utp maintenance by voestalpine

Tailor-Made Protectivity™

UTP AF ROBOTIC SEAMLESS CORED WIRES FOR HARDFACING APPLICATIONS

voestalpine Böhler Welding
www.voestalpine.com/welding

voestalpine
ONE STEP AHEAD.



UTP MAINTENANCE

High-quality industrial-use welding filler metals for maintenance, repair, and overlay welding. By adding the UTP and Soudokay brands to the voestalpine Böhler Welding brand network, the UTP Maintenance can look back on a proud history spanning 60 years as an innovative supplier of welding technology products. UTP Maintenance is the global leader in the repair, maintenance and overlay welding segment.

With roots in Bad Krozingen (Germany), Seneffe (Belgium) and Cittadella (Italy), UTP Maintenance offers the world's most unique product portfolio for filler metals from its own production facilities. The Soudokay brand was established back in 1938, while the UTP brand began operations in 1953. Each of these brands therefore respectively looks back on a long history of international dimension.

By merging into the UTP Maintenance brand, the collective know-how of both brands – gathered over decades in the fields of metallurgy, service and applications engineering – is now united under one umbrella. As a result, a truly unique portfolio of solutions for welding applications has been created in the fields of repair, maintenance and overlay welding.

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™.



Research and Development for Customized Solutions

At UTP Maintenance, research and development, conducted in collaboration with customers, plays a crucial role. Because of our strong commitment to research and development, combined with our tremendous innovative capacity, we are constantly engineering new products, and improving existing ones on an ongoing basis. The result is a vast number of innovative products for solving individual problems and complex matters.

Customized Products of Superior Quality

We continuously adapt our product portfolio of about 600 products to customer and industry specifications, while ensuring that we meet the highest quality specifications.

From its in-house production facilities, UTP Maintenance delivers innovative, tailor-made welding filler metals for: unalloyed and fine-grained structural steel, low-grade alloyed steels, rust-proof, acid-proof, and heat-proof steels, nickel-based alloys, cast iron, copper and copper alloys, manganese steels, tool steels, and cobalt alloys.
The product portfolio comprises:

- **Stick electrodes**
- **Solid wires and rods**
- **Flux-cored wires**
- **Submerged arc wires and fluxes**
- **Submerged arc strips and fluxes**
- **Spraying and PTA-powders**

Solutions at Every Point on the Globe

UTP Maintenance provides products and services through the global branches of voestalpine Böhler Welding and its dealer network in more than 150 countries throughout the world. A team of welding engineers stand at the customer's side, providing advice and support in all matters related to the challenges of welding technology.

UTP AF ROBOTIC SERIES

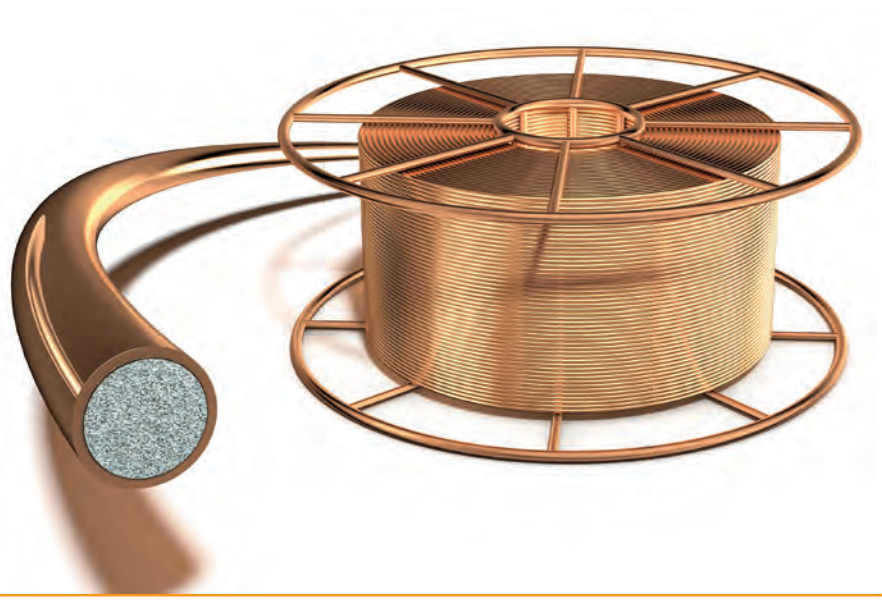
Under the brand statement Tailor-Made Protectivity™, UTP Maintenance guarantees its customers the ideal combination of protection & productivity – anywhere in the world. The UTP AF ROBOTIC – Series is an example of an innovative, tailor-made product – developed to optimally fulfill requirements in many heavy industrial segments.

