

## 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 CO<sub>2</sub> 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.

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

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

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

### Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
<b>EN 80Ar/20CO<sub>2</sub> (M21)</b>			
As Welded	475 MPa (69 ksi)	585 MPa (85 ksi)	26 %
<b>EN CO<sub>2</sub> (C1)</b>			
As Welded	450 MPa (65 ksi)	560 MPa (81 ksi)	26 %
<b>AWS CO<sub>2</sub> (C1)</b>			
As Welded	450 MPa (65 ksi)	560 MPa (81 ksi)	29 %
<b>EN 92Ar/8CO<sub>2</sub> (M20)</b>			
As Welded	500 MPa (73 ksi)	600 MPa (87 ksi)	25 %

### Typical Charpy V-Notch Properties

Testing Temperature	Impact Value
<b>EN CO<sub>2</sub> (C1)</b>	
20 °C (68 °F)	120 J (88.5 ft-lb)
-30 °C (-22 °F)	70 J (52 ft-lb)
<b>EN 80Ar/20CO<sub>2</sub> (M21)</b>	
20 °C (68 °F)	130 J (96 ft-lb)
-30 °C (-22 °F)	70 J (52 ft-lb)
-40 °C (-40 °F)	60 J (44 ft-lb)
<b>AWS CO<sub>2</sub> (C1)</b>	
-30 °C (-22 °F)	70 J (52 ft-lb)
<b>EN 92Ar/8CO<sub>2</sub> (M20)</b>	
-30 °C (-22 °F)	90 J (66 ft-lb)
-40 °C (-40 °F)	80 J (59 ft-lb)

### 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 (0.030 in.)	60-200 A	18-24 V	3.2-10.0 m/min (126-394 in./min)	0.8-2.3 kg/h (1.8-5.1 lb/h)
0.9 mm (0.035 in.)	70-250 A	18-26 V	3.0-12.0 m/min (118-472 in./min)	0.9-3.5 kg/h (2.0-7.7 lb/h)

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Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate
1.0 mm (0.040 in.)	80-300 A	18-32 V	2.7-15.0 m/min (106-591 in./min)	1.0-5.5 kg/h (2.2-12. lb/h)
1.14 mm (0.045 in.)	100-350 A	18-34 V	2.6-15.0 m/min (102-591 in./min)	1.2-7.0 kg/h (2.6-15. lb/h)
1.2 mm (0.047 in.)	120-380 A	18-35 V	2.5-15.0 m/min (98-591 in./min)	1.3-8.0 kg/h (2.9-17. lb/h)
1.32 mm (0.052 in.)	130-400 A	19-35 V	2.4-15.0 m/min (94-591 in./min)	1.5-8.5 kg/h (3.3-18. lb/h)
1.4 mm (0.055 in.)	150-420 A	22-36 V	2.3-12.0 m/min (91-472 in./min)	1.6-8.7 kg/h (3.5-19. lb/h)
1.6 mm (1/16 in.)	225-550 A	28-38 V	2.3-10.0 m/min (91-394 in./min)	2.1-9.4 kg/h (4.6-20. lb/h)

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