



Certified Quality System

GMAW welding wire  
for mild steels

# SIDERGAS S6

Copper coated solid wire for the GMAW of mild steels under both Ar/CO<sub>2</sub> mixed gas and pure CO<sub>2</sub> shielding gas. It is used in structural steel engineering.

Standards:	<b>EN ISO 14341-A:11(*)</b>	<b>AWS A5.18:05</b>	<b>CSA W48:14</b>
Classification:	<b>G 42 4 M21 3Si1/ G 42 4 C1 3Si1</b>	<b>ER70S-6</b>	<b>B-G 49A 5 C1 S6</b>

(\*) Wire electrode classified to the system based upon the yield strength and the average impact energy of 47 J of all-weld metal in accordance with EN ISO 14341:11

## CHEMICAL COMPOSITION OF THE WIRE (wt.-%)

elements	Sidergas		EN ISO		AWS		CSA	
	min.	max.	min.	max.	min.	max.	min.	max.
C	<b>0,06</b>	<b>0,08</b>	0,06	0,14	0,06	0,15	0,06	0,14
Mn	<b>1,40</b>	<b>1,50</b>	1,30	1,60	1,40	1,85	1,30	1,60
Si	<b>0,80</b>	<b>0,90</b>	0,70	1,00	0,80	1,15	0,70	1,00
P	-	<b>0,02</b>	-	0,025	-	0,025	-	0,025
S	-	<b>0,02</b>	-	0,025	-	0,035	-	0,025
Cu	-	<b>0,30</b>	-	0,35	-	0,50	-	0,35
Mo	-	<b>0,10</b>	-	0,15	-	0,15	-	0,15
Ni	-	<b>0,10</b>	-	0,15	-	0,15	-	0,15
Ti+Zr	-	<b>0,03</b>	-	0,15	-	-	-	0,15
Al	-	<b>0,02</b>	-	0,02	-	-	-	0,02
Cr	-	<b>0,15</b>	-	0,15	-	0,15	-	0,15
V	-	<b>0,015</b>	-	0,03	-	0,03	-	0,03

## MECHANICAL PROPERTIES OF ALL-WELD METAL

	Sidergas	EN ISO	AWS	CSA
	typical values (*)	minimum values	minimum values	-
Tensile strength (Rm)	<b>560 [MPa]</b>	500 [MPa]	480 [MPa]	500 [MPa]
Yield strength (Rp0,2)	<b>460 [MPa]</b>	420 [MPa]	400 [MPa]	420 [MPa]
Elongation (A%)	<b>30 (L<sub>0</sub>=5d<sub>0</sub>)</b>	20 (L <sub>0</sub> =5d <sub>0</sub> )	22 (L <sub>0</sub> =2")	20 (L <sub>0</sub> =5d <sub>0</sub> )
Impact work (ISO-V KV)	<b>80 [J] @ -20°C</b> <b>60 [J] @ -40°C</b>	47 [J] @ -40°C C1/M21	27 [J] @ -29°C	47 [J] @ -50°C C1

(\*) Typical values are referred to EN ISO 14175 M21 (80% Ar, 20% CO<sub>2</sub>), as shielding gas, in the as-welded condition using an all-weld metal test assembly type 1.3 in accordance with EN ISO 15792-1:12, using a 1,20 mm diameter wire electrode under welding conditions specified in § 5.1 and 5.2 of EN ISO 14341:11. *Test results should not be assumed to be expected results in a particular application or weldment.*

## PRODUCT APPROVALS

SHIELDING GASES (EN ISO 14175):	C1	M21	C1 M21	C M2,M3	C1 M2, M3	M21	(according to EN 13479:04 and Regulation (UE) No. 305/2011)
GRADING:	-	3YSA	D BF 3YS H15 NA	group 1.2	group 1.2	4Y	

## OPERATING DATA

welding positions: PA, PB, PC, PD, PE, PF, PG type of current and polarity: = + D.C. +

## BASE MATERIALS

Suitable for steels with yield strength of up to 420 MPa.  
Non alloy structural steels: EN 10025-2 up to S355

Steels for pressure purposes: EN 10028-2 up to P355GH  
EN 10028-3 up to P355NH

Fine grain structural steels: EN 10025-3 up to S460NL  
EN 10025-4 up to S460ML

Steels for pipelines: EN ISO 3183 up to L415M/N L360QB; API5L up to X60  
EN 10217-1 up to P355N  
EN 10216-1 up to P275T1

## TECHNICAL DELIVERY CONDITIONS

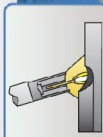
The technical delivery conditions (type of product, dimensions, tolerance and marking) are in accordance with EN ISO 544:11 and EN ISO 14344:10.