The UTP AF ROBOTIC wires are seamless, copper-coated, cored wires for the hardfacing of components subjected to extreme combinations of pressure, impact and abrasion wear. These wires can be used in all welding positions and they also have excellent characteristics for the robotic welding applications. They perform equally well in manual or semi-automatic GMAW used for in-situ repair of worn components.

Product characteristics	User benefits
» Reduced contact tip wear	» **High productivity, less down-time, less maintenance costs**
» No moisture pick up	» **No need to re-dry, less porosities, less crack risk**
» Constant positioning accuracy of the metal-cored wire at start ignition and during welding	» **Highly beneficial for robotic welding**
» Reduced wire feeding force	» **Constant feeding behaviour**
» Improved weldability and bead shape appearance	» **Less cleaning, post-welding, lower defect weld deposit**
» Optimal copper coating	» **Excellent current transfer, arc stability, less spatters, safer storage**

UTP AF ROBOTIC wires fullfil the requirements of demanding industries, e.g.

- Cement & Mining
- Recycling
- Steel Industry
- Tool Manufacturing
- Power Generation
- Oil & Gas
- Tiles Industry
- Agriculture



UTP AF ROBOTIC PRODUCTLIST

Product name	Classification	Hardness	Composition (all weld metal) %						
			C	Si	Mn	Cr	Mo	Others	
UTP AF ROBOTIC 250	DIN 8555: MSG 1-GF-250-P EN 14700: T Fe 1	225 - 275 HB	0.1	0.6	1.8	1.0			
UTP AF ROBOTIC 257	DIN 8555: MSG 7-GF-250-KP EN 14700: T Fe 9	225 - 275 HB	0.45	0.7	14	2.0		Ni: 1.0	
UTP AF ROBOTIC 300 O	DIN 8555: MSG 1-GF-300-GP EN 14700: T Fe 1	300 - 325 HB	0.1	0.4	1.2	0.6	0.4	Ni: 1.9	
UTP AF ROBOTIC 352	DIN 8555: MSG 1-GF-350-P EN 14700: T Fe 1	325 - 375 HB	0.25	0.55	1.75	1.7			
UTP AF ROBOTIC 404	DIN 8555: MSG 3-GF-40-ST EN 14700: T Fe 3	37 - 42 HRC	0.17	0.4	0.7	6.5	2.5	Ni: 0.25 Ti: 0.10	
UTP AF ROBOTIC 405	DIN 8555: MSG 5-GF-40-P EN 14700: T Fe 3	37 - 42 HRC	0.1	0.6	1.5	5.5	0.9		
UTP AF ROBOTIC 453	DIN 8555: MSG 3-GF-45-ST EN 14700: T Fe 3	37 - 42 HRC	0.25	0.4	1	5.0	4		
UTP AF ROBOTIC 456	DIN 8555: MSG 6-GF-45-G EN 14700: T Z Fe 6	42 - 47 HRC	1.7	1.6	0.3	10.0			
UTP AF ROBOTIC 503	DIN 8555: MSG 3-GF-50-ST EN 14700: T Fe 8	47 - 52 HRC	0.25	0.4	0.7	5.5	4.5	Ti: 0.3	
UTP AF ROBOTIC 554	DIN 8555: MSG 3-GF-55-ST EN 14700: T Fe 8	52 - 57 HRC	0.3	0.5	0.95	6.5	2.1	Ti: 0.30	
UTP AF ROBOTIC 600	DIN 8555: MSG 6-GF-60-GP EN 14700: T Fe 8	57 - 62 HRC	0.45	3.0	0.4	9.0			
UTP AF ROBOTIC 601	DIN 8555: MSG 6-GF-60-GP EN 14700: T Fe 8	57 - 62 HRC	1.4	1.0	0.7	6.0		Nb: 5.5	
UTP AF ROBOTIC 603	DIN 8555: MSG 3-GF-60-GPZ EN 14700: T Fe 8	57 - 62 HRC	0.5	1.0	1.1	5.5	1.3	V: 0.3 W: 1.3	
UTP AF ROBOTIC 606	DIN 8555: MSG 6-GF-60-GP EN 14700: T Fe 6	57 - 62 HRC	0.5	0.6	1.4	6.0	0.5		
UTP AF ROBOTIC 6010	DIN 8555: MSG 10-GF-60-CPG EN 14700: T Fe 14	57 - 62 HRC	3.5	0.8	0.2	22.0		Nb: 0.4	
UTP AF ROBOTIC 6011	DIN 8555: MSG 10-GF-65-G EN 14700: T Fe 13	62 - 67 HRC	0.3	0.4	1.1	0.3		Ni: 1.5 B 4.5	

