diamondspark 700 RC

Seamless cored wire

All-positional rutile flux-cored wire for high strength steel up to 690 Mpa YS using Ar-CO_2 shielding gas, for crane and lifting constructions and offshore fabrications

Product features	Product benefits	User benefits
» Fast freezing rutile slag system	» Enhancing travel speed and arc stability in positional welding » easy slag removal	» Productive positional welding » Automatic slag detachability
» Stable arc	» Welder-friendly » Smooth wetting » Low spatter	» Low defect rate » Good fatigue resistance » Less post weld cleaning
» Excellent feedability	» Dependable feedability » Low contact tip wear	» No starting defects » Increased arc time
» Seamless design	» Copper-coated seamless cored wire » Low-hydrogen weld metal	» Excellent current transfer » Resistance to moisture absorption » Low risk of HAC
» Designed chemistry	» Good mechanical properties	» Guarantee of quality performance during Welding Procedure Qualification process

Seamless copper-coated rutile all-positional flux-cored wire from the diamondspark range, Nickel-Molybdenum alloyed. For single- or multi-layer welding of Q&T and TMCP high strength steels up to 690 MPa yield strength and impact requirements down to - 60 °C, using Ar-CO_2 shielding gas. Excellent mechanical properties in the as welded condition when welding S550Q - S690Q steel grades. When welding Q&T and TMCP high strength steel, it is essential to control the thermal cycle and thereby t 8/5 to avoid deterioration of mechanical properties such as hardness, CVN impact toughness and strength in both heat affected zone and weld metal.

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 resulting in a stable arc. Controlled wire cast and helix largely avoids “dog tailing”, promoting straight, well positioned welds.

The seamless design offers the best possible protection against moisture reabsorption during storage and use of the wires and thereby against hydrogen induced cracking. Diffusible hydrogen level is typically 2 - 3 ml / 100 g weld metal.

Typical applications

» Offshore structures
» Crane & lifting constructions
» High strength steel components in transportation vehicles

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Classifications		Operating data	Allows welding with standard power sources.	
EN ISO 18276-A	**AWS A5.29/SFA-5.29**	**Welding positions**	**Polarity**	**Shielding gas**
T69 6 Z P M21 1 H5	E111T1-GM-JH4		DC+	EN ISO 14175: M21

Typical chemical composition, all weld metal, wt. %

Shielding gas	C	Si	Mn	Ni	Mo
M21	0.07	0.40	1.7	2.0	0.15

Mechanical properties, all weld metal (single values typical)

Shielding gas	Condition	Yield strength $R_{p0.2\%}$ MPa	Tensile strength R_m MPa	Elongation A_5 %	CVN Impact toughness ISO-V KV J -40 °C	-60 °C
M21	as welded	770 (≥ 690)	800 (770 - 900)	19 (≥ 17)	75	60 (≥ 47)

Steels to be welded

EN	ASTM
S620Q, S620QL, S690Q, S690QL, S620QL1-S690QL1, alform plate 620 M, 700 M, aldur 620 Q, 620 QL, 620 QL1, aldur 700 Q, 700 QL, 700 QL1	A 514 Gr. F, H, Q, A 709 Gr. 100 Type B, E, F, H, Q A 709 Gr. HPS 100W

Approvals

TÜV; DNV-GL; ABS; LR; BV; CE

Overview spool types

Plastic spool S200

Precision layer wound

Dimensions:
Ø external 200 mm
Ø internal 52 mm
Width 47 mm

Available spool weight: 5 kg

Available diameters:
1.0 mm 1.2 mm

Wire basket spool BS300

Precision layer wound

Dimensions:
Ø external 300 mm
Ø internal 52 mm
Width 100 mm

Available spool weight: 16 kg

Available diameters:
1.0 mm 1.2 mm
1.6 mm

Welding Machines

For the best welding performance with our diamondspark flux-cored wires, we recommend our dedicated synergic lines available on voestalpine Böhler welding machines:
Uranos 3200 PME; Uranos 4000 PME; Uranos 5000 PME; Uranos 3200 GSM; Uranos 4000 GSM; Uranos 5000 GSM.