böhler welding
by voestalpine

Lasting Connections

DIAMONDSPARK
THE ULTIMATE RANGE OF SEAMLESS CORED WIRES

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ONE STEP AHEAD.


diamondspark

DISCOVER THE ULTIMATE RANGE OF SEAMLESS CORED WIRES FROM MARKET LEADER BÖHLER WELDING

You have the most demanding applications in your industry? We have the right cored wires – no matter what challenges you have to face. We offer the broadest range of highest quality wires manufactured in Europe – from seamless tubular to the brand new laser sealed types – now united under one roof: Diamondspark – premium seamless cored wires.

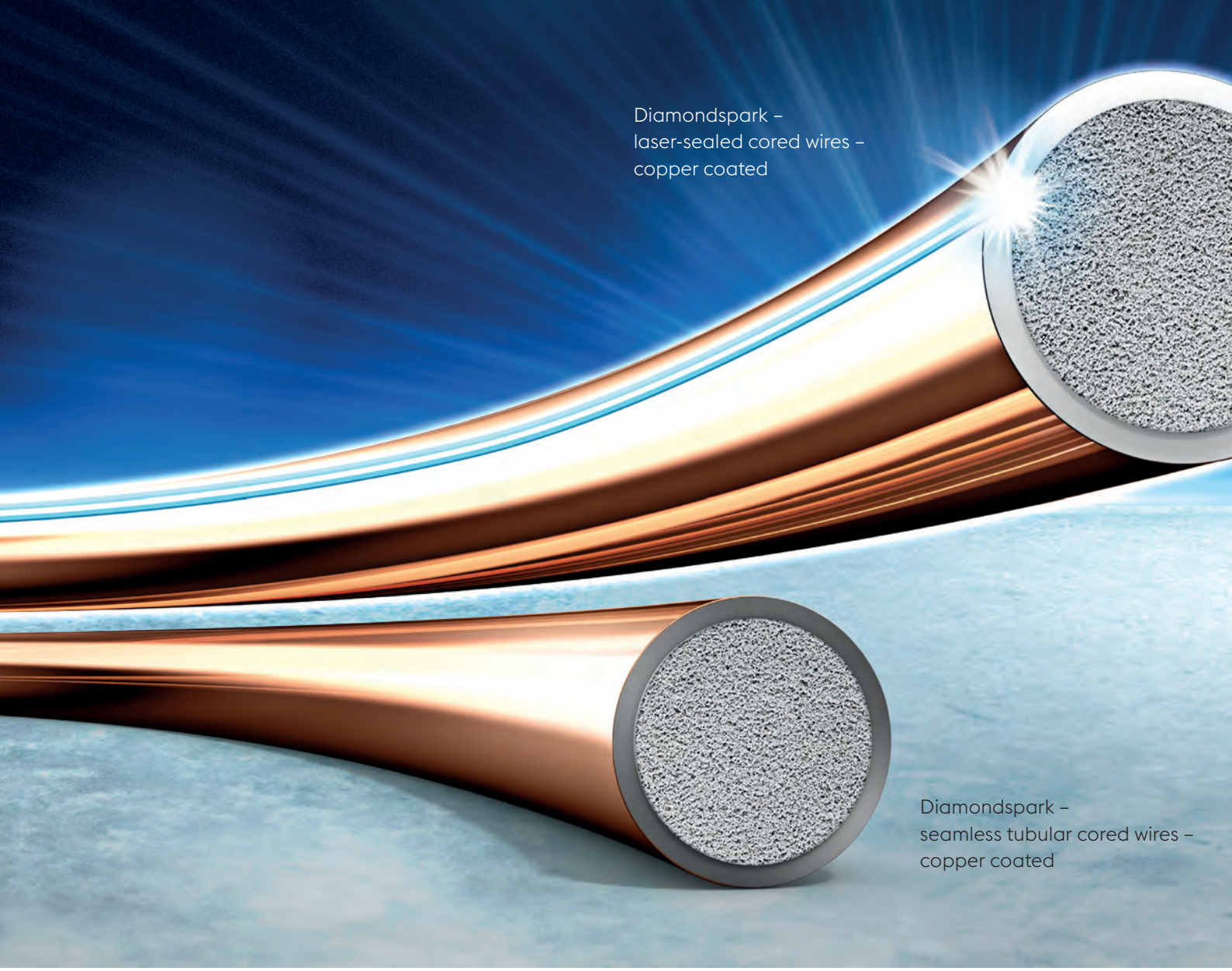
Fabricated for a new area in high duty cycle welding in mechanized and robotic applications.

Maximize your productivity and benefit from the expertise of the leading supplier for seamless cored wires. Our technical consultancy service will demonstrate the outstanding performance on site or in one of our technology application centers.

Make your call today and experience the future of seamless cored wires.

CEO Günter Neureiter

Filippo Campaci



RELIABLE EXPERTISE FOR LASTING CONNECTIONS

As a pioneer in welding consumables for the joining of metals, Böhler Welding offers a globally unique and customer-focused portfolio for lasting connections. The extensive range of approximately 2.000 products is continuously aligned with latest industry specifications and customer requirements, certified by leading approval authorities, and thereby accredited for even the most challenging applications.

As early as in 1927, Böhler Welding invented the “Seelendraht”, which is generally considered the predecessor of the modern cored wire. Today we reinforce our reputation as leading pioneers in filler materials with brand new laser-sealed types in the Diamondspark series – our seamless cored wire portfolio for the most demanding of welding applications.