## PACKAGING AND AVAILABLE SIZES

mm	in	D-100 plastic	D-200 plastic	D-300 plastic	K-300 wire basket	KS-300 wire basket	FUSTO 280	MIDIPAC 150/300	SUPERPAC 450/550	MASTERPAC 1200
0.60	.023	X	X	X						
0.80	.030	X	X	X	X	X	X	X	X	
0.90	.035	X	X	X	X	X	X	X	X	
1.00	.040	X	X	X	X	X	X	X	X	
1.14	.045	X	X	X	X	X	X	X	X	
1.20			X	X	X	X	X	X	X	X
1.30	.052			X	X	X	X	X	X	X
1.40	.055			X	X	X	X	X	X	X
1.60	1/16			X	X	X	X	X	X	X

Sidergas

GMAW



Mild steels wires

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Sidergas S.p.a. reserves the right to change product specifications without prior notice. CAT. INFO02\_rev.10/07/2014

## TYPICAL WELDING PARAMETERS WITH SIDERGAS S6 WELDING WIRES

wire SIDERGAS S6 Ø 1,00 mm (.040") shielding gas: 100% CO <sub>2</sub> (C1 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
80	19.5	short arc	2.9	114
156	26	globular arc	7.1	280
200	27.6	globular arc	9.8	386

wire SIDERGAS S6 Ø 1,00 mm (.040") shielding gas: Ar 92% CO <sub>2</sub> 8% (M20 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
75	16.9	short arc	3	118
142	22	globular arc	5.2	205
202	25.6	spray arc	11.1	437

wire SIDERGAS S6 Ø 1,00 mm (.040") shielding gas: Ar 75% CO <sub>2</sub> 25% (M21 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
94	18.1	short arc	4.39	173
139	18.4	short arc	8	315
199	23.4	globular arc	13.5	532

wire SIDERGAS S6 Ø 1,20 mm (.047") shielding gas: 100% CO <sub>2</sub> (C1 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
155	24	short arc	4.5	177
202	26	globular arc	8	315
272	30.9	globular arc	13	511

wire SIDERGAS S6 Ø 1,20 mm (.047") shielding gas: Ar 92% CO <sub>2</sub> 8% (M20 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
165	23	globular arc	5	197
221	26.4	spray arc	6.2	244
303	29.9	spray arc	9.9	390

wire SIDERGAS S6 Ø 1,20 mm (.047") shielding gas: Ar 75% CO <sub>2</sub> 25% (M21 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
146	20.5	short arc	4	158
200	23	short arc	6.86	270
250	25	globular arc	10.23	403

wire SIDERGAS S6 Ø 1,40 mm (.055") shielding gas: 100% CO <sub>2</sub> (C1 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
199	22	short arc	5	197
219	23.6	globular arc	6.5	256
284	28.9	globular arc	8.2	323

wire SIDERGAS S6 Ø 1,40 mm (.055") shielding gas: Ar 92% CO <sub>2</sub> 8% (M20 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
220	23	globular arc	5.2	205
270	28	spray arc	7.2	284
383	32	spray arc	12.9	508

wire SIDERGAS S6 Ø 1,40 mm (.055") shielding gas: Ar 75% CO <sub>2</sub> 25% (M21 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
178	20.2	short arc	3.75	148
250	23.9	globular arc	7.01	276
338	27.1	globular arc	11.17	440

wire SIDERGAS S6 Ø 1,60 mm (.062") shielding gas: 100% CO <sub>2</sub> (C1 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
278	28.6	globular arc	4	158
350	32.5	globular arc	7.5	295

wire SIDERGAS S6 Ø 1,60 mm (.062") shielding gas: Ar 92% CO <sub>2</sub> 8% (M20 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
232	23	spray arc	4.9	193
337	30	spray arc	8.5	335

wire SIDERGAS S6 Ø 1,60 mm (.062") shielding gas: Ar 75% CO <sub>2</sub> 25% (M21 to ISO 14175:2008)				
Amps	Volts	metal trasfer	wire speed	
			m/min	ipm
200	22	short arc	3.2	126
293	25	globular arc	5.9	232
370	29	globular arc	8.28	326

The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and Sidergas SpA expressly disclaim any liability incurred from any reliance thereon. Typical data are those obtained when welded and tested in accordance with the AWS A5.18 and EN ISO 14341-A (\*) specifications. Other tests and procedures may produce different results. No data is to be construed as a recommendation for any welding condition or technique not controlled by Sidergas SpA.