

OK TUBROD 14.17

All position self-shielded basic fluxcored wire

OK Tubrod 14.17 is a self-shielded flux cored wire for the single and multi-pass welding of mild and medium/high tensile steels in all positions including vertical up and overhead. The deposit is suitable as a buffer underneath higher hardness deposits.

It is ideally suited for on site welding and can run in ordinary MIG machines as well as constant current flux cored arc welding wire feeders.

ALLOY BASE: Fe, C, Mn

SPECIAL FEATURES

- No shielding gas is required.
- Equally suitable for flat and drooping characteristic power sources.

APPLICATIONS

Field equipment maintenance and repair, joining of MS and carbon manganese steels and cast and forged steel components as well as site welding of general and structural steel work.

Also suitable for buffering in difficult positions at high deposition rate prior to hardfacing.

PROPERTIES

UTS : 58-62 kg/mm²

Elongation : 22-27%

CURRENT RANGE : (DC-)

Size (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.2	F.H.V.O	100-280	24-26
1.6	F.H.V.O	110-350	22-28
2.0	F.H.V.O	220-400	25-29

OK TUBROD 14.18

Flux-cored wire for on-site buffering and build-up

OK Tubrod 14.18 is a self-shielded flux cored wire for single and multi-pass welding of mild and medium tensile steels not exceeding 51 kg/mm² in the flat and horizontal-vertical positions. It is capable of high deposition rates, which is ideal for welding on site where notch toughness requirements are not binding.

ALLOY BASE: Fe, C, Mn

SPECIAL FEATURES

- Self-shielded wire - does not require costly shielding gas.
- Excellent ductility.

APPLICATIONS

Field equipment maintenance and repair as well as site welding of general and structural steel work.

It is suitable for build-up and buffering prior to hardfacing with very high hardness alloys.

PROPERTIES

UTS : 54-62 kg/mm²

Elongation : 21-26%

CURRENT RANGE : (DC+)

Size (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	200-400	30-36
2.4	F.H	350-450	27-32

OK TUBRODUR 14.70

Carbide rich flux-cored wire for super abrasion resistance

OK Tubrodur 14.70 is a self-shielded flux-cored wire for resistance to extreme abrasive wear by fine grained gritty particles like earth, ore, clay, sand, etc. As it is rich in chromium-based carbides, the weld deposit also provides good resistance to corrosion. It also has the added benefit of excellent wear resistance at high temperatures.

The deposit should be made between two to three layers.

ALLOY BASE: Fe, C, Cr, Mo, V

SPECIAL FEATURES

- Superior resistance to abrasion and corrosion.
- Grinding finish only.
- No need of shielding gas.

APPLICATIONS

It is used widely in hardfacing of bucket lips, auger points, scraper blades, and a multiplicity of mining components and earthmoving machinery where exceptional abrasion resistance is necessary.

PROPERTIES

Hardness : 50-60 HRC

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**CURRENT RANGE :**

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	200-400	30-36
2.4/2.8	F.H	350-450	30-36

OK TUBRODUR 14.71**Flux-cored wire for crack-free dissimilar steel welding**

OK Tubrodur 14.71 is a stainless steel self-shielded fluxcored wire for joining of dissimilar steels as well as joining and cladding of 14% manganese steel. The weld metal, which is austenitic in nature, is ideal for buffering applications on manganese steels and hardenable steels for better impact toughness.

ALLOY BASE: Fe, C, Cr, Mn, Ni

SPECIAL FEATURES

- Stainless steel wire - no risk of rusting.
- Tremendous impact toughness.

APPLICATIONS

It is used widely for joining dissimilar steels, welding of buckets, tooth points, and buffering of earth-moving machine components beneath hardfaced layers and for joining manganese steel to other steels.

