utp maintenance
by voestalpine

Tailor-Made Protectivity™

# UTP MAINTENANCE DISTRIBUTOR PROGRAMME


**voestalpine Böhler Welding**
www.voestalpine.com/welding

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ONE STEP AHEAD.

utp maintenance
by voestalpine

# THE BEST PRODUCTS FOR DEMANDING INDUSTRIES

**As a pioneer, we blaze new trails and develop new, unique solutions for the market that advance welding technology. Our goal is greater utility for everyone. We are committed to teamwork, build relationships with partners and customers, and exchange knowledge across all borders. Together we can achieve more.**

# A WELL-KNOWN BRAND IN THE WELDING CONSUMABLES MARKET

Customers and partners in over 150 countries place their trust in our products and solutions. Over eight decades of global on-site experience makes voestalpine Böhler Welding the preferred partner for a wide range of demanding industries and market segments. As an innovation leader, we work closely with our customers and partners to develop innovative products and welding solutions for the future. As a distributor for voestalpine Böhler Welding products we want you to share in our success and growth. We are continuously working on improving our sales channels in the areas of joining and repair welding.

The pillars of our success are a certification process, marketing and sales support, market communications, supply chain logistics and training programs. All of these components must be put into place to demonstrate our commitment to you. It is precisely this commitment that secures our position in sales and in the overall market. We ensure that our distribution partners grow and are able to market our products and services more profitably, strengthening their position in the welding industry.

## Our distributor program is based on the following principles:

- Creation of strategic alliances
- Cooperation with strong local and global distributors of welding products
- Development of long-term partnerships and relationships from which both sides profit
- Development of our distribution network with appropriate investments
- Commitment to technical excellence

## Join Full Service

We want to create real value for you, so you can do the same for your customers.

We consider absolute customer focus to be the key to success. We provide comprehensive support to our end customers, so they don't just find any solution, they find the best solution. By offering expert, swift, and straight forward services, we create true customer benefit.

## Application support

Our experts use plain language and provide advice on anything you may be concerned about. Put their experience and technical knowledge in metallurgy, welding processes and industrial applications to use and improve your own expertise.

# Welding materials for repair and maintenance

| | | Unalloyed and low-alloyed steels (A) | Tool steels (B) | Stainless steels (C) | Nickel alloys (D) | Cast iron (E) | Manganese steel (F) | Crack repair | Hardfacing | page |
|---|---|---|---|---|---|---|---|---|---|---|
| Coated rod electrodes | UTP 614 KB | ● | | | | | | X | | 8 |
| | UTP 65 | ● | ● | ● | | | | X | | 8 |
| | UTP 65 D | ● | ● | ● | | | | X | | 9 |
| | UTP 63 | ● | ● | ● | | | ● | X | | 8 |
| | UTP 8 | | | | | ● | | X | | 9 |
| | UTP 86 FN | | | | | ● | | X | | 9 |
| | UTP 73 G2 | | ● | | | | | | X | 10 |
| | UTP 73 G3 | | ● | | | | | | X | 10 |
| | UTP 73 G4 | | ● | | | | | | X | 10 |
| | UTP 068 HH | ● | ● | ● | ● | | ● | X | | 8 |
| TIG rods / solid wires | UTP A 651 | ● | ● | ● | | | | X | | 10 |
| | UTP A 63 | ● | ● | ● | | | ● | X | | 13 |
| | UTP A 8051 Ti | | | | | ● | | X | | 10 |
| | UTP A 73 G2 | | ● | | | | | | X | 13 |
| | UTP A 73 G3 | | ● | | | | | | X | 13 |
| | UTP A 73 G4 | | ● | | | | | | X | 13 |
| | UTP A 068 HH | ● | ● | ● | ● | | ● | X | | 14 |
| Cored wires | SK 402-O | ● | ● | ● | | | ● | X | | 16 |
| | SK AP-O | ● | | | | | ● | X | X | 17 |

**General repair recommendations:**

(A) Materials may be preheated at 50 to 200 °C, depending on their wall thickness and composition
(B) Maintain the preheating temperature at 200 °C to 450 °C
(C) Stainless steels are generally not preheated; interpass temperature below 150 °C
(D) Interpass temperature below 150 °C
(E) Weld metal should be peened directly after welding, interpass temperature < 80 °C
(F) No preheating, interpass temperature < 200 °C


