

Purus 46

A copper coated G4Si1/ER70S-6 solid wire for GMAW of carbon-manganese steels. Purus 46 is particularly suited to be used in general construction, automotive components and mobile machinery industries. It has a slightly higher manganese and silicon content than Purus 42 to increase the weld metal strength. The wire may be welded with either a gas mixture or with pure CO₂ as shielding gas. Purus 46 is designed to give a clean weld bead with a minimum of silica islands and spatter. The wire is suitable for robotic applications at high deposition rates.

Classifications Weld Metal	EN ISO 14341-A : G 42 3 C1 4Si1 EN ISO 14341-A : G 46 4 M20 4Si1 EN ISO 14341-A : G 46 4 M21 4Si1
Classifications Wire Electrode	SFA/AWS A5.18 : ER70S-6 EN ISO 14341-A : G 4Si1
Approvals	CE EN 13479 DB 42.039.40 DNV-GL III YMS (C1) DNV-GL III YMS (M21) VdTUV 19261

Approvals are based on factory location. Please contact ESAB for more information.

Alloy Type	Carbon-manganese steel (Mn/Si-alloyed)
Shielding Gas	M20, M21, C1 (EN ISO 14175)

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
EN 80Ar/20CO₂ (M21)			
As Welded	475 MPa	585 MPa	26 %
EN CO₂ (C1)			
As Welded	450 MPa	560 MPa	26 %
AWS CO₂ (C1)			
As Welded	450 MPa	560 MPa	29 %
EN 92Ar/8CO₂ (M20)			
As Welded	500 MPa	600 MPa	25 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
EN CO₂ (C1)		
As Welded	20 °C	120 J
As Welded	-30 °C	70 J
EN 80Ar/20CO₂ (M21)		
As Welded	20 °C	130 J
As Welded	-30 °C	70 J
As Welded	-40 °C	60 J
AWS CO₂ (C1)		
As Welded	-30 °C	70 J
EN 92Ar/8CO₂ (M20)		
As Welded	-30 °C	90 J
As Welded	-40 °C	80 J

Typical Wire Composition %

C	Mn	Si
0.08	1.65	0.90

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate
0.8 mm	60-200 A	18-24 V	3.2-10.0 m/min	0.8-2.3 kg/h
0.9 mm	70-250 A	18-26 V	3.0-12.0 m/min	0.9-3.5 kg/h
1.0 mm	80-300 A	18-32 V	2.7-15.0 m/min	1.0-5.5 kg/h
1.14 mm	100-350 A	18-34 V	2.6-15.0 m/min	1.2-7.0 kg/h
1.2 mm	120-380 A	18-35 V	2.5-15.0 m/min	1.3-8.0 kg/h
1.32 mm	130-400 A	19-35 V	2.4-15.0 m/min	1.5-8.5 kg/h
1.4 mm	150-420 A	22-36 V	2.3-12.0 m/min	1.6-8.7 kg/h
1.6 mm	225-550 A	28-38 V	2.3-10.0 m/min	2.1-9.4 kg/h