

# JOIN! THE FULL WELDING SOLUTIONS!

for your Lasting Connections

Metallurgical know-how

On-site / Off-site service

Equipment

Accessories

Consumables



# BÖHLER WELDING – LASTING CONNECTIONS

Perfect alignment of welding machines, consumables and technologies combined with our renowned application and process know-how provide the best solution for your requirements: A true and proven connection between people, products and technologies.

The result is what we promise:

## Full Welding Solutions for Lasting Connections.

Base materials, welding machine, consumables and more – many components contribute to perfect welding results. However, a Full Welding Solution by Böhler Welding is much more than the sum of its parts. We are recognized as the leading authority in weld metallurgy and this is the solid trusted base on which our solutions are built. Our competent and committed specialists accompany the entire process and remain at the customer's side until the work is done. **JOIN! Your Full Welding Solution.**

## Your Benefits at a glance

- » Improved **competitiveness** due to **higher productivity**
- » Industry proven turnkey systems with **perfectly coordinated components**
- » Guaranteed premium **welding results**
- » **Comprehensive support** from concept to installation from one source
- » Complete **cost transparency** for easier planning of your application challenge
- » **Peace of Mind** when working with the most trusted name in weld metallurgy

On the following pages we introduce selected Full Welding Solutions developed by our Application Engineers. Our solutions are dedicated to specific industries, tried & tested in the field and optimized for your specific application.

# FULL WELDING SOLUTION PIPELINE



## HIGH QUALITY PIPELINE MANUAL WELDING WITH CELLULOSIC AND BASIC STICK ELECTRODES

Our committed welding specialists accompany the entire process and match all required elements for a Full Welding Solution for pipeline manual welding. TERRA MP 350 RC power source together with RC 100 MP remote control with extended cables and Böhler Welding pipeline stick electrodes FOX-CEL, FOX EV and BVD types is the perfect combination for any pipeline manual welding jobsite!

### Your Benefits at a glance

- » Smooth operation, less arc-off time
- » Decrease in repairing rate
- » Best productivity with basic vertical down electrodes
- » 50 % arc time saving compared with vertical up welding

## TERRA MP 350 RC Pipeline Version

TERRA MP 350 RC is a robust and reliable three phase new generation inverter power source, ideal for pipeline welding. Compact, light and durable, it has been designed for hard working environment and extremely low working temperature.

## Remote control RC 100 MP

A remote control has been specifically designed for stick electrodes welding in pipeline jobsites. It features aluminium casing, rear magnet to fix it on the pipe, big regulation knob, and separate heavy duty connection cable.



## Pipeline Stick Electrodes

Cellulosic FOX CEL and basic vertical down BVD stick electrodes specifically conceived and designed for the optimal pipeline welding. More than 100.000 km of pipeline have been successfully welded with these filler metals. Basic types FOX EV (vertical-up) and BVD (vertical-down) are characterized by outstanding mechanical properties including high CTOD values and easy handling, while cellulosic are well recognized for providing excellent impact values and the best operability even under difficult weather. They are HIC and SSCC tested and can be used in sour applications. Basic electrode FOX EV types are available in DrySystem™, which avoids re-drying before use! Within the basic stick electrode family, vertical down BVD types deserve a special mention: thanks to a specific design and development they provide exceptional striking characteristics and the avoidance of start porosity, with a deposition rate 80-100 % higher than for vertical up welding. Available in can, re-drying before use is not necessary!

## WeldTech Application Services

For voestalpine Böhler Welding, being a Full Welding Solutions provider means acting as a partner for pipeline contractors through the weldTECH Application Services, which include a team of welding engineers experienced in pipeline construction.

## Welding Calculator

The Welding Calculator App supports the planning and optimization of welding tasks such as the calculation of cooling time, preheating temperature or the calculation of the required filler metal quantities. Especially for complex applications with many aspects to consider, the Welding Calculator can make a valuable contribution to a Full Welding Solution.

“ Perfect pipeline weld performed with FOX CEL and FOX CEL 70-P with TERRA 350 RC on an 88 inches very large pipeline. Optimal beads shape, smooth transitions and perfect root and cap passes. ”

For additional information please visit our website:



Welding Calculator  
online / Apps



Additional Infos

# FULL WELDING SOLUTION PIPELINE ORBITAL WELDING



## HIGH QUALITY AND PRODUCTIVITY PIPELINE ORBITAL WELDING WITH FLUX CORED WIRES

High quality pipeline girth welds with a result of outstanding material properties in combination with time and material savings and low repairing rate are nowadays key success factors for pipeline contractors. We are achieving all these requirements with our pipeRunner orbital system. It is the perfect combination for pipeline orbital welding.