In addition, Böhler Welding offers its customers and partners the highest level of joining expertise to support them in getting the best out of our products by means of consult and training, on-site when needed.

DIAMONDSPARK – PREMIUM SEAMLESS CORED WIRES FROM MARKET LEADER BÖHLER WELDING

Diamondspark by Böhler Welding covers a full range of seamless cored wires from two different fabrication technologies tailored to match the needs of demanding applications.

Established in the market with a vast range of individual types are Böhler Welding tubular seamless cored wires, which are manufactured by filling a tube with flux ingredients and drawing it to end diameter. Completely new are Böhler Welding types fabricated by sealing a folded strip filled with flux ingredients using a laser beam and drawing it to end diameter. Both fabrication routes allow subsequent copper-coating to give the cored wires optimal feeding characteristics and current transfer.

The fabrication method has been anchored in the BÖHLER product name by a suffix T for tubular types and a suffix L for types produced with laser technology.

Seamless T-line	Seamless L-line
Seamless tubular cored wire	Seamless laser-sealed cored wire
Examples:	Examples:
BÖHLER Ti 52 T-FD	BÖHLER HL 51 L-MC
BÖHLER Ti 60 T-FD SR	BÖHLER X70 L-MC

DIAMONDSPARK L-LINE: YOUR PRECISION TOOL FOR MOST DEMANDING MANUFACTURING

The Diamondspark L-line – your precision tool for most demanding manufacturing complements our range of seamless cored wires. They enable you to optimize your welding application and ensure highest productivity. Diamondspark laser-sealed seamless cored wires are today's best available choice

- for welding applications with most stringent requirements for productivity, safety and weld quality
- such as in robotic serial manufacturing and mechanized welding
- of high integrity components in demanding industries
- perfect for high and ultra-high strength steel welding
- and for hydrogen critical applications.

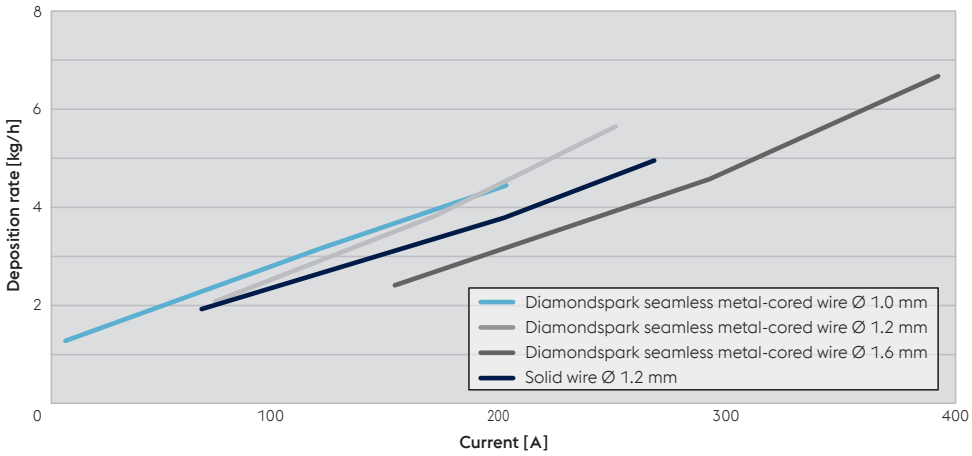
MAXIMUM WELDING PRODUCTIVITY – WELL-DESIGNED FORMULATIONS

Diamondspark – next level productivity in a growing range of formulations

High deposition rate.

Böhler Welding seamless cored wires carry all general productivity advantages brought along by the cored wire product design, when compared with solid wires. At equal wire diameters, the current conducting cross section of cored wires is smaller and, therefore, resistance heating in the sheath (I2R effect) is higher at the same welding current. This translates into a higher wire melt-off rate and – depending on cored wire type (flux- or metal-cored) – in higher deposition rates than with solid wires.

Diagram showing 1.0, 1.2 and 1.6 mm Diamondspark metal-cored wire in comparison with solid wire.



Growing portfolio.

On top of this basic productivity advantage, Diamondspark cored wires make use of the powerful option to very precisely influence welding characteristics with well-designed cored wire formulations. Böhler Welding rutile cored wires with fast freezing slag, for instance, provide deposition rates in positional welding up to three times as high as obtainable with any conventional arc welding process. In the downhand position, Böhler Welding metal-cored wires are the fastest way to join steel plate. Arc stabilizers make favorable spray arc welding start at welding currents where solid wires of the same diameter operate in the short or globular arc mode, with associated superior productivity and virtual absence of spatter. In fillet welding, significantly higher travel speed can be applied than with solid wires, with excellent weld quality.

One of the features of Diamondspark metal-cored wires is a wide envelope of applicable welding parameters, enabling easy setting and wider use of productive spray arc parameters.