	Characteristics and field of use	Applications
	Seamless medium alloyed metal cored wire for wear resisitant hardfacing with Ar-CO_2 shielding gas for parts subject to heavy impact and shock.	Reconstruction and build-up of various parts.
	Seamless metal cored wire, Manganese alloyed, for hardfacing application with Ar-CO_2 shielding gas. Deposit with elevated resistance to abrasion and strong impacts.	Manganese steels casting foundries , railway crossing repair.
	Seamless, self-shielded flux-cored wire, for wear-resistant hardfacing applications, well suited for wear-resistant parts, it can be used also as buffer layer. The wire has an easy slag removal after welding and low spatter emission. Due to seamless design the wire has no moisture pick-up effect that reduce porosity issues compare to standard folded wires.	Main applications are in railways segment.
	Seamless medium alloyed metal cored wire for wear resistant application with Ar-CO_2 shielding gas for surfacing medium-hard steel. Main Features are: very stable arc, low spatter emission.	Pulley, chains, crawler rollers, transport rollers and wheels, wear part from track vehicles.
	Seamless medium alloyed metal cored wire for pressure and abrasion restistant surfacing application up to 550 °C with Ar-CO_2 shielding gas.	Main application field is forging. Hot work dies, croppers, hot shearing machines, hot rolling, trimmers, extrusion screws, hot cutting tools up to 550 °C.
	Seamless medium alloyed metal cored wire with low carbon contents for wear-resistant surfacing application with Ar-CO_2 shielding gas. Main features are: very stable arc, low spatter emission, low amount of slag.	Main application field is forging. Parts of earth moving machinery, rollers and supports, up to 550 °C.
	Seamless Cr-Mo alloyed metal cored wire for wear-resistant hardfacing on parts subject to high temperature with Ar-CO_2 shielding gas.	Main application field is forging. Parts of earth moving machinery, rollers and mills, up to 650°C.
	Self shielded, Cr alloyed, seamless metal cored wire for wear resistant surfacing applications.	Suitable for semi or fully automatic surfacing of sugar mill rollers, earth moving machinery, rolls, mills.
	Seamless metal cored wire for surfacing applications resitstant to metal wear up to 650 °C with Ar-CO_2 shielding gas. Main features are: very stable arc, low spatter emission, low amount of slag.	Main application field is forging. Hot work dies, croppers, hot rolling, trimmers. Hot cutting tools up to 650 °C.
	Seamless metal cored wire for pressure and abrasion resistant surfacing up to 550 °C with Ar-CO_2 shielding gas. Main features are: very stable arc, low spatter emission, low amount of slag.	Main application field is forging. Hot working tools, croppers hot shearing machines, hot rolling, trimmers, extrusion screws, hot cutting up to 550 °C.
	Seamless Cr alloyed metal cored wire for wear-resistant hardfacing for parts subject to a combination of pressure, impact and abrasion wear with Ar-CO_2 shielding gas. Main features are: very stable arc even at very low welding parameters, low spatter emission, low amount of slag, possible to weld also in out of position.	Most common alloy for various applications like ceramic tiles, cutting tools, rollers, part of earth moving machinery, recycling equipment, crushers.
	Seamless Cr-Nb alloyed metal cored wire for hardfacing, with Ar-CO_2 shielding gas. Hardfacing deposit with high hardness but reamains crack free. Suited for wear resisting parts subject subject to heavy impact and abrasion. Main features are: very stable arc, low spatter emission, low amount of slag.	Excellent alloy suited for wear resisting parts subject subject to heavy impact and abrasion. Suitable for recycling equipment cutting edges conveyor chains crusher jaws and cones.
	Seamless Cr-Mo-W-V alloyed metal cored wire for abrasing and moderate stress-resistant surfacing applications up to 550 °C with Ar-CO_2 shielding gas.	Crushing hammers, cutting tools, hammers, bulldozer buckets.
	Seamless Cr-Mo alloyed metal cored wire for wear-resistant hardfacing applications with Ar-CO_2 shielding gas.; resistence to friction and low stress abrasive wear especially suited for automated welding. Main features are: very stable arc, low spatter emission, low amount of slag.	Parts of earth moving machinery, crushers rollers and mills.
	Seamless Cr-Mo alloyed metal cored wire for wear-resistant hardfacing applications; resistence to friction and low stress abrasive wear especially suited for automated welding with Ar-CO_2 shielding gas.	Parts of earth moving machinery, rollers, mills and cement applications.
	Seamless Ni-B alloyed metal cored wire with Ar-CO_2 shielding gas. Excellent resistance to abrasion induced by sand and minerals. Stringer bead technicque is recommended.	Repair of equipment used in agriculture, highway contruction machinery, cement pumps components, mixing paddles.