### Your Benefits at a glance

- » Save 66 % time and 45 % material (API 5L X70 pipe O.D. 36"W.T.15 mm)
- » Higher productivity with reduced downtime
- » Fine-tuned aiming to minimize NDT indication & achieve 0 % repairing rate
- » Light weight design
- » Easy to program and operate
- » Heavy duty cycles and harsh environments proven
- » User friendly remote control
- » Excellent welding characteristics of flux cored wires

## pipeRunner

pipeRunner is a state-of-art programmable mechanized MIG/MAG orbital system designed for pipeline and process piping girth welds. The pipeRunner can ideally be used for fill and cap layers in uphill progression with our flux cored wires.

The pipeRunner is designed for vertical up FCAW welding but also enabled for vertical down with GMAW (e.g. root pass). The benefit is that one device serves CW clockwise and CCW counterclockwise movements. The comprehensive remote control provides all functions in one hand. In addition the pipeRunner software is already included and can work on any PC with the option to program 11 different passes.

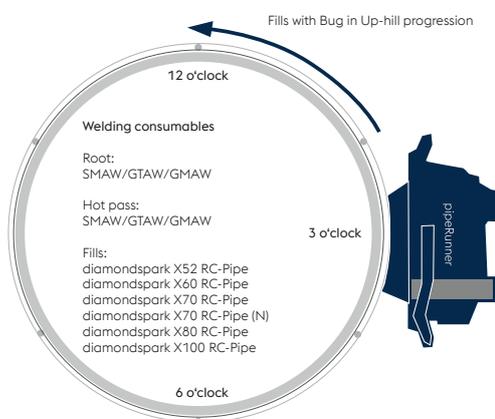


## TERRA 400 PRM

The TERRA 400 PRM pipeline version is a robust and reliable three phase new generation multiprocess inverter power source. In order to suit the needs for orbital pipeline welding and also perform root and hot pass by manual or semi-automatic welding the TERRA 400 PRM is equipped with a special display to manage all the welding processes and the special remote control RC 100 MP specifically designed for pipeline jobsites.

## diamondspark FCAW Portfolio for pipeline welding

Our diamondspark seamless flux cored wires are the perfect combination with our welding equipment TERRA 400 PRM and pipeRunner for orbital pipeline welding. Our seamless design allows a low content of diffusible hydrogen, no moisture pick up in storage and handling and therefore a low risk of hydrogen delayed cracking and wormholes.



## Root and hot manual – fills and caps mechanized

Get the perfect results with our Böhler Welding consumables.

Manually welding the root and hot pass with SMAW/GTAW and GMAW afterwards the fills and cap layers mechanically with our pipeRunner and diamondspark flux cored wires for pipeline welding.

## weldTECH Application Services

For voestalpine Böhler Welding, being a Full Welding Solutions provider means acting as a partner for pipeline contractors through the weldTECH Application Services, which include a team of welding engineers experienced in pipeline construction.



Additional Infos

# FULL WELDING SOLUTION OIL & GAS



## EFFICIENT AND HIGH QUALITY SINGLE LAYER MIG WELD-OVERLAY

This solution enables the cladding of corrosion resistant and hard surfacing alloys by an innovative low dilution process in combination with high quality welding consumables. The customer benefits from significant savings in production time and material consumption. How does this become possible? By achieving mechanical properties and corrosion resistance with a single layer as opposed to the two layers required by conventional processes. Cladding of alloy 625 with Fe<5 % in one single layer is now possible using UTP A 6222Mo wire and our CladPulse process!

### Your Benefits at a glance

- » One single layer alloy 625
- » Cladding with 50 % time saving
- » 20 % material saving with our solution for 5 mm clad thickness
- » 50 % material saving with our procedure with 3 mm clad thickness when post machining is not required
- » Undiluted chemical analysis achieved in depth
- » Perfect surface and post-machining possible

## Results, that convince

### Alloy 625 chemical analysis achieved in depth with a 5 mm deposit

- » Flat beads appearance without undercut and very limited spattering
- » Smooth transition between passes
- » Uniform deposit and penetration
- » Clad thickness: 5.5 mm
- » No indications