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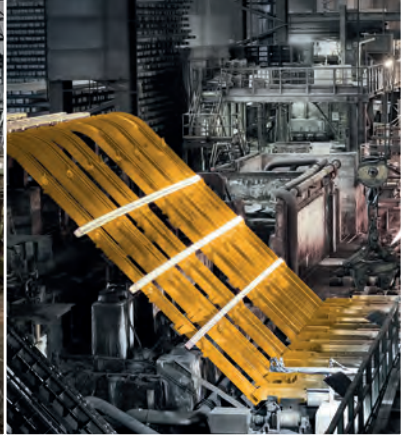
# Welding material for protection against wear and corrosion

| | | Abrasion/erosion | Compressive stress / impact stress | Corrosion | Temperature load | Metal to metal | Hardness (HRC) | page |
|---|---|---|---|---|---|---|---|---|
| Coated rod electrodes | UTP 73 G2 | ● | ● | | ● | ● | 55-58 | 10 |
| | UTP 73 G3 | ● | ● | | ● | ● | 45-50 | 10 |
| | UTP 73 G4 | ● | ● | | ● | ● | 38-42 | 10 |
| | UTP Celsit 706 | ● | ● | ● | ● | ● | 40-42 | 11 |
| | UTP Celsit 721 | | ● | ● | ● | ● | 31-37 | 11 |
| | UTP DUR 600 | ● | ● | | | ● | 56-58 | 11 |
| | UTP LEDURIT 61 | ● | | | | | 60 | 12 |
| | UTP LEDURIT 65 | ● | | | ● | | 65 | 12 |
| | UTP 6222 Mo | | | ● | ● | ● | | 11 |
| TIG rods / solid wires | UTP A 63* | | ● | ● | | ● | | 13 |
| | UTP A 73 G2 | ● | ● | | ● | ● | 53-58 | 13 |
| | UTP A 73 G3 | ● | ● | | ● | ● | 42-46 | 13 |
| | UTP A 73 G4 | ● | ● | | ● | ● | 38-42 | 13 |
| | UTP A Celsit 706 (TIG only) | ● | ● | ● | ● | ● | 40-42 | 15 |
| | UTP A Celsit 721 (TIG only) | | ● | ● | ● | ● | 30-32 | 16 |
| | UTP A DUR 600 | ● | ● | | | ● | 54-60 | 14 |
| | UTP A 6222 Mo | | | ● | ● | ● | | 14 |
| Cored wires | SK 402-O* | | ● | ● | | ● | | 16 |
| | SK AP-O | ● | ● | | | ● | | 17 |
| | UTP AF Robotic 352 | | ● | | | ● | 35 | 17 |
| | UTP AF Robotic 600 | ● | ● | | | ● | 57-62 | 17 |
| | UTP AF Robotic 606 | ● | ● | | ● | ● | 57-62 | 17 |
| | UTP ABRA-MAX O/G | ● | | | ● | | 70 | 17 |
| | SK 258 TIC-O | ● | ● | | | | 58 | 16 |
| | SK 255-O | ● | | | ● | | 60 | 16 |

* For buffer layers



# TAILOR-MADE PROTECTIVITY™

Industry experience and application expertise, combined with innovative, customized products (Tailor-Made) guarantee customers an ideal combination of productivity and protection for maximum performance of their products. This is the background of the guiding concept at UTP Maintenance, Tailor-Made Protectivity, where the customer is our central focus.

## Solutions anywhere in the world

The products and services of UTP Maintenance are provided by global branches of voestalpine Böhler Welding and by a distributor network in over 150 countries around the world. A team of welding engineers is on hand to provide the customer with advice and support for all questions regarding the challenges encountered in the welding sector.

