

Purus 42

A copper coated, G3Si1/ER70S-6 solid wire for GMAW of carbon-manganese steels. Purus 42 is particularly suited to be used in general construction, automotive components and mobile machinery industries. The wire may be welded with either a gas mixture or with pure CO₂ as the shielding gas. Purus 42 is designed to give a clean weld bead with a minimum of silica islands and low spatter. The wire is suitable for robotic applications at high deposition rates.

Specifications

Classifications

EN ISO 14341-A : G 38 3 C1 3Si1
 EN ISO 14341-A : G 42 4 M20 3Si1
 EN ISO 14341-A : G 42 4 M21 3Si1
 EN ISO 14341-A : G 3Si1
 SFA/AWS A5.18 : ER70S-6

Approvals

CE : EN 13479
 CWB : B-G 49A 3 C1 S6
 DB : 42.039.43
 DNV-GL : III YMS (C1, M21)
 UKCA : EN 13479
 VdTÜV : 19190

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)

Tensile Properties

Testing Condition	Yield Strength	Tensile Strength	Elongation
EN M21			
As Welded	470 MPa (68 ksi)	560 MPa (81 ksi)	25 %
AWS C1			
As Welded	420 MPa (61 ksi)	530 MPa (77 ksi)	30 %
EN C1			
As Welded	430 MPa (62 ksi)	530 MPa (77 ksi)	24 %
EN M20			
As Welded	475 MPa (69 ksi)	570 MPa (83 ksi)	26 %

Charpy Testing

Testing Condition	Testing Temp	Impact Value
EN M21		
As Welded	-40 °C (-40 °F)	80 J (59 ft-lb)
As Welded	20 °C (68 °F)	130 J (96 ft-lb)
As Welded	-30 °C (-22 °F)	90 J (67 ft-lb)
AWS C1		
As Welded	-30 °C (-22 °F)	80 J (59 ft-lb)
EN C1		
As Welded	-30 °C (-22 °F)	75 J (56 ft-lb)
As Welded	20 °C (68 °F)	110 J (81 ft-lb)
As Welded	-40 °C (-40 °F)	65 J (48 ft-lb)
EN M20		
As Welded	-30 °C (-22 °F)	100 J (74 ft-lb)
As Welded	20 °C (68 °F)	150 J (111 ft-lb)
As Welded	-40 °C (-40 °F)	75 J (56 ft-lb)

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Typical Wire Composition %

C	Mn	Si
0.08	1.45	0.85

Deposition Data

Diameter	Amps	Volts	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 lbs/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 lbs/h)
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. lbs/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. lbs/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. lbs/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. lbs/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. lbs/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. lbs/h)