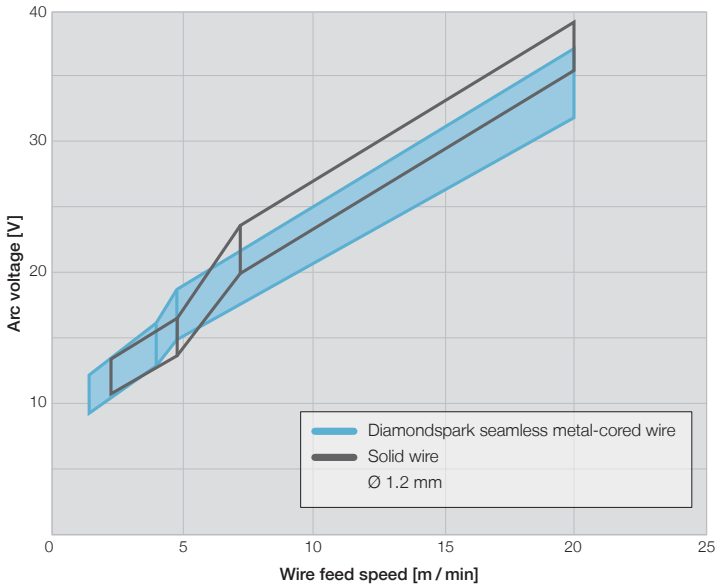


Photo courtesy PALFINGER AG, Austria

ULTRA DRY – ULTIMATELY PROTECTED

Diamondspark – the new benchmark in low hydrogen and moisture safety

Hermetically sealed.

Within the field of flux-cored arc welding, the seamless design offers optimal protection against moisture reabsorption and thereby against hydrogen induced cracking / hydrogen assisted cracking (HIC, HAC, cold cracking). For the simple reason that there is no seam running over the wire length, moisture cannot penetrate into the filling. Diamondspark tubular seamless cored wires are produced with very low levels of diffusible hydrogen – typically 2-3 ml / 100g weld metal for rutile types and even lower for metal-cored and basic wires. And they maintain this property until the moment of welding, regardless duration of storage and time of exposure at the work site. With Diamondspark seamless cored wires, fabricators always enjoy the best protection they can possibly get in flux-cored arc welding.

As an additional advantage, the copper-coating counteracts the formation of rust on the wire surface, which is a potential source of hydrogen.

Unique in the market – Ultra-Dry.

Diamondspark laser-sealed metal-cored wires are even ultra-dry with average initial hydrogen levels well below 2 ml / 100 g weld metal. With weld metal hydrogen remaining at the level of solid wires after long term exposure in a climate chamber, these metal-wires provide the very best low-hydrogen performance available in the market.

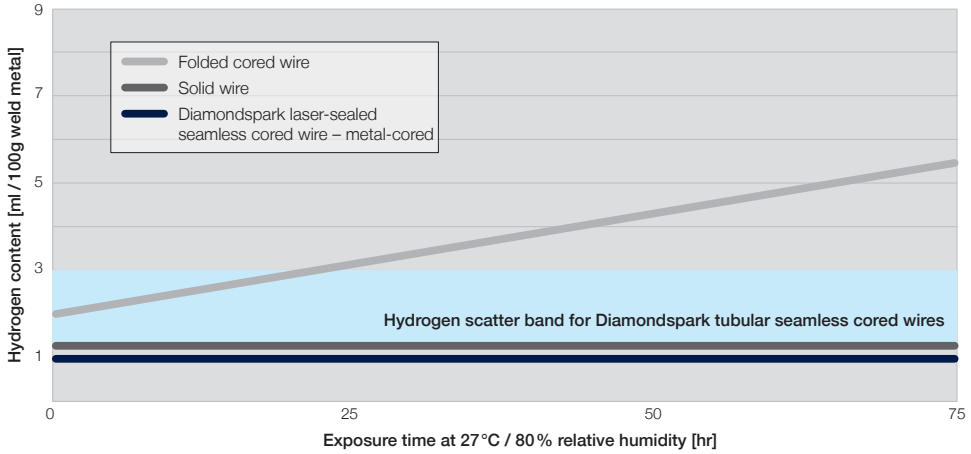


Diagram showing weld metal hydrogen content in relation to exposure time for Diamondspark seamless cored wires. Diamondspark laser-sealed metal-cored wires are ultra-dry, performing at the level of solid wiress.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INCREASED ARC TIME – LOWER COSTS

Diamondspark – brilliant characteristics for mechanized and robotic welding

Convincing benefits.

Whether you weld manually close to the power source or robotic with long liners – problem-free wire feeding is what you will get. The seamless, copper coated wire design adds sufficient stiffness and glide to overcome friction in liners, welding guns and contact tips. The copper coating enhances current transfer between contact tip and wire – and together with arc stabilizers in the filling – promotes good arc ignition and a stable arc. Controlled wire cast and helix largely avoids "dog tailing", giving, well positioned welds.

Drum system for maximized profitability.

Diamondspark cored wires are available in spools of 16 kg and in octagonal drums with a filling content of 250 kg. Use of the drum avoids 15 spool changes of roughly 10 minutes, compared with wire spools. The result is 150 more minutes of net arc time and a correspondingly higher duty cycle and production output. Use of the drums will thereby immediately lower your welding costs and increase your company's profit.

However, there is much more to be gained. The implementation of our drum systems – with high quality welding wires and dedicated accessories – will streamline your entire cored wire welding operation and further lower your welding costs.

Features	User benefits
Problem-free feeding	Increased arc time and higher production output
Stable arc	Uniform bead shape and weld penetration
Good arc ignition	High quality welds with multiple starts
Controlled wire cast and helix	Precise weld positioning
Available in 250 kg drums	Drastically increased net arc time

A range of accessories for efficient internal transport and installation of the drums is available, including a choice of four different "click and go" liner types to connect the drums with the wire feed unit.