### UTP Maintenance is your best choice for the following applications:

- Repair welding
- Hardfacing
- Cladding
- Thermal spraying and PTA welding

# APPLICATION EXPERTISE FOR CUSTOMER-SPECIFIC PRODUCTS

The UTP Maintenance brand has been known for many years as an innovative solutions provider for the most complex applications in repair welding. In practice, this has meant focusing on end customers and their multifaceted requirements. As part of a new strategic alignment, distributors will now increasingly be the focal point of market activities. To make it easier for our partners to get on board with the program and help them develop their markets quickly and effectively, UTP Maintenance has collected critical core products in a product range that focuses on commercial requirements.

### These products are characterized by the following properties, making them an ideal starting point for a successful alliance between the UTP Maintenance quality brand and its distributors:

- Well-known in the market
- Excellent product quality
- High availability and short lead times
- Wide range of applications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# Contents



# UTP MAINTENANCE PRODUCT FAMILY

## Low-alloy stick electrodes for repair welds

| **UTP 614 KB** |
|---|
| Customer benefit: |
| The UTP 614Kb is a double-coated stick electrode. It combines the benefits of a rutile and a basic coating. It has the best position weldability and excellent gap-filling capability. |
| Application examples: |
| The UTP 614 Kb is suitable for both on-site repair welds and for challenging welds on the shop floor. |

## High-alloy stick electrodes for repair welds

| **UTP 068 HH** |
|---|
| Customer benefit: |
| Special purpose nickel-chromium electrode for joining or repairing cracks in a large number of alloys. Areas of application range from unalloyed steels and high-alloy steels to nickel and copper alloys, including mixed composites of these materials.<br>The electrode produces perfect joints with these materials, free of cracks and pores, without being prone to hot cracking. Its high nickel and chromium content gives this electrode a high level of resistance to corrosion and heat. At the same time, the very tough weld metal also allows use at low temperatures. |
| Application examples: |
| The electrode is used in machine building and pressure vessel construction. Other applications include valves and fitting manufacture / maintenance. Another key area of application is crack repair for steels that are difficult to weld. |

| **UTP 63** |
|---|
| Customer benefit: |
| Fully austenitic CrNi stick electrode for joint welding and buffer layers in build-up welding. For example, it is suitable for restoring worn-out shafts or for elastic intermediate layers beneath a hardfaced surface. Its excellent elongation behavior makes this electrode insensitive to cold cracking. |
| Application examples: |
| Build-up welds on components exposed to compressive, impact, or rolling loads. |

| **UTP 65** |
|---|
| Customer benefit: |
| The all-purpose electrode for a wide range of M&R applications. Universal high-strength, ferritic-austenitic repair electrode. Can be used for crack repairs on steels that are difficult to weld or have unknown composition. It can also be used for mixed joints. The fine crystalline structure of the weld metal makes the UTP 65 nearly insensitive to hot cracking, ensuring a high-strength weld. Its high Cr-Ni-Mn-Si alloy content also makes this stick electrode resistant to heat and corrosion. |
| Application examples: |
| Repair and maintenance of highly stressed machine and drive components as well as tool maintenance. |


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| UTP 65 D |
| --- |
| Customer benefit: |
| This electrode has the same benefits as the UTP 65. In addition, by reducing the outer diameter of the electrode coating, excellent welding properties are obtained with low welding parameters, making it excellent for repair welds in difficult positions. |
| Application examples: |
| Repair and maintenance of highly stressed machine and drive components as well as tool maintenance. |

| UTP 8 |
| --- |
| Customer benefit: |
| Graphite-basic-coated pure nickel stick electrode for cold-welding cast iron. The electrode melts under a very soft, spray-type arc. This means it can be welded at very low currents without spatter, and can be welded very well in all positions. At the same time, there is little risk of lack of fusion, the weld metal is pore-free with good strength and elongation. |
| Application examples: |
| Build-up and joint welding of all common types of cast iron, from gray cast iron (GJL 10 to GJL 40) to spheroidal graphite (GJS 38 to GJS 60). |

| UTP 86 FN |
| --- |
| Customer benefit: |
| This is a graphite-basic-coated iron-nickel stick electrode for cold-welding cast iron. UTP 86FN contains a bi-metal core for excellent current carrying capacity. It can be used for welding most types of cast iron and for joining cast iron to steel. |
| Application examples: |
| Build-up and joint welding of all common types of cast iron, from gray cast iron (GJL 10 to GJL 40) to spheroidal graphite (GJS 38 to GJS 60). |

## Solid wire for repair welding

**UTP A 8051 Ti**

Customer benefit:

Nickel-iron wire for MIG/MAG joint and build-up welds on all common types of cast iron. The wire produces a tough, crack-resistant weld metal that can be machined easily. The higher deposition rate of the wire relative to the electrode is beneficial for build-up welds that cover a large area and for design welds on ductile cast iron.

