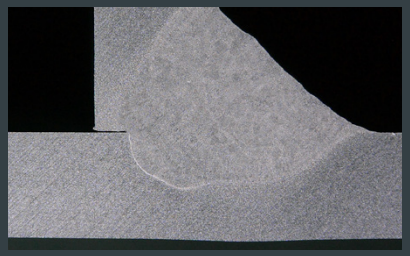
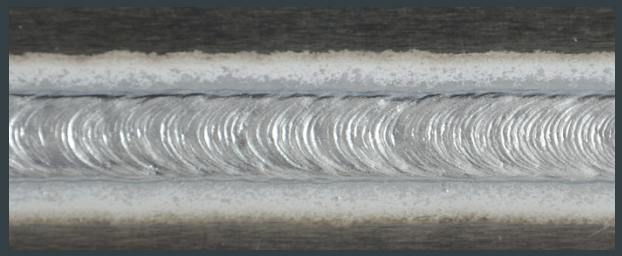
Henke GmbH
Electrical control box

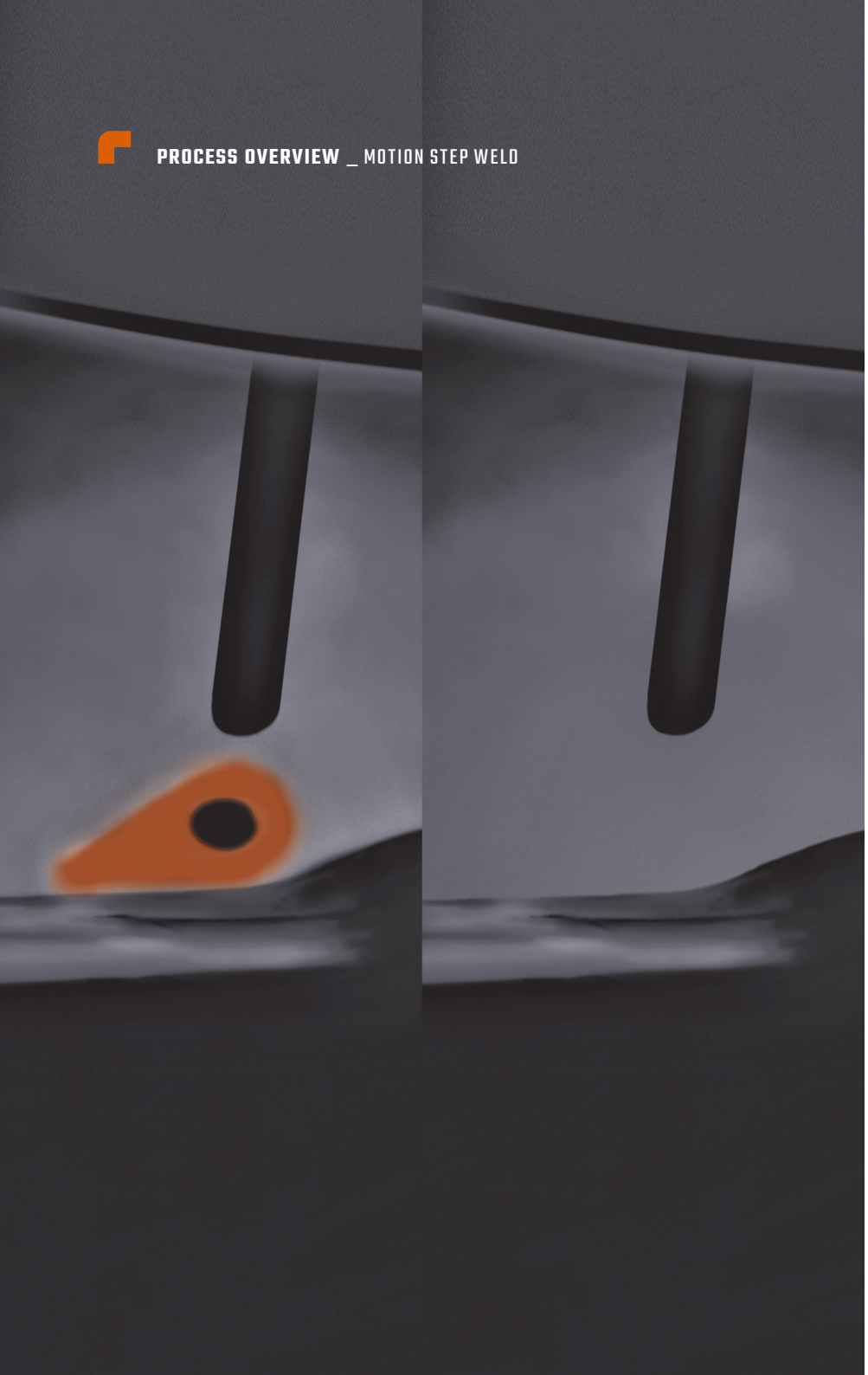





APPLICATION EXAMPLE

Material	Chromium-nickel
Welding speed (cm/min)	25
Welding current (A)	99
Wire feed (m/min)	16,0



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MOTION STEP WELD

Pulsed arc with reversing wire **for visible seams in aluminium materials**