PROPERTIES

UTS	: 65-72 kg/mm ²
Elongation	: 32-35%
Hardness	: 20-22 HRC

CURRENT RANGE :

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	150-300	30-37
2.4/2.8	F.H	300-450	30-37

OK TUBRODUR 15.40**Flux-cored wire for good wear resistance**

OK Tubrodur 15.40 is a gas shielded flux-cored wire which deposits weld metal rich in alloys which helps it give excellent performance for metal-to-metal wear and impact loading conditions. The weld metal is perfectly machinable with standard cutting tools.

ALLOY BASE: Fe, C, Cr, Mn, Si

SPECIAL FEATURES

- Impact resistance is exceptional.
- Rutile based flux gives excellent running performance.

APPLICATIONS

Used widely for cost effective surfacing of wheel runners, track links, wheels and rollers for conveyor belts, wheels for mine trucks, rolls and shafts. It can also be used for buffering in case of heavy compressive and pounding loading.

PROPERTIES

Hardness : 32-40 HRC

CURRENT RANGE :

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	150-300	29-35
2.4	F.H	300-400	30-37

OK TUBRODUR 15.41**Flux-cored wire for excellent metal-to-metal resistance**

This is a tubular self shielded flux cored wire with a basic type of flux which deposits a weld metal that is endowed with alloying elements for providing excellent resistance for metal-to-metal wear and good impact resistance. The weld metal is machinable.

ALLOY BASE: Fe, C, Mn, Cr, Al

SPECIAL FEATURES

- Resistance to impact loads.
- Basic flux ensures better recovery of alloys.

- Weld deposit is machinable with absolutely no difficulty.

APPLICATIONS

OK Tubrodur 15.41 wire is used for on-site rebuilding of worn out parts of carbon-manganese rails, point frogs, rollers, shafts, and also intermediate build-up for harder final deposit giving the entire hardfaced layer a considerable resistance to impact.

PROPERTIES

Hardness : 28-36 HRC

CURRENT RANGE :

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	150-300	29-35
2.4	F.H	280-460	30-37

OK TUBRODUR 15.52

Flux-cored wire imparting abrasion resistance

OK Tubrodur 15.52 is an open-arc/gas-shielded/self-shielded flux-cored wire, which deposits a martensitic weld metal containing some grain boundary carbides. It works excellent for combined wear of low-pressure abrasion and impact. The weld metal can only be machined by grinding.

This can also be used safely for multilayer build-ups.

ALLOY BASE: Fe, C, Cr, Mn, Mo, Si

SPECIAL FEATURES

- Flexibility of operation - can be used with or without shielding gas.
- High hardness ensures resistance to abrasive wear.

APPLICATIONS

It is used widely for cost effective surfacing of earthmoving equipment, agricultural implements and other material handling applications like augers, mixer blades and vessels, scraper blades, cement mill crushers, and quarrying components. It is specifically designed for hardfacing of feed screws and ring grooves on diesel motor pistons.

PROPERTIES

Hardness : 56-60 HRC

CURRENT RANGE : (DC+)

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	150-300	22-28
2.4	F.H	280-460	23-30

OK TUBRODUR 15.60

Tough and work hardening flux-cored wire deposit

OK Tubrodur 15.60 is a self-shielded flux cored wire for producing austenitic work hardening deposit with very good combination of impact and wear resistance. The deposit is absolutely crack-free and can be used for hassle-free joining of restrained and heavy sections of manganese steel. It can also be utilized for extremely fast overlays and is specially suitable for heavy or big jobs on which lot of metal has to be deposited.

The interpass temperature, while welding, should not exceed 200°C.

ALLOY BASE: Fe, C, Mn, Ni, Si

SPECIAL FEATURES

- Self-shielded - liberty from gas costs.

- Extreme crack resistance from the austenitic type of deposit.
- High deposition rate upto 5.5 kg/hour.

APPLICATIONS

Rebuilding 12-14% manganese steel, which is normally found in crusher jaws, swing hammers, and innumerable parts and components of earth moving, mining and quarrying equipment.