Application examples:

Build-up and joint welding of all common types of cast iron, from gray cast iron (GJL 10 to GJL 40) to spheroidal graphite (GJS 38 to GJS 60).

**UTP A 651**

Customer benefit:

This specially high-strength, ferritic-austenitic solid wire is suitable for many applications. It can be used for build-up welding as well as joint welding of steels that are very difficult to weld. The fine crystalline structure of the weld metal makes it virtually insensitive to hot cracking, ensuring a high-strength weld. Its high Cr-Ni-Mn-Mo-Si alloy content also makes it resistant to heat and corrosion.

Application examples:

Welding of buffer layers and repair and maintenance of highly stressed machine and drive components as well as tool maintenance.

## Stick electrodes for protection against wear and corrosion

**UTP 73 G 2**

Customer benefit:

Basic-coated CrMo stick electrode for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 58 HRC and can handle operating temperatures up to 550 °C. Due to this high hardness level, the alloy is primarily used to repair cold work tool steel and high-speed steels to retain edge sharpness. Hot-working applications are also possible.

Application examples:

Cutting edges, punching tools, embossing tools, forging dies, rolling mandrels, deburring and hot-cutting blades

**UTP 73 G 3**

Customer benefit:

Basic-coated CrMo stick electrode for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 50 HRC and can handle operating temperatures up to 550 °C. Due to its lower hardness, the alloy is less susceptible to cracking than UTP 73 G2, particularly under cyclical thermal loads. This makes it excellent for hot-working applications with high compression loads on the tools.

Application examples:

Forging dies, anvils, pressure die-casting tools

**UTP 73 G 4**

Customer benefit:

Basic-coated CrMo stick electrode for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 42 HRC and can handle operating temperatures up to 550 °C. With moderate hardness, the alloy is primarily used where a good toughness is required. It is suitable for buffer and build-up layers for large tool repairs, or for hot-working tools exposed to cyclical high compressive and thermal loads.

Application examples:

Forging dies, transport rollers, pressure casting dies


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## UTP 6222 Mo

Customer benefit:

This alloy 625 electrode combines high strength and maximum corrosion resistance. It can be used to join similar NiCr22Mo9Nb alloys, and to join ferritic and austenitic steels or for build-up welds on non-alloyed and low-alloy steels.

Application examples:

Cladding of all kinds in the chemical and petrochemical industries and in offshore applications.

## UTP CELSIT 706

Customer benefit:

Cobalt-based stick electrode with rutile coating and alloy core. This electrode is the ideal combination of a wide variety of properties. These include:

- High wear resistance to abrasion
- Excellent hardness at high temperatures
- Very good corrosion resistance
- Oxidation resistant up to 800°C
- High toughness, high strength
- Work hardening
- Good polishability

The electrode produces a hardness of 40 to 42 HRC and can be used for impact and compressive loads. The weld metal is machinable. Depending on the base material and size of the component, preheat temperatures of 150–400 °C must be maintained in order to prevent cold cracking.

Application examples:

Valve seats, sealing surfaces of fittings, highly stressed hot-working tools, drilling tools

## UTP CELSIT 721

Customer benefit:

Properties as UTP CELSIT 706, but with hardness of 30–32 HRC, making it less susceptible to cracking, but can reach a hardness of >45 HRC by work hardening

Application examples:

Hot-working tools with cyclical thermal loads, valve seats, sealing surfaces of gas, water, steam and acid pipe fittings

## UTP DUR 600

Customer benefit:

The UTP DUR 600 is the classic universal hardfacing electrode.
The basic-coated electrode can be used universally to withstand impact, compression and wear. The weld metal is a martensitic-hardening CrSi steel. It reaches a hardness of 56–58 HRC even when air-quenched. The martensitic structure of the weld metal exhibits low sensitivity to cracking with simultaneous high hardness and impact and compressive strength. The UTP DUR 600 is a cost effective solution for many wear protection applications.