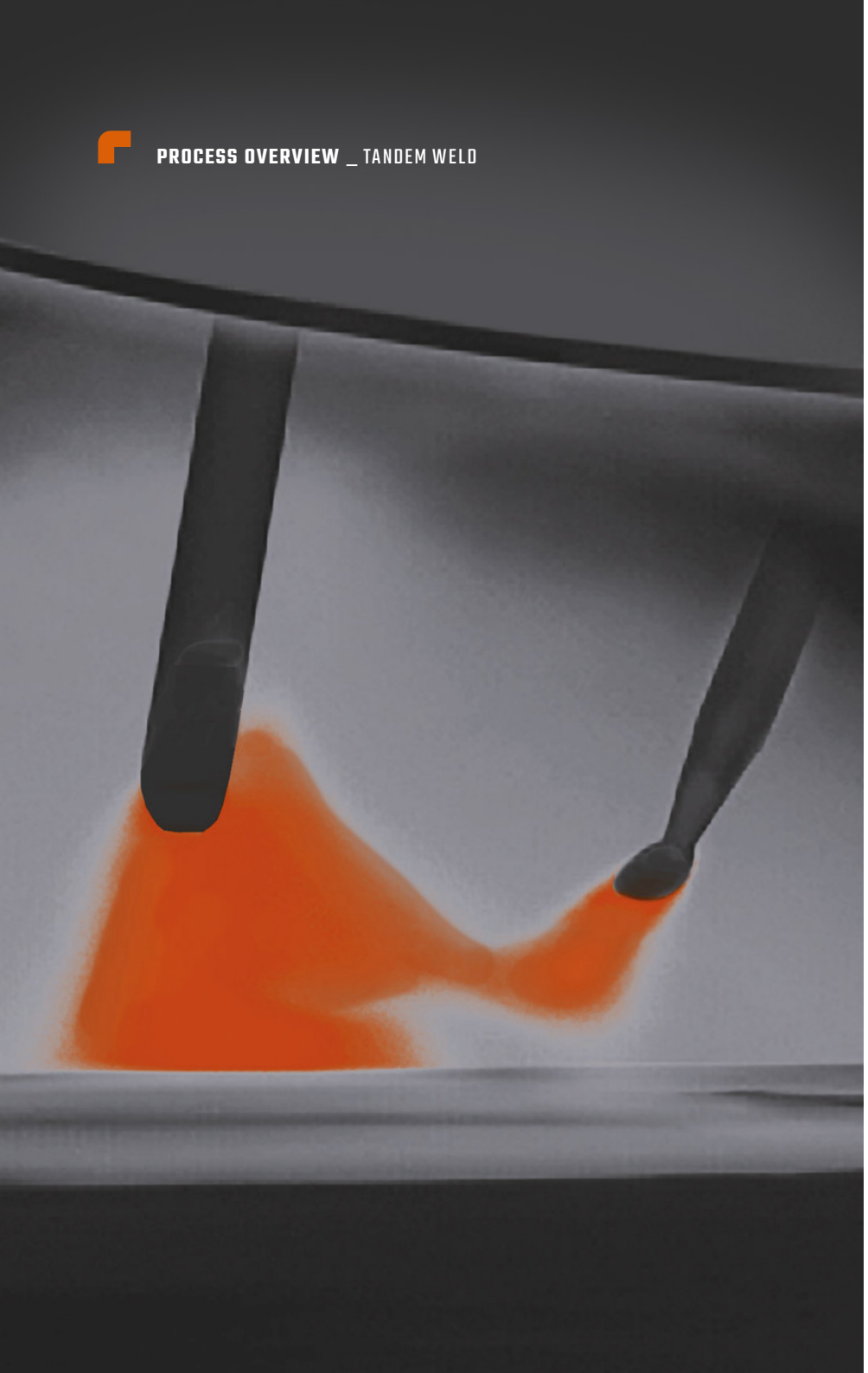
MoTion Step Weld is a pulsed arc with a reversing wire. The arc is switched off and reignited at a controllable frequency. During the arc phase, the base material melts and filler material is introduced. This enables optimum control of the heat input and influences the seam appearance. The process is suitable for welding visible seams in aluminium materials.

