

DIAMONDSPARK PIPELINE CORED WIRES

FCAW and MCAW seamless welding wires for pipeline applications



Excellent welding performance and mechanical properties

Our diamondspark cored wires for pipeline applications are reliable with consistent high quality performances. The range, including seamless FCAW and MCAW wires, offers a unique and trustable solution in terms of arc stability and lower defects rate. Precise alloy and slag concept ensure excellent welding performance and mechanical properties. Selected diamondspark pipeline cored wires can be used in sour gas applications (HIC tested acc. to NACE TM-0284). Test values for SSC are available upon request. Produced in Europe, they are fulfilling both EN ISO and AWS codes chasing the most stringent requirements for pipeline jobs.

Features	User benefit	
» Seamless design	» Low risk of HAC	
» Copper coated seamless cored wire	» Excellent current transfer » Less contact tip wear	
» Dependable feedability	» Increase arc time » No wire breaks	
» Dependable arc ignition	» No starting defects	
» Wide parameter box	» Easy setting » Low defect rate	
» Low amount of silicates » Easy slag removal	» Low and easy inter-run cleaning	
» High weld metal recovery	» Productive welding	

Classification				Typical analysis of all weld metal [wt.-%]				
Product name	AWS	EN ISO	Base material	C	Si	Mn	Ni	Mo
diamondspark X52 RC-Pipe	E71T1-M21A4-CS1-H4	T 46 4 P M21 1 H5	X42 - X60	0.06	0.40	1.45	-	-
diamondspark X60 RC-Pipe	E81T1-M21A8-Ni1-H4	T 50 6 1Ni P M21 1 H5	X60 - X70	0.05	0.40	1.30	0.85	-
diamondspark X70 RC-Pipe	E91T1-M21A6-K2-H4	T 55 5 Mn1Ni P M21 1 H5	X70 - X80	0.07	0.40	1.50	1.10	-
diamondspark X70 RC-Pipe (N)	E91T1-M21A8-G-H4	T 55 6 Z P M21 1 H5	X60 - X70	0.05	0.35	1.6	0.85	0.25
diamondspark X80 RC-Pipe	E101T1-M21A4-K2-H4	T 62 4 Mn1.5Ni P M21 H5	X80 - X90	0.04	0.40	1.45	1.60	0.15
diamondspark X100 RC-Pipe	E111T1-M21A4-G-H4	T 69 4 Z P M21 1 H5	X90 - X100	0.05	0.30	1.70	2.50	0.15
diamondspark X60 MC-Pipe	E71T15-M21A4-CS2-H4	T 46 4 M M21 1 H5	X42 - X60	0.07	0.70	1.50	-	-
diamondspark X70 MC-Pipe	E81T15-M21A8-G-H4	T 46 6 Z M M21 1 H5	X70 - X80	0.06	0.35	1.35	0.75	-
diamondspark X80 MC-Pipe	E91T15-M21A8-K1-H4	T 55 6 1NiMo M M21 1 H5	X80 - X90	0.07	0.45	1.30	0.90	0.50

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Mechanical properties, all weld metal (single values typical)						
Product name	Yield strength $R_{p0.2\%}$ Mpa	Tensile strength R_m Mpa	Elongation A_5 %	CVN Impact toughness ISO-V / J		
				-20 °C	-40 °C	-60 °C
diamondspark X52 RC-Pipe	500 (≥ 460)	590 (550-660)	26 (≥ 20)	100 (≥ 47)	60 (≥ 47)	-
diamondspark X60 RC-Pipe	550 (≥ 500)	610 (560-690)	25 (≥ 18)	-	100	75 (≥ 47)
diamondspark X70 RC-Pipe	630 (≥ 550)	700 (640-760)	22 (≥ 18)	-	70	60 (≥ 47)
diamondspark X70 RC-Pipe (N)	620 (≥ 550)	690 (640-760)	22 (≥ 18)	-	100	80 (≥ 47)
diamondspark X80 RC-Pipe	680 (≥ 620)	720 (700-760)	22 (≥ 18)	-	80 (≥ 47)	-
diamondspark X100 RC-Pipe	730 (≥ 690)	780 (770-940)	19 (≥ 17)	-	70 (≥ 47)	-
diamondspark X60 MC-Pipe	490 (≥ 460)	600 (550-740)	27 (≥ 20)	-	80 (≥ 47)	-
diamondspark X70 MC-Pipe	530 (≥ 470)	580 (550-680)	27 (≥ 20)	-	160	140 (≥ 47)
diamondspark X80 MC-Pipe	690 (≥ 550)	750 (640-820)	22 (≥ 18)	-	-	60 (≥ 47)

Operating data - Typical welding parameters for diamondspark pipe wires			
Welding position	Shielding gas	Stick-out	Preheat temperature
5G	Argon + 18%CO ₂	20 mm	100 °C

Pass	Type	Diameter [mm]	Wire feed [m/min]	Welding speed [cm/min]	Current [Ampere]	Voltage [Volt]*	
Root	MCAW	1.2	3	16	80-110	14-16	
Hot pass	FCAW	1.2	6	22	160-180	20-22	
Fill	FCAW	1.2	7	15	200-210	22-24	
Cap	FCAW	1.2	7	14	200-210	22-24	

*Voltage could be influenced by the welding machine used
Arc length of max. 3 mm

Overview spool types					
Plastic spool S300			Wire basket spool BS300		
	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		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
Plastic spool S300					
	Precision layer wound Dimensions: Ø external 300 mm Ø internal 52 mm Width 100 mm	Available spool weight: 15 kg Available diameters: 1.0 mm 1.2 mm 1.6 mm			