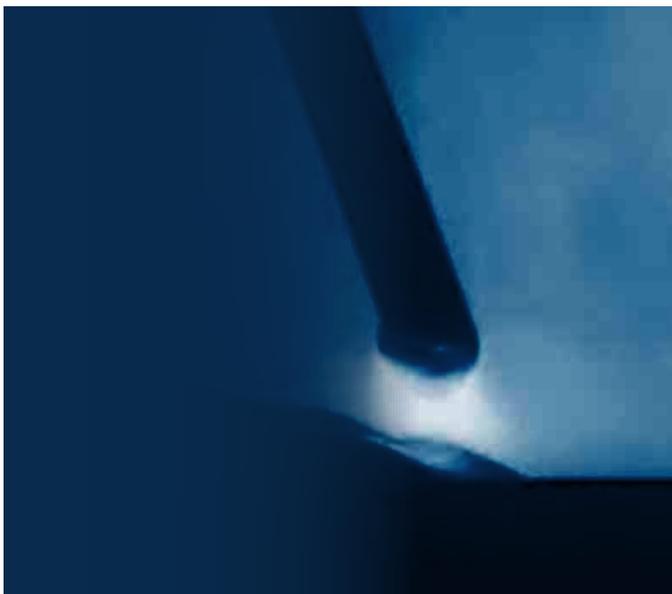


Bend test according to ASME IX and ASTM E190-14:

- Get even further material saving with clad thickness:
- » 3.3 mm ONLY when post machining is not required
  - » Homogenous deposit with Fe < 5 % also in depth
  - » Alloy 625 weld metal chemical analysis guaranteed
    - » at the surface
    - » at 2.5 mm from the fusion line
    - » at 3.0 mm from the surface

## Böhler Arc

A Böhler Arc is what you get when you perfectly combine the welding process with filler metals and welding equipment from Böhler Welding. Supported by individually designed synergic lines, customers maximize their performance and arc stability. An outstanding ease of use results in great advantages for the welder and efficiency for the industrial process.

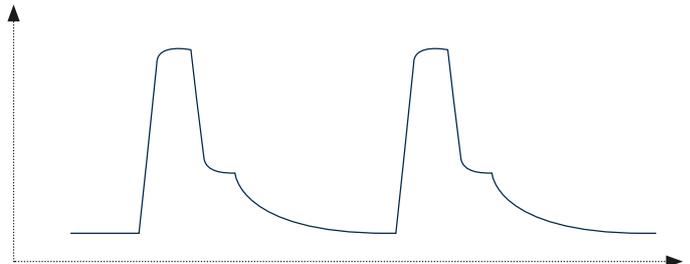


The results were achieved by integrating the following elements.

## URANOS CladPulse

CladPulse is a special process aimed to obtain low dilution with the base material as primary objective. In order to meet this target a very “soft arc” has been designed acting on more than 30 parameters governing the wave form resulting in “low pressure” on the base material.

It can be installed in the premium welding machine models “URANOS”.



URANOS CladPulse

## Solid Wires

voestalpine Böhler welding solid wires for cladding are specifically designed for such application within restricted specifications, offering an excellent feedability and producing weld deposits highly resistant to corrosive environment or with outstanding wear resistance, depending upon the alloys. For MIG cladding of alloy 625 the perfect choice is UTP A 6222 Mo with his fine-tuned balance of residual elements, chemical analysis in restricted specification, excellent surface finishing, which makes the clad metal corrosion resistant and also improves the cladding behavior. Clad metal corrosion resistance is proven according to ASTM G48-C and ASTM G28-A testing methods. It is stress corrosion cracking resistant as well.

**Welders have been supplied with personal protection equipment and used other products out of our accessories line. Our team of WeldTECH Application Services developed this Full Welding Solution for the customers' needs.**



For additional information please visit our website:

Additional Infos

# FULL WELDING SOLUTION CRANE & LIFTING



## MANUFACTURING AND REPAIRING HIGH STRENGTH STRUCTURES IN THE CRANE AND LIFTING INDUSTRY

The need for high quality and consistent mechanical properties combined with high production rates is a major challenge for welding work in Crane and Lifting technology. The right synergic lines and innovative processes such as Rapideep guarantee optimal welding behavior and perfect joining properties together with our high strength consumables portfolio (diamondspark and Alform range from 690 – 1100 MPa yield strength). Among others, the following benefits – specially developed for Crane and Lifting - have been investigated in depth.