DIAMONDSPARK SEAMLESS CORED WIRES – A FULL RANGE FOR NON AND LOW-ALLOYED STEEL

Diamondspark seamless copper-coated cored wires for normal strength steel		
Product	**Classification**	**Description**
BÖHLER Ti 52 T-FD Rutile, all-positional Mixed gas and CO_2	EN ISO 17632-A: T46 4 P M21 1 H5 / T46 2 P C1 1 H5 AWS A5.36: E71T1-M21A4-CS1-DH4 / E71T1-C1A2-CS1-DH4	Seamless tubular, rutile cored wire from the Diamondspark range. Multi-purpose wire for steel with up to 460 MPa YS. Excellent weldability and very high productivity in positional welding. Good CVN impact toughness down to -40 °C. General fabrication, shipbuilding. D1.8 Seismic Supplement approved.
BÖHLER Ti 52 T-FD (HP) Rutile, all-positional Mixed gas and CO_2	AWS A5.36: E71T1-M21AP6-CS2-H4 / E71T1-C1A0-CS2-H4	Seamless tubular, rutile cored wire from the Diamondspark range. Multi-purpose wire for steel with up to 460 MPa YS. Excellent weldability and very high productivity in positional welding. Excellent CVN impact toughness down to -50 °C for applications with highest toughness demands e.g. in offshore and shipbuilding.
BÖHLER Ti 52 T-FD (CO_2) Rutile, all-positional CO_2	EN ISO 17632-A: T42 2 P C1 1 H5 AWS A5.36: E71T1-C1A0-CS1-H4	Seamless tubular, rutile cored wire from the Diamondspark range. Multi-purpose wire for steel with up to 420 MPa YS. Excellent weldability and very high productivity in positional welding. Good CVN impact toughness down to -30 °C. For excellent performance in shipbuilding.
BÖHLER Ti 52 T-FD SR (CO_2) Rutile, all-positional CO_2	EN ISO 17632-A: T42 4 P C1 1 H5 AWS A5.36: E71T12-C1AP4-CS1-H4	Seamless tubular, rutile cored wire from the Diamondspark range. Multi-purpose wire for steel with up to 460 MPa YS with stress relieve requirements. Excellent weldability and very high productivity in positional welding. Good CVN impact toughness down to -40 °C, both as welded and stress relieved. For excellent performance in shipbuilding, storage vessels and heavy wall thickness steel constructions. CTOD tested at -10 °C.
BÖHLER Kb 46 T-FD Basic, downhand Mixed gas and CO_2	EN ISO 17632-A: T42 4 B M21 1 H5 / T42 4 B C1 1 H5 AWS A5.36: E71T5-M21A4-CS1-H4 / E71T5-C1A4-CS1-H4	Seamless tubular, basic cored wire from the Diamondspark range. For C- and C-Mn steels up to 420 MPa YS, including fine grain steels. Excellent weldability in flat and horizontal position. Excellent CVN impact toughness down to -60 °C.
BÖHLER Kb 52 T-FD Basic, downhand Mixed gas and CO_2	EN ISO 17632-A: T46 4 B M21 3 H5 / T42 4 B C1 3 H5 AWS A5.36: E70T5-M21A4-CS1-H4 / E70T5-C1A4-CS1-H4	Seamless tubular, basic cored wire from the Diamondspark range. Excellent weldability in flat and horizontal position. Very tough weld metal with high crack resistance for steels with high CE and constructions with high restraint. Unlimited wall thickness. Outstanding CVN impact toughness down to -60 °C with mixed gas.
BÖHLER HL 46 T-MC Metal-cored, all positional Mixed gas	EN ISO 17632-A: T46 3 M M21 1 H5 AWS A5.36: E70T15-M21A2-CS1-H4	Seamless tubular, metal-cored wire from the Diamondspark range. Multi-purpose wire for steel up to 460 MPa YS and CVN impact requirements down to -30 °C. Steady spray arc with minimal spatter and very low silicates production for multi-run welding without interrun cleaning. Ideal for flat and horizontal fillet welds.
BÖHLER HL 51 L-MC Metal-cored, all-positional Mixed gas	EN ISO 17632-A: T 46 4 M M 1 H5 AWS A5.36: E70T15-M21A4-CS1-H4	Seamless, laser-sealed, metal-cored wire from the Diamondspark range with excellent characteristics for high duty cycle, mechanized and robotic welding of unalloyed and fine-grained constructional steel up to 460 MPa yield and impact requirements down to -40 °C. Ultra-low weld metal hydrogen content – at the level of solid wires – for best possible protection against hydrogen assisted / induced cracking.
BÖHLER HL 51 T-MC	EN ISO 17632-A: T46 6 M M21 1 H5 / T42 5 M C1 1 H5 AWS A5.36: E70T15-M21A8-CS1-H4 / E70T15-C1A6-CS1-H4	Seamless tubular, metal-cored wire from the Diamondspark range. Multi-purpose wire for steel up to 460 MPa YS and excellent CVN impact requirements in the as welded (-60 °C) and stress relieved (-40 °C) condition. Steady spray arc with minimal spatter. This wire is especially suitable for automated-robotized applications and for root pass welding for piping and butt-joints. This wire is CTOD-tested.
Diamondspark seamless copper-coated cored wires for weather resistant steel		
Product	**Classification**	**Description**
BÖHLER NiCu1 Ti T-FD Rutile, all-positional Mixed gas	EN ISO 17632-A: T46 4 Z P M21 1 H5 AWS A5.36: E81T1-M21A4-GH4	Seamless tubular, rutile cored wire from the Diamondspark range. Excellent weldability and very high productivity in positional welding. For weathering steels. Good CVN impact toughness down to -40 °C. Buildings, bridges.
BÖHLER NiCu1 T-MC Metal-cored, all-positional Mixed gas	EN ISO 17632-A: T46 6 Z M21 M 1 H5 AWS A5.36: E80T15-M21A8-GH4	Seamless tubular, metal-cored wire from the Diamondspark range. For weathering steels. Good CVN impact toughness down to -60 °C. Buildings, bridges.
BÖHLER Kb NiCu1 T-FD Basic, downhand Mixed gas	EN ISO 17632-A: T46 6 Z B M21 3 H5 AWS A5.36: E80T5-M21A8-GH4	Seamless tubular, basic cored wire from the Diamondspark range. For weathering steels. Very high CVN impact toughness down to -60 °C. Buildings, bridges.