Application examples:

Wear parts on earth-moving equipment and rock processing systems, impact bars & hammers, cutting edges

| UTP LEDURIT 61 |
| --- |
| Customer benefit: |
| The UTP LEDURIT 61 is a rutile-coated high-performance stick electrode for highly wear-resistant armouring to prevent mineral wear under medium impact loads. The UTP LEDURIT 61 gets its high hardness of approximately 60 HRC by forming chromium carbides in the weld metal, which are extremely resistant, especially to abrasion. For these applications, the formation of cracks in the build-up bead is quite normal and acceptable. The relatively low-viscosity liquid weld metal produces a uniform, shallow, finely scaled bead, and so subsequent grinding is generally not necessary. The thick coating on the electrode produces high recovery rates of 160 % (1 kg of core wire produces 1.6 kg of weld metal). For this reason, this electrode is labeled as a “High recovery electrode”. |
| Application examples: |
| Screw conveyors, mixer blades, slurry pumps, crusher jaws |

| UTP LEDURIT 65 |
| --- |
| Customer benefit: |
| This is a low-slag, high-output stick electrode to prevent extreme wear at elevated temperatures. UTP LEDURIT 65 reaches its high hardness of approximately 65 HRC by forming chromium carbides and various specialty carbides (Mo, Nb, V, W) in the weld metal, which are characterized by excellent resistance, especially to abrasion, even at elevated temperatures. For these applications, the formation of cracks in the build-up bead is quite normal and acceptable. The thick coating on the electrode produces high recovery rates of 240 % (1 kg of core wire produces 2.4 kg of weld metal). For this reason, this electrode is labeled as a “High recovery electrode”. |
| Application examples: |
| Wear parts in the cement and brick-making industries, sintered pad discs, gratings for sintering systems |

## Solid wires for the electrodes listed above: High-alloy MAG welding wires for build-up and repair welds and protection against corrosion

| UTP A 068 HH |
| --- |
| Customer benefit: |
| Special purpose nickel-chromium solid welding wire for joining or repairing cracks in a large number of alloys. Areas of application range from unalloyed steels and high-alloy steels to nickel alloys, including mixed composites of these materials. The welding wire produces perfect joints with these materials, free of cracks and pores, without being prone to hot cracking. Its high nickel and chromium content gives this solid wire a high level of resistance to corrosion and heat. At the same time, the very tough weld metal also allows use at low temperatures. Other advantages are automation capacity and a higher deposition rate for high-quality and large-area build-ups. |
| Application examples: |
| The solid wire is used in machine building and pressure vessel construction. Other applications are in valves and fitting manufacture maintenance. |

| UTP A 6222 Mo |
| --- |
| Customer benefit: |
| This Alloy 625 Ni-Cr-Mo solid wire combines high strength with maximum corrosion resistance. It can be used to join similar NiCr22Mo9Nb alloys, as well as to join ferritic and austenitic steels, or for build-up welds on non-alloyed and low-alloy steels. Other advantages are automation capacity and a higher deposition rate for high-quality and large-area build-ups. |
| Application examples: |
| Cladding of all kinds in the chemical and petrochemical industries as well as in offshore applications, waste incineration plants, tube walls. |


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| UTP A 63 |
| --- |
| Customer benefit: |
| Fully austenitic CrNi solid wire for joint welding and for build-up welding of filler and buffer layers. For example, it is suitable for restoring worn-out shafts or for elastic intermediate layers beneath a hardfaced surface. Its excellent elongation behavior makes this solid wire insensitive to cold cracking. Other advantages are automation capacity and a higher deposition rate for high-quality and large-area build-ups. |
| Application examples: |
| Build-up welds on components exposed to compressive, impact or rolling loads. |

