



Standards

CSA W48, Class E491C-6-H4, E491C-6M-H4
 AWS A5.18/ASME SFA 5.18, Class E70C-6M-H4
 AWS A5.36M/ASME SFA 5.36M, Class E491T15-C1A3-CS1-H4,
 E491T15-GA3-CS1-H4, E491T15-M20A3-CS1-H4, E491T15-M21A3-CS1-H4
 Lloyd's, Grading D, BF, 2YS (75Ar/25CO₂)

Description & Applications

- Excellent general-purpose carbon steel metal-cored wire for single and multiple pass welding of carbon steels requiring weld-metal mechanical properties down to -30°C (-20°F) when using Ar/CO₂ shielding gas mixtures.
- Welding corresponding steel grades: A36, A106, A285.
- Typical applications include general welding, heavy sheet metal fabrication, structural steel, welding of pipes and hot water heaters.

The BLUESHIELD™ Advantage

- This wire can also be used as a suitable alternative for ER70S -6 gas metal arc wire.
- High manganese and silicon contents result in greater deoxidation and a flat bead profile.
- Better sidewall fusion than ER70S -6 wires.
- Suitable for environments where heavy mill scale or contaminants are present.

Typical Welding Parameters*



DIAMETER		POSITION	DCEP AMPS	VOLTS	WIRE FEED SPEED (WFS) m/min (in/min)	ELECTRODE EXTENSION mm (in)
mm	in					
0.9	0.035	Flat & Horizontal	170	25	8.8 (345)	12.7-15.8 (1/2-5/8)
		Flat & Horizontal	190	26	10.8 (425)	12.7-15.8 (1/2-5/8)
		Flat & Horizontal	210	27.5	12.1 (475)	15.8-19.1 (5/8-3/4)
		Flat & Horizontal	225	29	14.5 (570)	15.8-19.1 (5/8-3/4)
		SCT Range***	110-135	14-18	3.9-5.5 (155-215)	6.4-9.5 (1/4-3/8)
1.2	0.045	Flat & Horizontal	200	25	6.6 (260)	12.7-15.8 (1/2-5/8)
		Flat & Horizontal	220	26	7.8 (305)	12.7-15.8 (1/2-5/8)
		Flat & Horizontal	240	27.5	9.1 (360)	15.8-19.1 (5/8-3/4)
		Flat & Horizontal	255	29	10.3 (405)	15.8-19.1 (5/8-3/4)
		SCT Range***	130-155	15-18	3.6-4.5 (140-175)	6.4-9.5 (1/4-3/8)
1.3	0.052	Flat & Horizontal	215	25	6.0 (235)	15.8-19.1 (5/8-3/4)
		Flat & Horizontal	260	26	8.0 (315)	15.8-19.1 (5/8-3/4)
		Flat & Horizontal	275	27.5	8.4 (330)	19.1-25.4 (3/4-1)
		Flat & Horizontal	295	29	8.8 (345)	19.1-25.4 (3/4-1)
		SCT Range***	165-195	15-18	3.2-4.4 (125-175)	6.4-9.5 (1/4-3/8)
1.6	1/16	Flat & Horizontal	250	25	5.1 (200)	15.8-19.1 (5/8-3/4)
		Flat & Horizontal	290	26	6.2 (245)	15.8-19.1 (5/8-3/4)
		Flat & Horizontal	310	27.5	7.0 (275)	19.1-25.4 (3/4-1)
		Flat & Horizontal	330	29	7.2 (285)	19.1-25.4 (3/4-1)
		SCT Range***	185-225	15-20	3.0-4.1 (115-160)	6.4-12.7 (1/4-1/2)
2.0	5/64	Flat & Horizontal	350	25	4.3 (170)	19.1-25.4 (3/4-1)
		Flat & Horizontal	370	26	4.7 (185)	19.1-25.4 (3/4-1)
		Flat & Horizontal	400	28	5.3 (210)	25.4-31.8 (1-1.25)
		Flat & Horizontal	415	29	6.5 (255)	25.4-31.8 (1-1.25)
		SCT Range***				
2.4	3/32	Flat & Horizontal	370	25	3.2 (125)	19.1-25.4 (3/4-1)
		Flat & Horizontal	390	26	3.6 (140)	19.1-25.4 (3/4-1)
		Flat & Horizontal	425	28	4.1 (160)	25.4-31.8 (1-1.25)
		Flat & Horizontal	450	29	4.7 (185)	25.4-31.8 (1-1.25)
		SCT Range***				

*Parameters in table based on 75%Ar/25%CO₂.

For higher Ar/CO₂ shielding gas blends example 92%Ar/8%CO₂, decrease the Voltage 1-1.5 Volts or increase the WFS 10-15% using the same voltage settings in the table.

***SCT = Short Circuit Parameter Range



Recommended Shielding Gases

100% CO₂, BLUESHIELD™ 6, BLUESHIELD™ 7, BLUESHIELD™ 8, ARCAL™ M23 (BLUESHIELD™ 23), ARCAL™ M14 (ARCAL™ 14), ARCAL™ SPEED (ARCAL™ 21) and ARCAL™ 211 shielding gas mixtures are recommended.

Typical Chemistry

WEIGHT %	C	Mn	Si	P	S	Ni	Cr	Mo	V	Cu
ARCAL™ 211	0.04	1.56	0.87	0.009	0.009	0.03	0.03	<0.01	<0.01	0.06
ARCAL™ M14 (ARCAL™ 14)	0.04	1.67	0.87	0.010	0.013	0.00	0.00	0.00	0.00	0.00
CO ₂	0.06	1.37	0.62	0.009	0.008	0.02	0.03	<0.01	<0.01	0.06
ARCAL™ M23 (BLUESHIELD™ 23)	0.03	1.40	0.78	0.010	0.012	0.02	0.05	<0.01	<0.01	0.06

Typical Mechanical Properties*

	AS WELDED			
	ARCAL™ 211	ARCAL™ M14 (ARCAL™ 14)	CO ₂	ARCAL™ M23 (BLUESHIELD™ 23)
TENSILE STRENGTH MPa (ksi)	614 (89.1)	618 (89.6)	549 (79.6)	607 (88)
YIELD STRENGTH MPa (ksi)	521 (75.6)	525 (76.1)	452 (65.6)	517 (75)
ELONGATION (%)	28	27	33	27
IMPACT (Charpy V-notch) @ -30°C (-20°F)	102 J (76 ft-lb)	73 J (54 ft-lb)	54 J (40 ft-lb)	69 J (51 ft-lb)

* Actual welding positions and procedures can impact results.

Packaging

DIAMETER		SMALL PACKAGING		ITEM NUMBER
mm	in	kg	lb	
0.9	0.035	11.3	25	Spool A0417885
1.2	0.045	20.4	45	Spool A0417887 A0417891 A0417895
1.3	0.052			
1.6	1/16			
1.2	0.045	27.2	60	Coil A0417889 A0417893 A0417896 A0954130 A0417901
1.3	0.052			
1.6	1/16			
2.0	5/64			
2.4	3/32			

DIAMETER		LARGE PACKAGING		ITEM NUMBER
mm	po	kg	lb	
0.9	0.035	226.8	500	Drum A0417886 A0417888 A0417892 A0417899 A0417984
1.2	0.045			
1.3	0.052			
1.6	1/16			
2.4	3/32			
1.2	0.045	362.8	800	Hex Drum A0417890 A0417894 A0417898 A0417900
1.3	0.052			
1.6	1/16			
2.0	5/64			