### Your Benefits at a glance

- » + 20 % Increase in welding speed
- » Unique matching solution for 1100 MPa yield strength grades
- » Mechanical properties met also in high strength thin walled applications in both heat affected zone and weld metal
- » Turn-key package for repairing

Be convinced by the integrated solution, consisting of

## TERRA & URANOS Welding Equipment

Multiprocess or GMAW/SMAW only (depending upon the model) high-technology inverter at heavy-duty cycle, equipped with arc digital control and special arc processes, such as various pulsed modes (URANOS) high speed as Rapideep (URANOS & TERRA) and QuickPulse (URANOS). Performing at its best in Crane & Lifting in combination with the diamondspark metal cored wires.



## diamondspark metal cored wires for joint welding of high strength structures



diamondspark is a whole portfolio of seamless cored wires. They are characterized by a large parameter window suitable for all welding processes, low dif-

fusible hydrogen and outstanding mechanical properties, for the Crane & Lifting described full welding solutions, the metal cored wires selection below covers all the high strength grades, including the unique offer for the 1100 MPa Yield strength.

## Welding Consumables for Repairing

From stick electrodes to cored and solid wires, our welding consumables portfolio, also available in small diameters, is proven and balanced for working with URANOS 2700 PMC and Böhler Arc. Especially for repairing our products are available in small diameters and small spools. Enjoy our basic double coated stick electrodes known for best operability with excellent mechanical properties.

## Solid wires for joint welding of high strength structures

The solid wires used for the construction of high strength structures have a high quality standard, excellent welding behavior and constant mechanical properties. Böhler Welding is offering those wires in different diameters and packaging solutions. Drum solutions up to 400 kg each provide a good availability for mechanized welding processes, guided by good feeding properties those products are supporting the increase of efficiency of welding stations. Strict quality measures in manufacturing and ongoing development work is safeguarding highest quality for customers.

Welders have been provided with personal protection equipment and used our accessories portfolio. This Full Welding Solution was developed by the weldTECH Application Services.

Helpful calculations can be processed with the Welding Calculator.

For additional information please visit our website:



Additional Infos

# FULL WELDING SOLUTION FOR METAL FABRICATION



## OUR PERFECT EASY-TO-USE WELDING SOLUTION FOR METAL FABRICATION – WHEN TIME MATTERS

Böhler Welding offers a new approach to metal fabrication with our Full Welding Solution. Together with our new collaborative welding cobot CO-BRO®, our own equipment, our perfectly matching welding consumables for different alloy grades, the Böhler Arc, our personal protection equipment, application services and weld calculation tool you have your perfect one stop-solution.

### Your Benefits at a glance

- » Save up to 20 % time with our plug and play solution
- » Easy use of control panel
- » MIG-MAG and TIG AC/DC Packages
- » Matching welding consumables for any low – medium to high strength, stainless or aluminium application
- » Böhler Arc: Perfect combination of filler metal, welding process and equipment

## CO-BRO®

Our Co-BRO® – MIG/MAG Packages and TIG AC/DC Packages include power sources, wire feeders, cooling units, software, 2 control box start, welding torches, clamping accessories, Böhler Arc processes and 2 days training.

## URANOS Welding Machines

- » URANOS Welding Machines inspire welders, by the demand-based usage of pre-set welding parameters depending on the requirements whilst guaranteeing reproducible and excellent welding results – and thus lasting connections.
- » Excellent wire feeding properties due to innovative wire feed concept
- » Connection to automation systems and robot systems possible
- » Digital display for easy process selection
- » Cutting edge digital inverter technology
- » Cost-saving energy efficiency (even in demanding continuous operation)



## Böhler Arc



Perfect combination of process, filler metal and welding equipment are achieved thanks to Böhler Arc synergic lines, maximizing performances and arc stability coupled with an outstanding ease of use, resulting in great advantages for the welder and efficiency for the industrial process



## Perfectly matching Welding consumables



**Cored wires:** Böhler Welding offers for flux cored arc welding (FCAW) the most comprehensive portfolio of cored wires in the world. Producing both folded and seamless cored wires, Böhler Welding is the best source for all types of cored wires across all alloy groups.

**Solid wires** used for metal fabrication cover a wide range of base materials (low alloyed, high strength, aluminium and stainless steel grades). Böhler Welding is offering those wires in different diameters and packaging solutions.

## weldTECH Application Services

For voestalpine Böhler Welding, being a Full Welding Solutions provider means acting as a partner for metal fabrication through the weldTECH Application Services, which include a team of welding engineers experienced in metal fabrication.



