

# Solid wire for Hardox® wear plate

Gas-shielded metal-arc welding

## GENERAL PRODUCT DESCRIPTION

A copper coated, G3Si1/ER70S-6 solid wire for GMAW of all general structural and engineering unalloyed and low-alloyed carbon-manganese steels. The electrode may be welded with either a gas mixture or with pure CO2 as the shielding gas.

Solid wire for Hardox wear plate is an excellent choice in mechanized welding applications.

## KEY BENEFITS

- Developed especially for avoiding hydrogen cracks
- Excellent performance in Hardox® wear plate
- Stable arc with very low amount of spatter
- Possible to weld directly on primed surface
- High surface technology providing superior weld metal quality at high wire feed speeds

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

### CLASSIFICATIONS Weld Metal

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

### APPROVALS

ABS	3YSA
BV	SA3YM
CE	EN 13479
DB 42.039.06	42.039.06
DNV-GL	III YMS
LR	3YS H15
PRS	3YS
RS	3YMS
VdTÜV	00899

### APPROVALS (SPECIFIC)

CWB	B-G 49A 3 C1 S6 (B-G 49A 3 C G6)	PV,ZG
JIS	YGW12	ZG
NAKS/HAKC	0.8-2.0 mm	PV
NAKS/HAKC	1.2-1.6 mm	ZG
RINA	3YS	PV,ZG

### APPROVAL COMMENT

APPROVALS are valid for lot numbers with prefix PV, AE, ZG and UF. APPROVALS (SPECIFIC) are valid for lot numbers with prefix in the right column.

**CHEMICAL COMPOSITION**

	All Weld Metal (%)		Wire/Strip (%)		
	CO2 (C1)		80Ar/20CO2 (M21)	Min	Max
	Nom		Nom		
C	0.08		0.10	0.06	0.14
Si	0.63		0.72	0.80	1.00
Mn	0.94		1.11	1.40	1.60
P	0.013		0.013		0.025
S	0.012		0.012		0.025

**MECHANICAL PROPERTIES OF WELD METAL**

Properties	All Weld Metal									
	AWS CO2 (C1)		EN 80Ar/20CO2 (M21)			EN 80Ar/20CO2 (M21)		EN CO2 (C1)		
	Min	Typ	Min	Max	Typ	Typ	Min	Max	Typ	
Rp0.2 (MPa)	400	430			460	370			440	
ReL (MPa)			420		560	495		600	540	
Rm (MPa)	480	530	510	640						
A4 (%)	22	30								
A5 (%)			22		26	28		22	25	
Charpy V at 20°C (J)					130	120			110	
Charpy V at -20°C (J)					120	90				
Charpy V at -30°C (J)	27	75			100			47	75	
Charpy V at -40°C (J)			47		90					

**ECONOMICS & CURRENT DATA**

Dimension (mm)	Current (A)		W	$\eta$	H		Feed		U	
	Min	Max			Min	Max	Min	Max	Min	Max
$\emptyset$			Nom	Nom	Min	Max	Min	Max	Min	Max
0.60	30	100	12	95	0.7	1.7	5.5	13	15	20
0.80	60	200	14	95	0.8	2.3	3.2	10	18	24
0.90	70	250	15	96	0.9	3.5	3.0	12	18	26
1.00	80	300	16	96	1.0	5.5	2.7	15	18	32
1.14	100	350	17	96	1.2	7.0	2.6	15	18	34
1.20	120	380	18	97	1.3	8.0	2.5	15	18	35
1.32	130	400	18	97	1.5	8.5	2.4	15	19	35
1.40	150	420	19	97	1.6	8.7	2.3	12	22	36
1.60	225	550	20	98	2.1	9.4	2.3	10	28	38
2.00	300	650	22	98	4.4	10.2	3.0	7	32	44

- W** = Gas consumption (l / min)
- $\eta$  = Recovery, g weld metal / 100g wire (%)
- H** = Deposit rate (kg weld metal / hour arc time)
- Feed** = Feeding rate (m/min)
- U** = Arc voltage (V)

For fast and easy calculations of heat input and mechanical properties please use the Weldcalc downloadable app available for Iphone/Android or run it from the web on <https://extern.ssab.com>

For more information also see Welding of Hardox® available from [www.ssab.com/download-center](http://www.ssab.com/download-center)