## Solid wire for wear protection

| UTP A 73 G 2 |
| --- |
| Customer benefit: |
| CrMo solid wire for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 58 HRC and can handle operating temperatures up to 550 °C. Due to this high hardness level, the alloy is primarily used to repair cold work tool steel and high-speed steels to retain edge sharpness. Hot-working applications are also possible. In comparison with the electrode, the solid wire provides greater deposition rates and is therefore better for automated application over large areas. |
| Application examples: |
| Cutting edges, punching tools, embossing tools, forging dies, rolling mandrels, deburring and hot-cutting blades |

| UTP A 73 G 3 |
| --- |
| Customer benefit: |
| CrMo solid wire for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 50 HRC and can handle operating temperatures up to 550 °C. Due to its lower hardness, the alloy is less susceptible to cracking than UTP A 73 G 2, particularly under cyclical thermal loads. This makes it excellent for hot-working applications with high compression loads on the tools. In comparison with the electrode, the solid wire provides greater deposition rates and is therefore better for automated application over large areas. |
| Application examples: |
| Forging dies, anvils, pressure die-casting tools |

| UTP A 73 G 4 |
| --- |
| Customer benefit: |
| CrMo solid wire for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 42 HRC and can handle operating temperatures up to 550 °C. With moderate hardness, the alloy is primarily used where a good toughness is required. It is suitable for buffer and build-up layers for large tool repairs, or for hot-working tools exposed to cyclical high compressive and thermal loads. In comparison with the electrode, the solid wire provides greater deposition rates and is therefore better for automated application over large areas. |
| Application examples: |
| Forging dies, transport rollers, pressure casting dies |

| UTP A DUR 600 |
| --- |
| Customer benefit: |
| The classic universal hardfacing solid wire. The solid wire can be used universally to withstand impact, compression as well as against abrasion. The weld metal is a martensitic-hardening CrSi steel. It reaches a hardness of 56–58 HRC even when air-quenched. The martensitic structure of the weld metal exhibits low sensitivity to cracking with simultaneous high hardness and impact and compressive strength. The UTP A DUR 600 is a cost effective solution for many wear protection applications. Other advantages are automation capacity and a higher deposition rate for high-quality and large-area build-ups. |
| Application examples: |
| Wear parts on earth-moving equipment and rock processing systems, impact bars & hammers, cutting edges. |

## High-alloy TIG welding rods for protection against corrosion and build-up and repair welds

| UTP A 068 HH |
| --- |
| Customer benefit: |
| Special purpose nickel-chromium welding rod for joining or repairing cracks in a large number of alloys. Areas of application range from unalloyed steels and high-alloy steels to nickel alloys, including mixed composites of these materials. The welding rod produces perfect joints with these materials, free of cracks and pores, without being prone to hot cracking. Its high nickel and chromium content gives this welding rod a high level of resistance to corrosion and heat. At the same time, the very tough weld metal also allows use at low temperatures. |
| Application examples: |
| The welding rod is used in machine building and pressure vessel construction. Other applications are in valves and fitting manufacture maintenance. |

| UTP A 6222 Mo |
| --- |
| Customer benefit: |
| This Alloy 625 Tig welding Ni-Cr-Mo welding rod combines high strength with maximum corrosion resistance. It can be used to join similar NiCr22Mo9Nb alloys, as well as to join ferritic and austenitic steels, or for build-up welds on non-alloyed and low-alloy steels. |
| Application examples: |
| Cladding of all kinds in the chemical and petrochemical industries and in offshore applications. |

| UTP A 63 |
| --- |
| Customer benefit: |
| Fully austenitic CrNi welding rod for joint welding and build-up welding of filler and buffer layers. For example, it is suitable for restoring worn-out shafts, or as an elastic intermediate layers beneath a hardfaced surface. Its excellent elongation behavior makes this welding rod insensitive to cold cracking. |
| Application examples: |
| Build-up welds on components exposed to compressive, impact or rolling loads. |


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# Welding rods for wear protection

## UTP A 73 G 2

Customer benefit:

CrMo welding rod for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 58 HRC and can handle operating temperatures up to 550 °C. Due to this high hardness level, the alloy is primarily used to repair cold-worked and high-speed steels to retain edge sharpness. Hot-working applications are also possible. This TIG rod can be used primarily to make smaller repairs with very high quality weld seams.