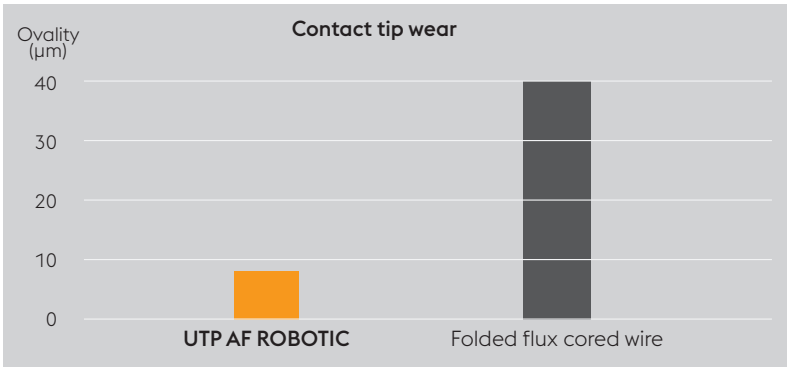
UTP AF ROBOTIC PREDOMINANT WEAR MODE

Product	Predominant wear mode	Intensity Low				High
UTP AF ROBOTIC 250	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 257	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 300 O	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 352	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 404	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 405	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 453	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 456	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 503	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 554	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 600	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					

Product	Predominant wear mode	Intensity Low				High
UTP AF ROBOTIC 601	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 603	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 606	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 6010	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					
UTP AF ROBOTIC 6011	Abrasion					
	High temperature					
	Impact					
	Corrosion					
	Metal to metal					

Contact tip wear

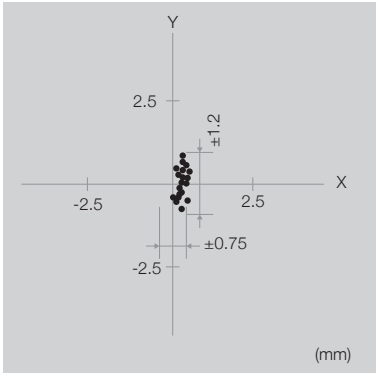
When speaking about efficiency, the low wear rate of the contact tip should also be mentioned. The uniform copper coating of the wire surface in combination with the notch-free design, results in a very smooth and therefore low-friction surface. As a consequence, the wear effect of the wire is reduced by about 80 % compared to folded wires. This also leads to significantly less downtime, since the contact tip has to be changed much less frequently. This also contributes to the high efficiency of ROBOTIC wires.



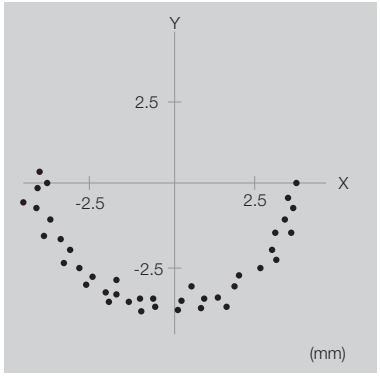
80 % less contact tip wear = less maintenance and downtime

Wire positioning and impact points

For the mechanized manufacturing process, a very high positioning accuracy of the wire-end is particularly important to ensure a reproducible performance of the welding job. Due to the high dimensional stability of the wire, this positioning succeeds with particularly high accuracy. All the impact points of the wire on the workpiece are within a radius of about 1.0 mm. This feature makes the ROBOTIC series particularly valuable for fully mechanized applications.



UTP AF ROBOTIC



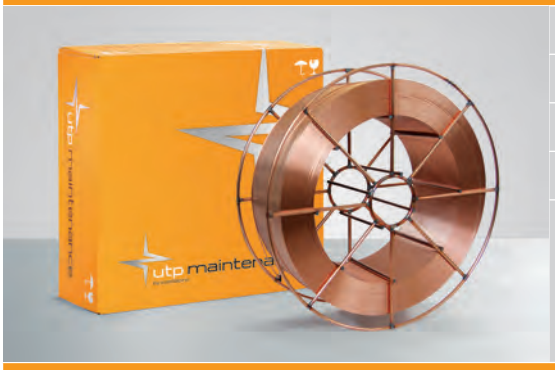
Folded flux cored wire

AVAILABILITY & PACKAGING

» UTP AF ROBOTIC seamless cored wires are available on wire basket spools and drums

» Diameters 1.2 mm to 2.4 mm – Special diameters upon request

Dimensions

Copper coated basket spool BS300 , with drive pin-hole		
	Wire weight:	16 kg
	Ø external:	300 mm
	Ø inner:	52 mm
	Width:	110 mm

BASEdrums		
in addition universal hood of rigid plexiglass 	Weight:	250 kg
	Height:	780 mm
	Ø external:	520 mm

Wire volume drum system for additional savings, especially in mechanized and robotic operations. It drastically reduces the downtime for spool exchange and increases the arc time. No spools get empty during welding and there are no partly welded objects to repair or scrap.

JOIN! voestalpine Böhler Welding

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.

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

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