PROPERTIES

Hardness : As welded : 20-25 HRC
Work hardened : 44-48 HRC

CURRENT RANGE : (DC+)

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	150-300	22-28

OK TUBRODUR 15.73

Flux-cored wire for can cast roll rebuilding

OK Tubrodur 15.73 is a versatile hardfacing flux-cored wire producing a highly alloyed steel deposit, which is especially suitable for applications involving wear at elevated temperatures. This special alloy is resistant to fatigue and impact at those temperatures owing to its hot hardness properties.

1.6 and 2.4 mm wires are to be used with a shielding gas - either CO₂ or Ar + 20%CO₂ mixture. 3.0 and 4.0 mm wires are for the submerged arc process and should be used with OK Flux 10.61.

Machinable with only cemented carbide tools before cooling below about 100°C. On cooling to room temperature the machinability is considerably poor and

reheating to 100°C does not improve the machinability significantly.

ALLOY BASE

Fe, C, Mn, Cr, Ni, Mo, Nb, V

SPECIAL FEATURES

- Roll reclamation - concast and other hot rolls.
- Non-scaling and non-sticking characteristics.

APPLICATIONS

Hardfacing of different kinds of shafts, valve seats, concast rolls and any other part subjected to wear and corrosion at higher temperatures.

PROPERTIES

Hardness : 45-51 HRC

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WELDING PROCEDURE FOR SUBMERGED ARC WELDING

- OK Tubrodur 15.73 should be deposited on DC (\pm). Negative polarity gives a higher deposition rate and less fusion of the base material and is recommended when the minimum possible dilution of the weld metal is desired.
- Except at the start, preheat is not required while hardfacing solid carbon steel shafts having diameter upto about 200 mm.

- When multi-pass welding is being done, the inter-pass temperature should preferably not fall below 300°C.

CURRENT RANGE : (DC \pm)

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	150-300	24-30
2.4	F.H	280-460	24-32
3.0	F	300-450	25-33
4.0	F	400-600	30-36

OK TUBRODUR 15.80

Flux-cored wire for high pressure particle abrasion

A self-shielded flux-cored wire, OK Tubrodur 15.80, deposits a martensitic weld metal containing a high volume of patented light carbides. This wire has been developed for maximum resistance to abrasive wear under load arising out of fine and lumpy particles along with moderate impact. The deposit is normally crack-free and maintains very good hot hardness.

The weld metal can only be machined by grinding and for best results restrict to one or two layers.

ALLOY BASE: Fe, C, Cr, Mn, Ti, Mo

SPECIAL FEATURES

- Special patented design for cement mill crushers.
- Basic type flux gives inclusion free deposit.

APPLICATIONS

This continuous flux-cored wire is used for items subjected to a high degree of abrasive wear by fine grained materials under pressure like augers, mixer blades, scraper blades and cement mill crushers as well as many earth moving and quarrying components.

PROPERTIES

Hardness : 56-60 HRC

CURRENT RANGE : (DC+)

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.6	F.H	150-300	22-32

OK TUBRODUR 15.86

Cored wire for all wear factors

OK Tubrodur 15.86 is a gas-shielded metal-cored wire that deposits an alloy weld metal which can provide excellent resistance to all wear factors and patterns. Thus it can be used for wide spectrum of surfacing applications. The wire gives maximum resistance to erosion, abrasion, high temperature, corrosion, impact and friction. The deposit is crack-free and perfectly machinable.

ALLOY BASE: Fe, C, Cr, W, Co, Ni, Si, Mn

SPECIAL FEATURES

- Only continuous welding solution to complex wear system.
- Gas shielding ensures a good and clean deposit.

APPLICATIONS

It can be used for regular hardfacing of parts subjected to complex and combined wear patterns at elevated temperatures and also in corrosive environments. Typical applications are hot forging tools, hot shear blades & dies, hot punches, valve seats, steam ends etc.

PROPERTIES

Hardness : At room temperature : 40-43 HRC
At 750°C : 20-23 HRC

CURRENT RANGE : (DC+)

Diameter (mm)	Welding position	Current (Amps)	Voltage (Volts)
1.2	F.H	120-240	22-32