Diamondspark seamless copper-coated cored wires for low-temperature steel		
Product	**Classification**	**Description**
BÖHLER Ti 60 T-FD Rutile, all-positional Mixed gas	EN ISO 17632-A: T50 6 1Ni P M21 1 H5 AWS A5.36: E81T1-M21A8-Ni1-H4	Seamless tubular, rutile cored wire from the Diamondspark range. For low-temperature steels up to 500 MPa YS and impact requirements down to -60 °C. Excellent weldability and very high productivity in positional welding. Alloyed with < 1 % Ni to meet NACE offshore requirement. HIC tested according to NACE TM-0284. CTOD tested at -10 °C. Offshore, upstream oil and gas exploration. CTOD tested at -10 °C.
BÖHLER Ti 60 T-FD (CO_2) Rutile, all-positional CO_2	EN ISO 17632-A: T46 4 1Ni P C1 1 H5 AWS A5.36: E81T1-C1A4-Ni1-H4	Seamless tubular, rutile cored wire from the Diamondspark range. For low-temperature steels up to 500 MPa YS and impact requirements down to -40 °C. Excellent weldability and very high productivity in positional welding. Alloyed with < 1 % Ni to meet NACE offshore requirement. Offshore, upstream oil and gas exploration. CTOD tested at -10 °C.
BÖHLER Ti 60 T-FD SR Rutile, all-positional Mixed gas	EN ISO 17632-A: T50 6 1Ni P M21 1 H55 AWS A5.36: E81T1-M21AP8-Ni1-H4	Seamless tubular, rutile cored wire from the Diamondspark range. For low-temperature steels with impact requirements down to -60 °C. Excellent weldability and very high productivity in positional welding. As welded and stress relieved. Alloyed with < 1 % Ni to meet NACE offshore requirement. Offshore, upstream oil and gas exploration. CTOD tested at -10 °C.
BÖHLER Ti 60 K2 T-FD (CO_2) Rutile all-positional CO_2	EN ISO 17632-A: T50 6 1,5Ni P C1 1 H5 AWS A5.36: E81T1-C1A8-K2-H4	Seamless tubular, rutile cored wire from the Diamondspark range for use with pure CO_2 shielding gas. Excellent weldability and very high productivity in positional welding. Good CVN impact toughness down to -60 °C as well as the low content of diffusible hydrogen make the wire especially suited for offshore applications.
BÖHLER Ti 2 Ni T-FD Rutile, all-positional Mixed gas	EN ISO 17632-A: T50 6 2Ni P M21 1 H5 AWS A5.36: E81T1-M21A8-Ni2-H4	Seamless tubular, basic cored wire from the Diamondspark range. For low-temperature steels with impact requirements down to -60 °C. Excellent weldability and very high productivity in positional welding. Alloyed with 2 % Ni for superior CVN impact properties. Offshore, upstream oil and gas exploration. CTOD tested at -50 °C.
BÖHLER Kb 60 T-FD Basic, downhand Mixed gas	EN ISO 17632-A: T46 6 1Ni B M21 3 H5 AWS A5.36: E80T5-M21P8-Ni1-H4	Seamless tubular, basic cored wire from the Diamondspark range. Alloyed with < 1 % nickel. For the welding of fine grain constructional steel – with impact requirements down to -60 °C – as well as for joining wear resistant steels. Very tough weld metal with high resistance to cracking.
BÖHLER HL 53 T-MC Metal-cored, all-positional Mixed gas	EN ISO 17632-A: T50 6 1Ni M M21 1 H5 AWS A5.36: E80T15-M21A8-Ni1-H4	Seamless tubular, metal-cored wire from the Diamondspark range. For low-temperature steels with impact requirements down to -60 °C. Alloyed with < 1 % Ni to meet NACE offshore requirement. Exceptional mechanical properties down to -60 °C, both as welded and stress relieved. This wire is especially suitable for rootpass welding in offshore and pipeline applications. CTOD tested at -40 °C.
Diamondspark seamless copper-coated cored wires for high strength steel		
Product	**Classification**	**Description**
BÖHLER Ti 75 T-FD Rutile, all-positional Mixed gas	EN ISO 18276-A: T62 4 Mn1.5Ni P M21 1 H5 AWS A5.36: E101T1-M21A4-K2-H4	Seamless tubular, rutile cored wire from the Diamondspark range. Ni-Mo-alloyed wire for high strength steels up to 620 MPa YS. Excellent weldability and very high productivity in positional welding. Excellent CVN impact toughness down to -40 °C. The exceptional mechanical properties of this wire and the low content of diffusible hydrogen make it especially suitable for offshore applications.
BÖHLER Ti 80 T-FD Rutile, all-positional Mixed gas	EN ISO 18276-A: T69 6 Z P M21 1 H5 AWS A5.36: E111T1-M21A8-GH4	Seamless tubular, rutile cored wire from the Diamondspark range. Ni-Mo-alloyed wire for high strength steels up to 690 MPa YS. Excellent weldability and very high productivity in positional welding. Excellent CVN impact toughness down to -60 °C and the low diffusible hydrogen content make it especially suitable for offshore, pipeline and crane applications.
BÖHLER Kb 63 T-FD Basic, downhand Mixed gas	EN ISO 18276-A: T55 4 Z B M21 3 H5 AWS A5.36: E90T5-M21A4-GH4	Seamless tubular, basic cored wire from the Diamondspark range. Cr-Ni-Mo-alloyed wire for high strength steels up to 550 MPa YS. Alloyed with < 1%Ni to meet NACE offshore requirement. Excellent weldability in flat and horizontal positions. Excellent CVN impact toughness down to -40 °C. Multiple steel constructions.
BÖHLER Kb 65 T-FD Basic, downhand Mixed gas	EN ISO 18276-A: T55 4 1NiMo B M21 3 H5 AWS A5.36: E90T5-M21A4-GH4	Seamless tubular, basic cored wire from the Diamondspark range. Ni-Mo-alloyed wire for high strength steels up to 550 MPa YS. Excellent weldability in flat and horizontal positions. Excellent CVN impact toughness down to -40 °C.
BÖHLER Kb 85 T-FD Basic, downhand Mixed gas	EN ISO 18276-A: T69 6 Mn2NiCrMo B M21 3 H5 AWS A5.36: E110T5-M21A8-K4-H4	Seamless tubular, basic cored wire from the Diamondspark range. Excellent weldability in flat and horizontal positions. Ni-Mo-alloyed wire for high strength steels up to 690 MPa YS. Excellent CVN impact toughness down to -60 °C.
BÖHLER Kb 90 T-FD Basic, downhand Mixed gas	EN ISO 18276-A: T89 4 Mn2Ni1CrMo B M21 3 H5 AWS A5.29: E120T5-GM-H4	Seamless tubular, basic cored wire from the Diamondspark range. Excellent weldability in flat and horizontal positions. Ni-Mo-alloyed wire for very high strength steels such as S890QL, S960QL and SQL1100. Excellent CVN impact toughness down to -40 °C.