MATERIALS

- Aluminium

YOUR ADVANTAGES

- Excellent, TIG-like weld seam, ideal for visible seams in aluminium materials
- Welding speed increases productivity compared to TIG welding



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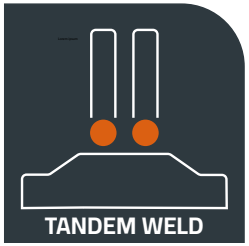

TANDEM WELD

Two independent arcs in one weld pool **for maximum deposition capacity**

With Tandem Weld, two potential-separated, coordinated arcs are guided in a welding torch and create a common molten pool. The first process in the welding direction produces a secure penetration and root capture, while the rear wire fills the seam. The high deposition rate significantly increases the welding speed for thin sheet metal applications. For medium and thicker sheet thicknesses, the high deposition rate results in better volume filling. Tandem Weld is suitable for many weldable materials.

MATERIALS

- Steel
- Chromium-nickel
- Aluminium
- High-strength steels

YOUR ADVANTAGES

- Maximum welding speeds and increased efficiency of the robot system thanks to high deposition capacity
- Less stretching energy reduces component distortion and reduces reworking
- Wide range of applications for all materials
- Savings through reduction in the number of layers in the thick sheet metal area

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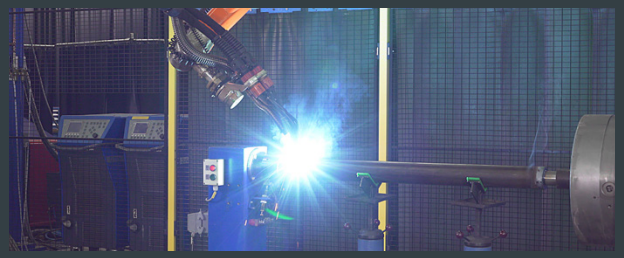
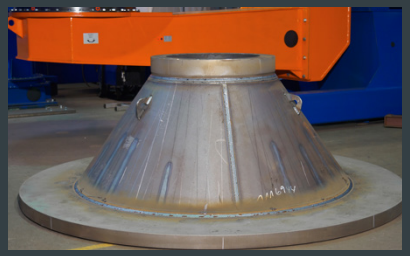
REFERENCES

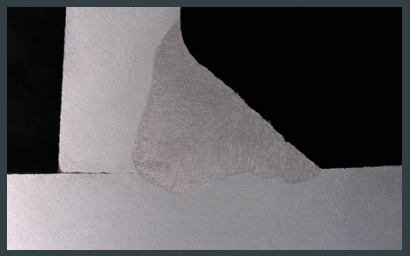
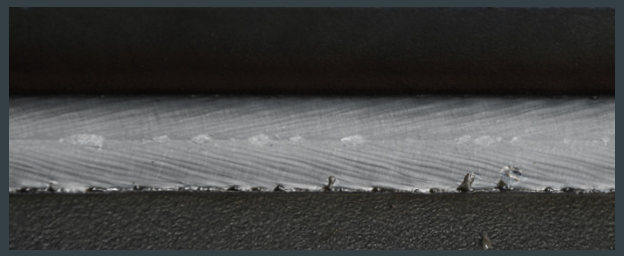
Albert-Frankenthal GmbH
Printing rollers