Application examples:

Cutting edges, punching tools, embossing tools, forging dies, rolling mandrels, deburring and hot-cutting blades

## UTP A 73 G 3

Customer benefit:

CrMo welding rod for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 50 HRC and can handle operating temperatures up to 550 °C. Due to its lower hardness, the alloy is less susceptible to cracking than UTP A 73 G2, particularly under cyclical thermal loads. This makes it excellent for hot-working applications with high compression loads on the tool. This TIG rod can be used primarily to make smaller repairs with very high quality weld seams.

Application examples:

Forging dies, anvils, pressure die-casting tools

## UTP A 73 G 4

Customer benefit:

CrMo welding rod for wear-resistant application to cold and hot-working steels. The pure weld metal reaches a hardness of up to 42 HRC and can handle operating temperatures up to 550 °C. With moderate hardness, the alloy is primarily used where good toughness is required. It is suitable for buffer and build-up layers for large tool repairs, or for hot-working tools exposed to cyclical high compressive and thermal loads. This TIG rod can be used primarily to make smaller repairs with very high quality weld seams.

Application examples:

Forging dies, transport rollers, pressure casting dies

## UTP A CELSIT 706

Customer benefit:

This cobalt-based welding rod is the ideal combination of a wide variety of properties. These include:

- High wear resistance to abrasion
- Excellent hardness at high temperatures
- Very good corrosion resistance
- Oxidation resistant up to 800°C
- High toughness, high strength
- Work hardening
- Good polishability

The welding rod produces a hardness of 40 to 42 HRC and can be used for impact and compressive loads. The weld metal is machinable. Depending on the base material and size of the component, preheat temperatures of 150–400 °C must be maintained in order to prevent cold cracking.

Application examples:

Valve seats, sealing surfaces of fittings, highly stressed hot-working tools, drilling tools

| UTP A CELSIT 721 |
| --- |
| Customer benefit: |
| Properties as UTP A CELSIT 706, but with hardness of 30-32 HRC, making it less susceptible to cracking.<br>The weld metal achieves >45 HRC due to work hardening. |
| Application examples: |
| Hot-working tools with cyclical thermal loads, valve seats, sealing surfaces of gas, water, steam, and acid pipe fittings. |

## Cored wires for repairs and wear protection

| SK 255-O |
| --- |
| Customer benefit: |
| Open-arc cored wire for highly wear-resistant build-up, for wear protection against mineral abrasion, with relatively low impact loading. This is known as open-arc cored wire, because the wire produces its own shielding gas during the melting process. This is particularly advantageous on construction sites and in outdoor applications, as the user does not need to transport gas bottles to the job site. At the same time, the cored wire can be welded using a standard MIG-MAG power source. The weld metal gets its high hardness of 60 HRC from the formation of chromium and boron carbides. For these applications, the formation of cracks in the build-up bead is quite normal and acceptable. |
| Application examples: |
| Slurry pumps, wear bars of all kinds, wear parts in the cement and brick-making industry |

| SK 258 TiC-O |
| --- |
| Customer benefit: |
| Open-arc cored wire for highly wear-resistant build-up, for wear protection against mineral abrasion, with simultaneous impact loading. This is known as open-arc cored wire, because the wire produces its own shielding gas during the melting process. This is particularly advantageous on construction sites and in outdoor applications, as the user does not need to transport gas bottles to the job site. At the same time, the cored wire can be welded using a standard MIG-MAG power source. The weld metal gets its high hardness of 58 HRC from the formation of finely distributed titanium carbides in a chromium-martensite matrix. To protect the weld metal from oxygen in the air, the cored wire forms an adherent slag that can be welded over. The weld metal typically does not exhibit any stress cracking. |
| Application examples: |
| Crusher bars, crushing hammers, mixer blades, agricultural tools exposed to wear, cutting blades and crushing tools. |

| SK 402-O |
| --- |
| Customer benefit: |
| This is the self-shielding cored wire variant of the UTP 63 electrode or UTP A 63 welding wire. The cored wire is used wherever large areas need to be buffered. It is ideal for repairing larger cracks due to its excellent elongation. Its work-hardening structure also makes it suitable for hardfacing. |
| Application examples: |
| Build-up welds on components exposed to compressive, impact or rolling loads. |