Additional Infos



# EXPLORE THE PERFECT INTEGRATION OF ELEMENTS

Our Full Welding Solutions are the perfect integration of metallurgical and application know-how with welding equipment, consumables, periphery and software which add value to our customers. The elements for each single Full Welding Solution for a dedicated industry have been optimized and carefully selected for specific applications.

## Metallurgical know-how



Our Full Welding Solutions stand for the perfect integration of metallurgical and application know-how with welding equipment, consumables and software. The elements of each Full Welding Solution for a dedicated industry have been optimized and carefully selected for specific applications. Our deep metallurgical know-how and our long-term experience enable us to give the best technical advice to our customers and solve their most demanding challenges.

## Application know-how



voestalpine Böhler Welding offers its customers more than best-in-class welding consumables, because in practice, only perfect welding results and highest process efficiency count. Our weldTECH experts, mastering process technologies and welding parameters, contribute to the development of our Full Welding Solutions and their implementation. They can advise you on how to use them in the optimal way and which technical requirement need to be met for each specific application. Individual trainings and courses can also be held at our customers' premises. So the best results can be achieved with existing equipment.

## On-site/ off site service



Böhler Welding provides essential services to keep the Full Welding Solution reliable and to guarantee lasting connections. Onsite or offsite, our experts will advise you on which filler material is optimal for your base material and with which welding consumable specified technical values can be achieved. We also provide advice whether the base materials in the joint weld metal meet the basic technical requirements.

## Welding machines



Böhler Welding TERRA and URANOS high performance equipment features special processes and the innovative Böhler Arc. Böhler Arc gives a great contribution to our Full Welding Solutions making a harmonized, perfectly coordinated interaction of material and power source. This industry-unique matching provides our customers with reliable consistent, high performance welding. With our equipment lines TERRA and URANOS we strive to set new standards in all welding processes.

## Automation



Joining forces with welding automation specialists, Böhler Welding can offers full process solutions. Böhler Welding combines unique filler material expertise with welding process competence focusing on multi-wire submerged arc welding. We enable our customers to participate in the development of their arc welding solutions and receive full support and service in making systems operational.

## Software



Böhler Welding can provide systems for the control and management of industrial welding to further guarantee the achievable results during operations. We secure digital data transfer and provide our customers a complete series that meets all application requirements from simple current adjustment to complete remote control of the unit.

## Welding Consumables



Böhler Welding offers a globally unique product portfolio of welding consumables from own production. The extensive range is constantly aligned to the up-to-date specifications of the most demanding industries and is adjusted, if necessary, to the market requirements under observance of the highest quality standards. For sure, our consumables are all tested and fine-tuned with the TERRA and URANOS welding machines and the other pillars of each Full Welding Solution. Böhler Arc ensures the perfect synergy between welding consumables and power sources.

## Personal Protection



One of the most important aspects in the welding process is the protection of the welder. Therefore, voestalpine Böhler Welding created the new personal protection & accessories line. The products reflect our high quality demands and give the welders the protection and the tools they need.

## Accessories



For each Full Welding Solution we offer a dedicated range of accessories to enhance the performances in terms of productivity, efficiency and quality. We are a passionate developer of innovative products in that field to ensure safe welding.