SCHOTTEL GmbH
Cone support tube

Meiller GmbH & Co. KG
Tipper bodies

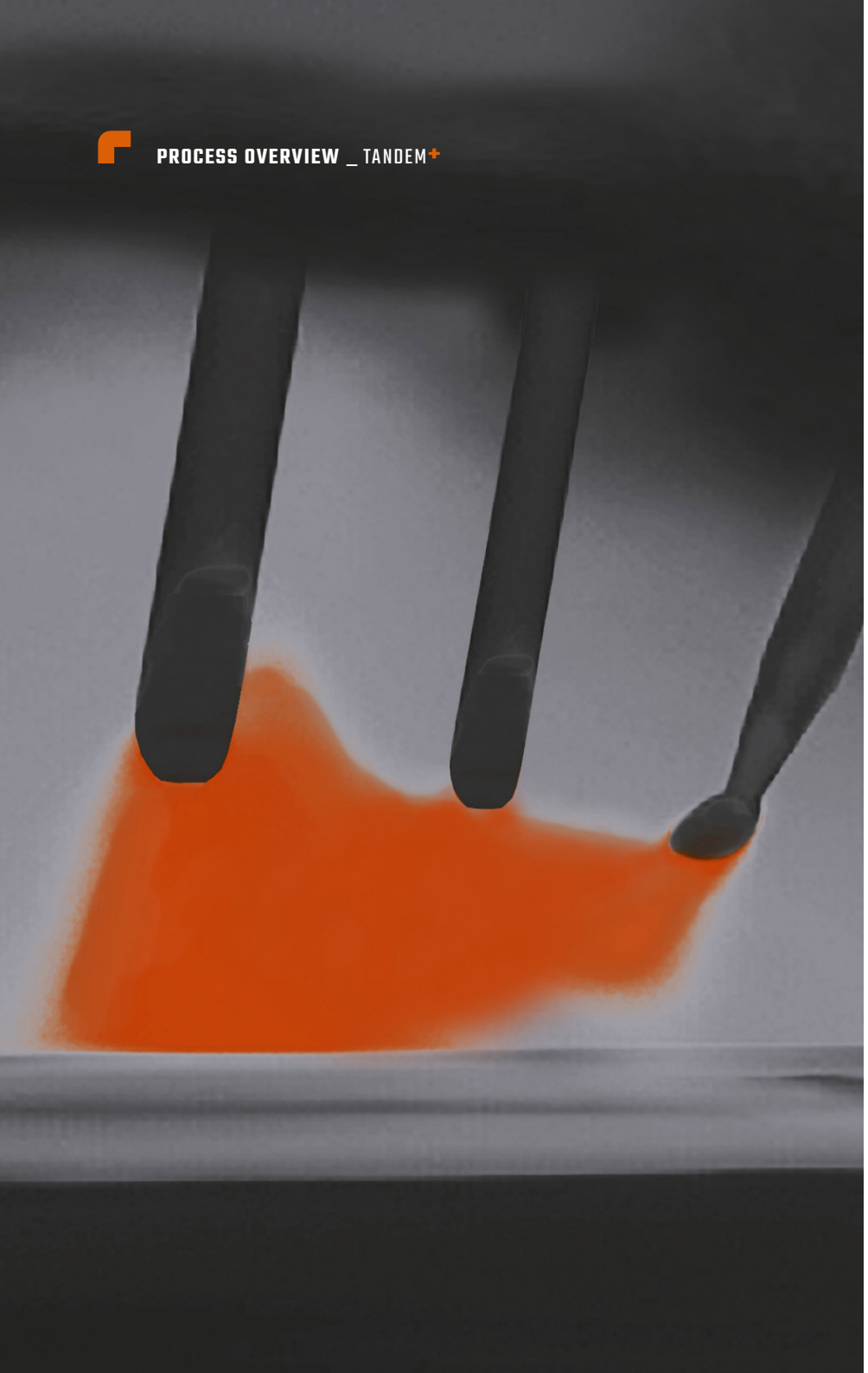






APPLICATION EXAMPLE

Material	Steel
Welding speed (cm/min)	70
Welding current (A)	308 / 209
Wire feed (m/min)	16,5 / 12,5