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## UTP AF ROBOTIC 352, 600, 606

Customer benefit:

The cored wires of the “AF ROBOTIC” series are copper-coated, seamless metal powder cored wires for wear-resistant build-up welds. The optimized copper layer in the wire ensures ideal current flow and very good feedability due to the low force required to feed the wire. The wire’s low surface roughness also means less wear on the contact tip. Because the seamless cored wire does not tend to absorb moisture, it is not necessary to redry before use. The high dimensional stability of the cored wire electrode when igniting and welding also promotes uniform positioning accuracy. Due to its excellent overall welding properties, this wire is ideal for use in automated welding applications.

Hardness range:
- UTP AF ROBOTIC 352 (325 - 375 HB)
- UTP AF ROBOTIC 600 (57 - 60 HRC)
- UTP AF ROBOTIC 606 (57 - 62 HRC)


Application examples:

Ideal for manual welding and welding robots, especially in mass production, when welding tasks need to completed economically and quickly.

## UTP ABRA-MAX O/G

Customer benefit:

Highly wear-resistant cored wire for extreme abrasive wear resistance. The formation of many extremely hard particles in the weld metal (carbides and borides) gives the cored wire its unusual hardness of 70 HRC, even in the first layer. The cored wire is excellent for single-layer coating of components exposed to very high abrasive wear. The result is a substantial increase in the service life of these components. The cored wire can be used with or without shielding gas. To prevent spalling, no more than two layers should be applied. Cracks in the weld metal are normal and do not affect the functionality of the coating. This is how stresses in the weld metal are relieved.

Application examples:

Components exposed to excessive mineral wear, such as on earth-moving equipment, transport screws, or strike plates.

## SK AP-O

Customer benefit:

The self-shielding SK AP-O cored wire electrode is used for plating components exposed to high compressive and impact loads as well as abrasion. The cored wire can be used without shielding gas (self-shielding). Build-up welds can be applied to both unalloyed and low-allow steels, as well as manganese steel. The SK AP-O weld metal has a very tough core and high surface hardness due to work hardening. This gives the material its wear resistance without any tendency to crack.

Application examples:

Components in mining and the cement industry, breaker jaws, impact hammers, and railroad crossings and switch frogs.

# UTP Maintenance weldCare – All-round protection

## Welding helmet – Guardian[50]

Developed for a wide range of welding and grinding applications


- Nylon shell
- Headband with adjustable length and angle
- Protection levels: 4, 9–13, field of vision (H x W): 50 x 100 mm
- True colour
- 4 sensors
- CE classification 1/1/1/2
- External switch for grinding mode
- 2 year guarantee

## Welding helmet – Guardian[62]

For welding professionals (excellent optics, low weight, true colour)

- Nylon shell
- Headband with adjustable length and angle
- Protection levels: 4, 5–9/9–13, field of vision (H x W) 62 x 98 mm, excellent optics
- True colour
- 4 sensors
- CE classification 1/1/1/2
- Low weight: 490 grams
- External switch for grinding mode
- 2 year guarantee

## Welding helmet – Guardian[62F]

Complete protection solution with perfect vision


- Nylon shell
- Headband with adjustable length and angle
- Protection levels: 4, 5–9/9-13, field of vision (H x W) 62 x 98 mm, excellent optics
- True colour
- 4 sensors
- CE classification 1/1/1/2
- External switch for grinding mode
- 2 year guarantee


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utp maintenance

# UTP Maintenance weldCare – All-round protection

- Modern design
- Glasses meet industrial standards (CE, EN 166F)
- Dispenser box with 20 pairs of glasses
- Very comfortable and extremely robust
- Brand design microfiber bag for storage and cleaning lenses

| Safety glasses | |
|---|---|
| **Clear (transparent)** | **Amber** |
|  |  |
| For general industrial use | In low-light areas |
| **Silver Mirror** | **UVIR5** |
|  |  |
| For industrial applications outdoors, with sun protection | |


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## We are of course available to respond to any questions, comments or ideas.

Contact us, we are only too happy to assist you!

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# 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

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