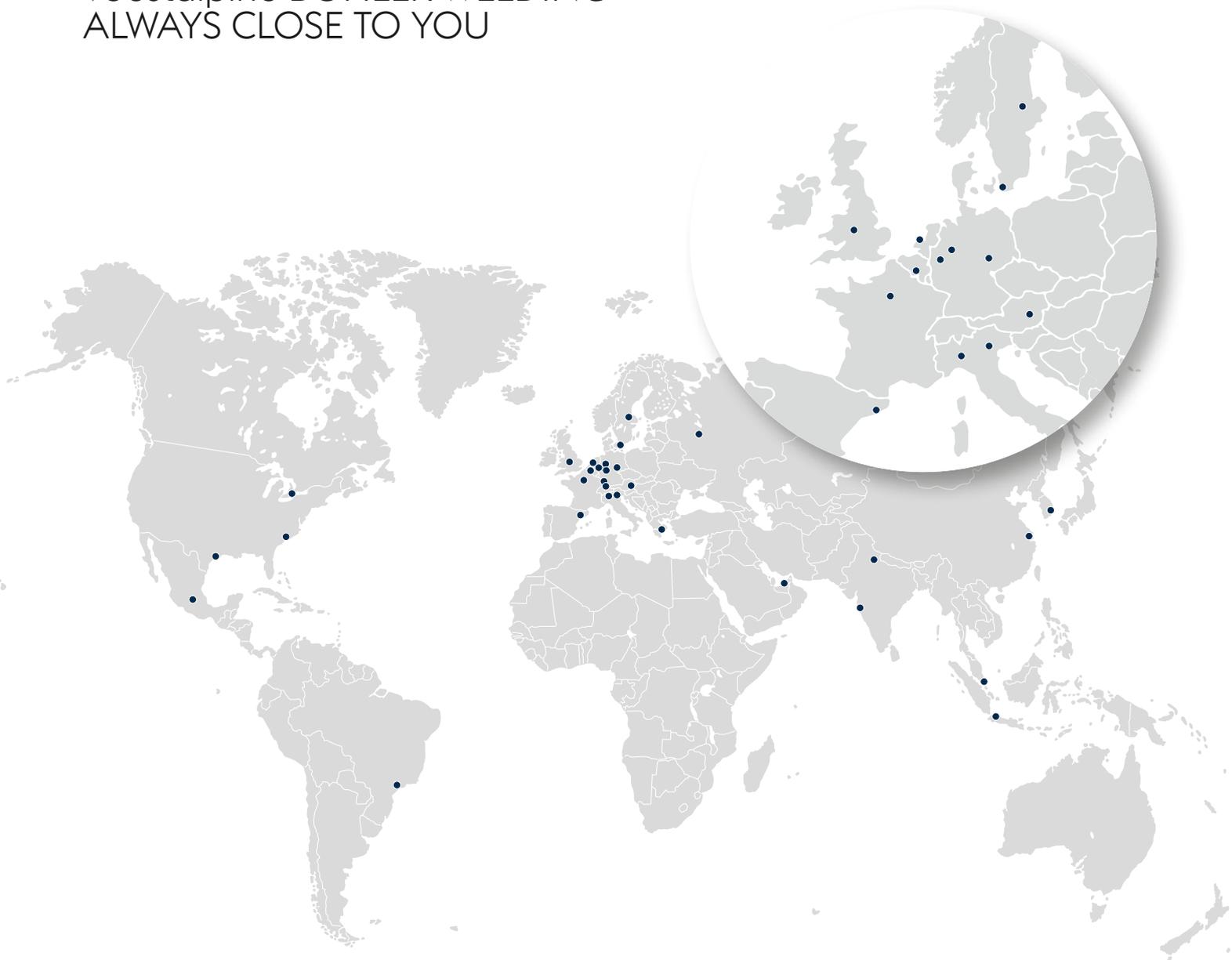


For more infos follow the link:

[Additional Infos](#)



voestalpine BÖHLER WELDING  
ALWAYS CLOSE TO YOU



● Locations of voestalpine Böhler Welding

# JOIN! voestalpine Böhler Welding

We are a leader in the welding industry with over 100 years of experience, more than 50 subsidiaries and more than 4,000 distribution partners around the world. Our extensive product portfolio and welding expertise combined with our global presence guarantees we are close when you need us. Having a profound understanding of your needs enables us to solve your demanding challenges with Full Welding Solutions - perfectly synchronized and as unique as your company.



**Lasting Connections** – Perfect alignment of welding machines, consumables and technologies combined with our renowned application and process know-how provide the best solution for your requirements: A true and proven connection between people, products and technologies. The result is what we promise: Full Welding Solutions for Lasting Connections.



**Tailor-Made Protectivity™** – The combination of our high-quality products and application expertise enables you to not only repair and protect metal surfaces and components. Our team of engineers, experienced in your specific applications, offer you customized solutions resulting in increased productivity for your demanding challenge. The result is what we promise: Tailor-Made Protectivity™.



**In-Depth Know-How** – As a manufacturer of soldering and brazing consumables, we offer proven solutions based on 60 years of industrial experience, tested processes and methods, made in Germany. This in-depth know-how makes us the internationally preferred partner to solve your soldering and brazing challenge through innovative solutions. The result is what we promise: Innovation based on in-depth know-how.

The Management System of voestalpine Böhler Welding Group GmbH, Peter-Mueller-Strasse 14-14a, 40469 Duesseldorf, Germany has been approved by Lloyd's Register Quality Assurance to: ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007, applicable to: Development, Manufacturing and Supply of Welding and Brazing Consumables. More information: [www.voestalpine.com/welding](http://www.voestalpine.com/welding)