BÖHLER HL 65 T-MC Metal-cored, all-positional Mixed gas	EN ISO8276-A: T55 4 1NiMo M M21 1 H5 AWS A5.36: E90T15-M21A8-K1-H4	Seamless tubular, metal-cored wire from the Diamondspark range. Ni-Mo-alloyed wire for high strength steels up to 550 MPa YS. Excellent CVN impact toughness down to -50 °C. Especially suited for root pass welding in offshore and pipelines.
BÖHLER HL 75 T-MC Metal-cored, all-positional Mixed gas	EN ISO 18276-A: T62 4 Z M M21 1 H5 AWS A5.36: E101T15-M21A4-G-H4	Seamless tubular, metal-cored wire from the Diamondspark range. Ni-Mo- alloyed wire for single - or multilayer welding of high strength steels. This wire is especially suitable for the pipe welding of special base material like ASTM A519 Gr. 4130. It meets the NACE offshore requirements. Excellent CVN impact toughness down to -40 °C.
BÖHLER X70 L-MC Metal-cored, all-positional Mixed gas	EN ISO 18276-A: T 69 6 Mn2NiCrMo M M21 1 H5 AWS A5.36: E110T15-M21A8-K4-H4	Seamless laser-sealed, metal-cored wire from the Diamondspark range. Wire with excellent characteristics for high duty cycle mechanized and robotic welding of thermo-mechanically or quenched & tempered high strength steel up to a yield strength of 690 MPa. Ultra-low weld metal hydrogen content – at the level of solid wires – for best possible protection against hydrogen assisted / induced cracking.
BÖHLER alform 700 L-MC Metal-cored, all-positional Mixed gas	EN ISO 18276-A: T 69 6 Mn2NiCrMo M M21 1 H5 AWS A5.36: E110T15-M21A8-K4-H4	Seamless laser-sealed, metal-cored wire from the Diamondspark range. Specially developed for the high duty cycle mechanized and robotic welding of the voestalpine high strength steel grade alform 700 M. Ultra-low weld metal hydrogen content – at the level of solid wires – for best possible protection against hydrogen assisted / induced cracking.
BÖHLER X90 L-MC Metal-cored, downhand Mixed gas	EN ISO 18276-A: T 89 5 ZMn2NiCrMo M M21 1 H5 AWS A5.36: E131T15-M21A6-K4-H4	Seamless laser-sealed, metal-cored wire from the Diamondspark range. Wire with excellent characteristics for high duty cycle mechanized and robotic welding of thermo-mechanically produced or quenched & tempered high strength steel up to a yield strength of 900 MPa. Ultra-low weld metal hydrogen content – at the level of solid wires – for best possible protection against hydrogen assisted / induced cracking. Used for the welding of high strength steel in crane and vehicle manufacturing, shipbuilding and offshore fabrication.
BÖHLER alform 900 L-MC Metal-cored, downhand Mixed gas	EN ISO 18276-A: T 89 5 ZMn2NiCrMo M M21 1 H5 AWS A5.36: E131T15-M21A6-K4-H4	Seamless laser-sealed, metal-cored wire from the Diamondspark range. Wire with excellent characteristics for high duty cycle mechanized and robotic welding of thermo-mechanically produced high strength steel up to a yield strength of 900 MPa. Specially developed for the voestalpine high strength steel grade alform 900 x-treme. Ultra-low weld metal hydrogen content – at the level of solid wires – for best possible protection against hydrogen assisted / induced cracking. Used for the welding of high strength steel in crane and vehicle manufacturing, shipbuilding and offshore fabrication.
BÖHLER X96 L-MC Metal-cored, downhand Mixed gas	EN ISO 18276-A: T 89 4 ZMn2NiCrMo M M21 1 H5 AWS A5.36: E131T15-M21A4-K4-H4	Seamless laser-sealed, metal-cored wire from the Diamondspark range. Wire with excellent characteristics for high duty cycle mechanized and robotic welding of thermo-mechanically produced or quenched & tempered high strength steel up to a yield strength of 960 MPa. Ultra-low weld metal hydrogen content – at the level of solid wires – for best possible protection against hydrogen assisted / induced cracking. Used for the welding of high strength steel in crane and vehicle manufacturing.
BÖHLER alform 960 L-MC Metal-cored, downhand Mixed gas	EN ISO 18276-A: T 89 4 ZMn2NiCrMo M M21 1 H5 AWS A5.36: E131T15-M21A4-K4-H4	Seamless laser-sealed, metal-cored wire from the Diamondspark range. Wire with excellent characteristics for high duty cycle mechanized and robotic welding of thermo-mechanically produced high strength steel up to a yield strength of 960 MPa. Specially developed for the voestalpine high strength steel grade alform 960 x-treme. Ultra-low weld metal hydrogen content – at the level of solid wires – for best possible protection against hydrogen assisted / induced cracking. Used for the welding of high strength steel in crane and vehicle manufacturing.