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TANDEM+

Unique 3-wire system for up to 30 per cent higher deposition rates compared to Tandem Weld.

Tandem+ takes deposition rate to a new level. With up to 30 per cent higher deposition rate compared to Tandem Weld and a unique 3-wire system, it ensures maximum efficiency and flexibility. A minimised number of welding passes and shorter welding times significantly reduce the amount of work required, while less interlayer cleaning is necessary. Reduced programming effort simplifies handling and shortens set-up times. Tandem+ offers the optimal combination of performance, economy and user-friendliness.

MATERIALS

- Steel

YOUR ADVANTAGES

- Third wire with record melting performance: ideal for weld seams with large volumes
- Fewer layers and shorter welding time
- Less interlayer cleaning reduces post-processing time
- Easier handling, shorter set-up and preparation time
- Significant time savings and increased productivity

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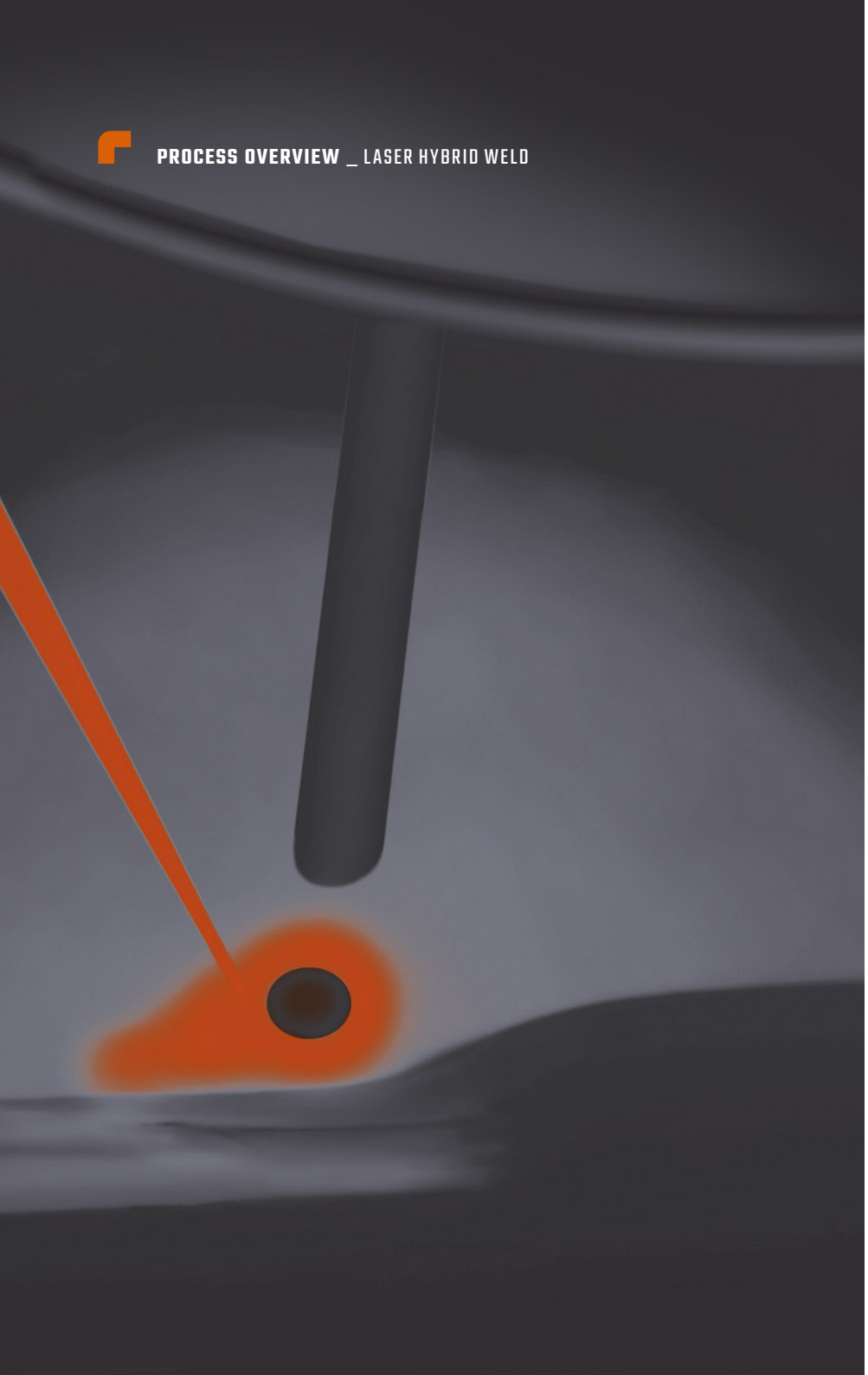
LASER HYBRID WELDING

