



# Product Data Sheet

G 'Gas-shielded metal-arc welding'

# OK Autrod 12.51

Prepared by Mats Linde	Qualified by Tero Tolonen	Approved by Per-Erik Andersson	Reg no EN006219	Cancelling EN006097	Reg date 2013-09-13	Page 1 (2)
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## REASON FOR ISSUE

Classification update.

## GENERAL

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 CO<sub>2</sub> as the shielding gas.

OK Autrod 12.51 delivered in the unique Esab Octagonal Marathon Pac is an excellent choice in mechanised welding applications

**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 M21 3Si1

### CLASSIFICATIONS Wire Electrode

EN ISO 14341-A G 3Si1  
SFA/AWS A5.18 ER70S-6  
CAN/CSA-ISO B-G 49A 3 C G6  
14341

### APPROVALS

ABS	3YSA	PV, ZG
BV	SA3YM	PV, ZG
CE	EN 13479	PV, ZG
CWB	B-G 49A 3 C G6 (ER49S-6)	ZG
DB	42.039.06	PV, ZG
DNV	III YMS	PV, ZG
GL	3YS	PV, ZG
JIS	GYW12	ZG
LR	3YS	PV, ZG
NAKS/HAKC		PV, ZG
PRS	3YS (C1)	PV, ZG
RS	3YMS*	PV, ZG
VdTÜV	00899	PV, ZG

### APPROVAL COMMENT

Approval valid for lot numbers with prefix in right column.

## CHEMICAL COMPOSITION

	All Weld Metal (%)		Wire/Strip (%)	
	CO <sub>2</sub> (C1) Nom	80Ar/20CO <sub>2</sub> (M21) Nom	Min	Max
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



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## MECHANICAL PROPERTIES OF WELD METAL

Properties	All Weld Metal			EN 80Ar 20CO2	EN 80Ar 20CO2
	EN 80Ar 20CO2		EN 80Ar 20CO2		
	As welded		Typ	Stress relieved 620°C 15h	
	Min	Max	Typ	Typ	
ReL (MPa)	420		470	370	
ReH (MPa)			480	380	
Rm (MPa)	500	640	560	495	
A4-A5 (%)	20		26	28	
Z (%)			68	73	
at 20°C (J)			130	120	
at -20°C (J)			90	90	
at -40°C (J)	47		98		

## ECONOMICS & CURRENT DATA

Dimension (mm)	Current (A)		W	$\eta$	H		Feed			U
	Min	Max			Min	Max	Min	Max	Min	
$\emptyset$			Nom	Nom	Min	Max	Min	Max	Min	Max
0.6	30	100	12	95	0,7	1,7	5,5	13	15	20
0.8	60	200	14	95	0,8	3,0	3,2	13	18	24
0.9	70	250	15	96	0,9	3,6	3,0	12	18	26
1.0	80	300	16	96	1,0	5,6	2,7	15	18	32
1.2	120	380	18	97	1,3	8,0	2,5	15	18	34
1.4	150	420	19	97	1,6	8,7	2,3	12	22	36
1.6	225	550	20	98	2,1	11,4	2,3	12	28	38
2.0	300	650	22	98	3,2	12,5	4	15	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)