Diamondspark seamless copper-coated cored wires for pipe steel

Product	Classification	Description
BÖHLER Ti 70 Pipe T-FD Rutile, all-positional Mixed gas	EN ISO 18276-A: T55 5 Mn1Ni P M21 1 H5 AWS A5.36: E91T1-M21A6-K2-H4	Seamless tubular, rutile cored wire from the Diamondspark range. Developed for pipeline welding of API 5L grades up to X80. Excellent weldability and very high productivity in positional welding. Well suited for mechanized (orbital) welding. Good CVN impact toughness down to -50 °C. Very low-hydrogen weld metal.
BÖHLER Ti 70 Pipe T-FD (N) Rutile, all-positional Mixed gas	EN ISO 18276-A: T55 6 Z P M21 1 H5 AWS A5.36: E91T1-M21A8-G-H4	Seamless tubular, rutile cored wire from the Diamondspark range. This wire is specially developed for productive all-positional pipeline welding and is alloyed with Mn and with <1.0% Ni to meet NACE requirements. Exceptional CVN impact toughness down to –60 °C and CTOD tested at –10 °C. Very low-hydrogen weld metal.
BÖHLER HL 60 Pipe T-MC Metal-cored, all-positional Mixed gas	EN ISO 17632-A: T46 6 Z M M21 1 H5 AWS A5.36: E80T15-M21A8-K6-H4	Seamless tubular, metal-cored wire from the Diamondspark range. For automatic (orbital) welding applications for pipeline construction. Matches the minimum strength requirements of X70 base material. Excellent CVN impact toughness down to -60 °C. CTOD tested at -10 °C. Very low-hydrogen weld metal.

Diamondspark seamless copper-coated cored wires for creep resistant steel		
Product	**Classification**	**Description**
BÖHLER DMO Ti T-FD Rutile, all-positional Mixed gas	EN ISO 18276-A: T 46 0 Mo P M21 1 H5 AWS A5.36: E81T1-M21P0-A1-H4	Seamless tubular, rutile cored wire from the Diamondspark range. This wire is specially developed for the productive welding of 0.5 % Mo alloyed creep resistant base materials. Excellent weldability and very high productivity in positional welding. Very low-hydrogen weld metal. Applied in the fabrication of tanks, high-pressure vessels, pipe systems as well as for structural steel applications.
BÖHLER DCMS Ti T-FD Rutile, all-positional Mixed gas	EN ISO 18276-A: T Cr Mo1 P M21 1 H5 AWS A5.36: E81T1-M21PY-B2-H4	Seamless tubular, rutile cored wire from the Diamondspark range. This wire is specially developed for the productive welding of 1 %Cr-0.5 % Mo alloyed creep resistant base materials. Excellent weldability and very high productivity in positional welding. Very low-hydrogen weld metal. Applied in the fabrication of high-pressure vessels and pipe systems.
BÖHLER DMO Kb T-FD Basic, downhand Mixed gas	EN ISO 17632-A: T46 6 Mo B M21 3 H5 AWS A5.36: E80T5-M21P8-A1-H4	Seamless tubular, basic cored wire from the Diamondspark range. For 0.5 % Mo type creep resistant steels. Excellent weldability in flat and horizontal positions. Very low-hydrogen weld metal. Excellent CVN impact toughness down to -60 °C, as welded and post weld heat treated.
BÖHLER DCMS Kb T-FD Basic, downhand Mixed gas	EN ISO 17634-A: T CrMo1 B M21 3 H5 AWS A5.36: E80T5-M21PY-B2-H4	Seamless tubular, basic cored wire from the Diamondspark range. For 1 % Cr-0.5 % Mo type creep resistant steels. Excellent weldability in flat and horizontal positions. Very low-hydrogen weld metal.
BÖHLER CM2 Kb T-FD Basic, downhand Mixed gas	EN ISO 17634-A: T CrMo2 B M21 3 H5 AWS A5.36: E90T5-M21PY-B3-H4	Seamless tubular, basic cored wire from the Diamondspark range. For 2.25 % Cr-0.5 % Mo type creep resistant steels. Excellent weldability in flat and horizontal positions. Very low-hydrogen weld metal.
BÖHLER DCMV Kb T-FD Basic, downhand Mixed gas	EN ISO 17634-A: T Z B M21 3 H5 AWS A5.36: E90T5-M21PY-GH4	Seamless tubular, basic cored wire from the Diamondspark range. For Cr-Mo-V- alloyed steels resistant to creep. Excellent weldability in flat and horizontal positions. Very low-hydrogen weld metal. This wire is especially suitable for welding steel G17CrMoV5-10 with post weld heat treatment.
BÖHLER CM5 Kb T-FD Basic, downhand Mixed gas	EN ISO 17634-A: T CrMo5 B M21 3 H5 AWS A5.36: E80T5-M21PY-B6-H4	Seamless tubular, basic cored wire from the Diamondspark range. For 5 % Cr-0.5 % Mo type creep resistant steels. Excellent weldability in flat and horizontal positions. Very low-hydrogen weld metal.
BÖHLER DMO T-MC Metal-cored, all-positional Mixed gas	EN ISO 17632-A: T46 2 Mo M M21 1 H5 EN ISO 17634-A: T Mo M M21 1 H5 AWS A5.36: E80T15-M21P0-A1-H4	Seamless tubular, metal-cored wire from the Diamondspark range. For 0.5 % Mo type creep resistant steels. Very low-hydrogen weld metal.
BÖHLER DCMS T-MC Metal-cored, all-positional Mixed gas	EN ISO 17634-A: T CrMo1 M M21 1 H5 AWS A5.36: E80T15-M21PY-B2-H4	Seamless, tubular, metal-cored wire from the Diamondspark range. For 1 % Cr-0.5 % Mo type creep resistant steels. Very low-hydrogen weld metal.
BÖHLER CM2 T-MC Metal-cored, all-positional Mixed gas	EN ISO 17634-A: T CrMo2 M M21 1 H5 AWS A5.36: E90T15-M21PY-B3-H4	Seamless tubular, metal-cored wire from the Diamondspark range. For 2.25 % Cr-0.5 % Mo type creep resistant steels. Very low-hydrogen weld metal.