Fast, precise and nearly distortion-free –
for automated high-end production.



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LASER HYBRID WELD

Combined laser and MIG/MAG process **for deep penetration and high welding speed**

Laser Hybrid Weld combines a laser beam with a MIG-MAG welding process in a common working zone. The focused laser beam penetrates deep into the material, forms a keyhole and ensures reliable penetration. The MIG-MAG arc stabilises the process, fills the keyhole with filler material and ensures optimum flank bonding. The process can be used for many different materials.

MATERIALS

- Steel
- Chromium-nickel
- Aluminium
- Coated steel sheets
- Heat-resistant steels
- High-strength steels
- Special alloys

YOUR ADVANTAGES

- Cost savings for material thicknesses up to 15 mm thanks to deep penetration for reliable penetration welding without seam preparation
- Less stretching energy reduces component distortion and reduces reworking
- Optimum weld seam quality thanks to excellent penetration – ideal for joining dynamically stressed components with a sheet thickness of 6 mm or more.
- Very high welding speed compared to standard MIG/MAG processes

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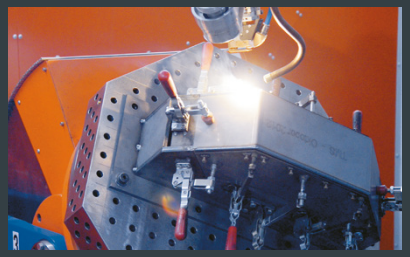
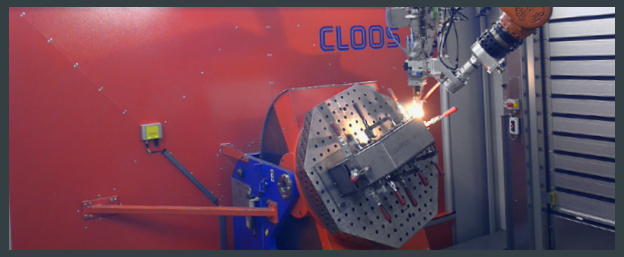
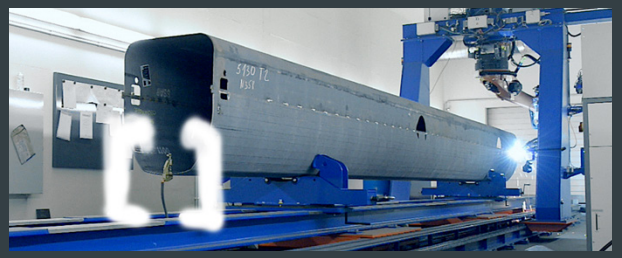
REFERENCES

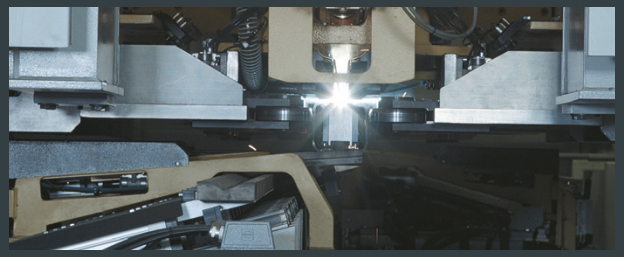
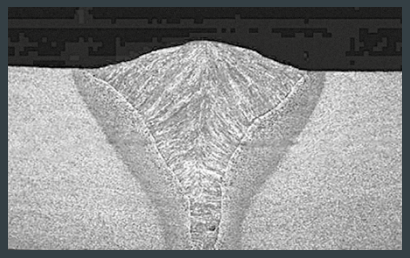
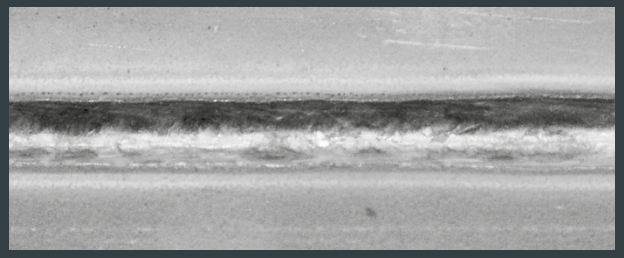
TMS Metall- und Stahlbau S.A.
Housing