Over the coming years, new routes are being explored in the development of steel with elevated strength levels. In order to guarantee both formability and weldability of newly developed grades, manufacturers of steel and welding consumables are facing important tasks in research & development. With the innovative Diamondspark laser technology, Böhler Welding is already well prepared. Laser-sealed cored wires from the Diamondspark series have been successful in important test programs, showing that laser-sealed cored wires are the best answer to the challenges of the future.

Univ.-Prof. Dipl.-Ing. Dr.mont. Ronald Schnitzer
Endowed professorship and chair of design of steels – bmvit professorship for industry
Department of Physical Metallurgy and Materials Testing
Montanuniversität Leoben, Austria

With the new laser-sealed cored wires of the Diamondspark series, we have the ideal filler material at our disposal to satisfy future welding requirements of high performance concrete pumps. Böhler Welding underlines its leading position in this area as supplier of innovative products developed in co-operation with customers.

Dipl.-HTL Ing. Horst Jöbstl
Managing Director Schwing GmbH, St. Stefan im Lavanttal, Austria

Worldwide, PALFINGER stands for the most innovative, reliable and cost-effective lifting solutions for use on commercial vehicles and in the maritime field. With our technological expertise and experienced staff, we set quality benchmarks in the industries in which we operate. Our core knowledge in design and manufacturing of our cost-effective lifting solutions, combined with the close cooperation with base material suppliers and welding consumable manufacturers is essential to ensure the further development of our equipment. Böhler Welding with their technical expertise in applications and design of welding consumables is a strong and reliable partner of PALFINGER since decades. With the new laser-sealed cored wires from the Diamondspark series, Böhler Welding is setting new milestones in welding consumables and support herewith PALFINGER with the continuous development to ensure the global quality benchmark in lifting solutions.

Franz Wirnsperger
Head of Welding Technology and Analyses PALFINGER AG, Bergheim, Austria

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With over 100 years of experience, voestalpine Böhler Welding is the global top address for the daily challenges in the areas of joint welding, repair, hardfacing and cladding as well as brazing. Customer proximity is guaranteed by more than 40 subsidiaries in 25 countries, with the support of 2,200 employees, and through more than 1,000 distribution partners worldwide. With individual consultation by our application technicians and welding engineers, we make sure that our customers master the most demanding welding challenges. voestalpine Böhler Welding offers three specialized and dedicated brands to cater our customers' and partners' requirements.

Lasting Connections – As a pioneer in innovative welding consumables, Böhler Welding offers a unique product portfolio for joint welding worldwide. More than 2000 products are adapted continuously to the current industry specifications and customer requirements, certified by well-respected institutes and thus approved for the most demanding welding applications. As a reliable partner for customers, "lasting connections" are the brand's philosophy in terms of both welding and people.

Tailor-Made Protectivity™ – UTP Maintenance ensures an optimum combination of protection and productivity with innovative and tailor-made solutions. Everything revolves around the customer and their individual requirements. That is expressed in the central performance promise: Tailor-Made Protectivity™.

In-Depth Know-How – As a leading brand of soldering and brazing consumables, Fontargen Brazing offers proven solutions based on 50 years of industrial experience, tried and tested processes and methods. This In-Depth Know-How has made Fontargen Brazing an internationally preferred partner for every soldering and brazing task.

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