Manitowoc Deutschland GmbH
Telescopic boom

Palfinger AG
Telescopic boom

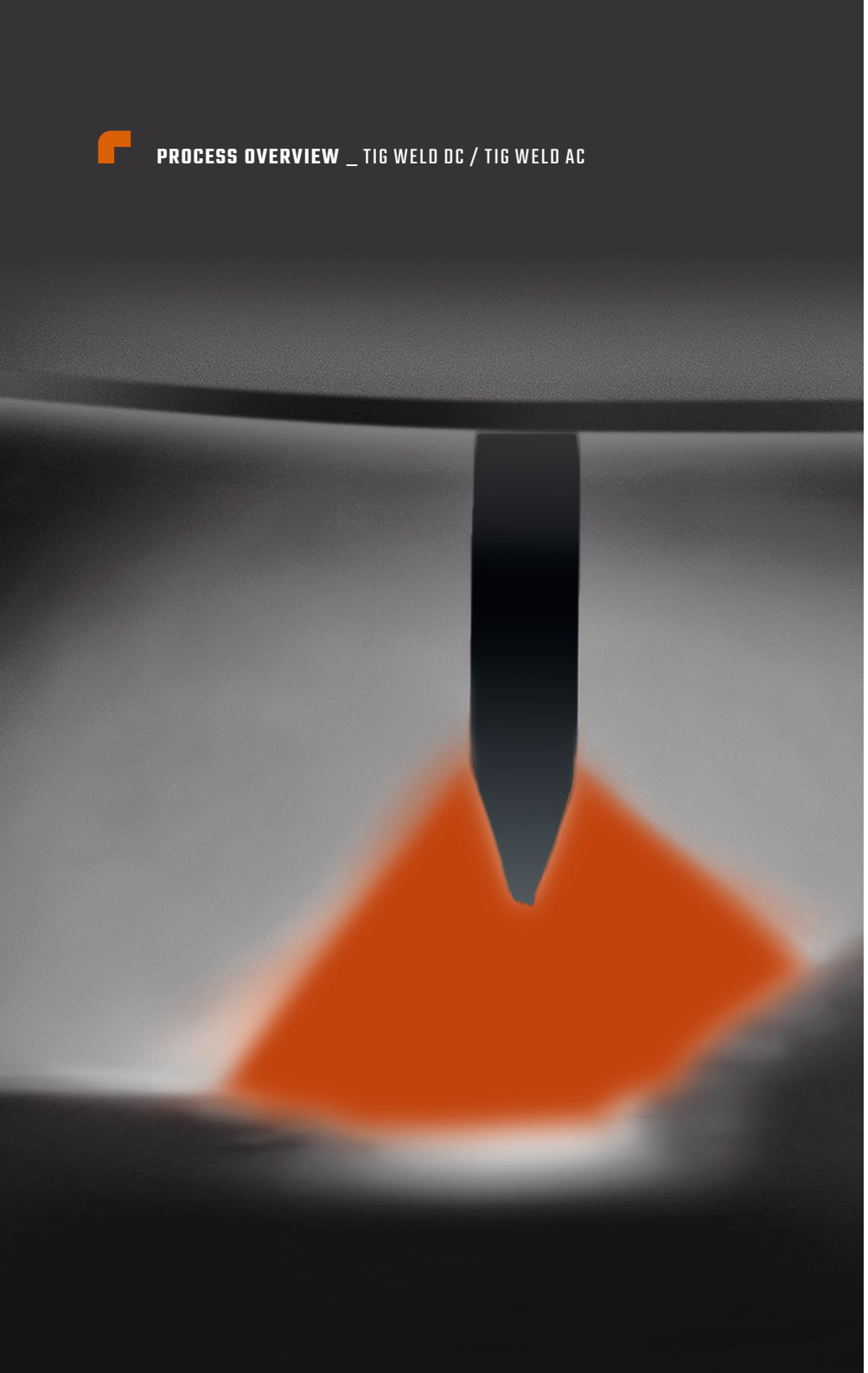




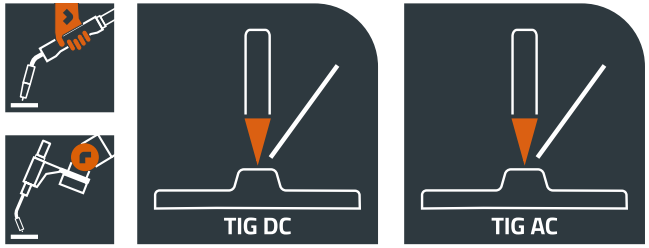
APPLICATION EXAMPLE

Material	Steel
Welding speed (cm/min)	150
Welding current (A)	245
Wire feed (m/min)	8,5
Power / laser (kW)	8,0

TIG WELDING

For the highest seam quality and maximum precision with demanding materials.





TIG WELD DC / TIG WELD AC

Arc with non-consumable electrode **for very high quality requirements, even with aluminium materials**

With the TIG arc, there is no chemical reaction between the shielding gas and the molten material of the workpiece. There is no slag or spatters, and the electrode does not melt. Good gap bridging is guaranteed in all welding positions. Welding is carried out with or without filler material. This is fed directly to the arc without tension and melted there. The TIG welding process is suitable for metalworking industries with high quality requirements. Heavy metals such as stainless steel, silver, nickel, copper and their alloys can be welded with the TIG arc. Aluminium, magnesium and their alloys are welded with the TIG AC arc.

WERKSTOFFE

- Steel
- Chromium-nickel
- Coated steel sheets
- Heat-resistant steels
- High-strength steels
- Special alloys and **aluminium (TIG Weld AC)**

IHRE VORTEILE

- Stable, smooth arc for optimum weld seam quality
- High-quality visual seam appearance, suitable for visible seams in **aluminium materials (TIG Weld AC)**
- Less reworking due to extremely low spatter formation
- Root welds in all welding positions with optimum gap bridging

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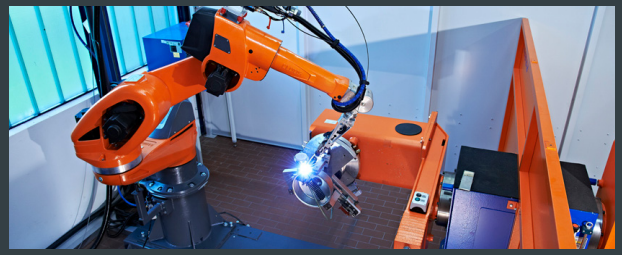
REFERENCES

Hilge GmbH & Co. KG
Pump housings

SPARTHERM Feuerungstechnik GmbH
Door frames

häwa GmbH
Housing cladding



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