



# Product Data Sheet

## G 'Gas-shielded metal-arc welding'

OK AristoRod 12.50

Prepared by Magnus Johansson	Qualified by Tero Borg	Approved by Helene Rasmuson	Reg no EN010178	Cancelling EN008489	Reg date 2022-09-20	Page 1 (3)
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### REASON FOR ISSUE

RINA approval updated for UF.

### GENERAL

The non copper coated OK AristoRod 12.50 is a manganese-silicon alloyed solid wire for GMAW of unalloyed steels, such as general structural, pressure vessel, ship building and for fine-grained carbon-manganese steels for the same purpose with a minimum yield strength of max 420 MPa. The electrode can be welded with either a gas mixture or with pure CO<sub>2</sub> as the shielding gas. The AristoRod wires are suitable for operating at high currents with maintained disturbance free wire feeding giving a stable arc with a low amount of spatter.

OK AristoRod 12.50 delivered in the unique Esab Octagonal Marathon Pac is excellent 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 M20 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
CSA W48	B-G 49A 3 C1 S6
JIS Z 3312	YGW 12 (C1)

### APPROVALS

ABS	3Y SA
BV	SA3YM
CE	EN 13479
DB	42.039.29
DNV-GL	III YMS
LR	3YS H15
PRS	3YS (C1, M21)
RS	3YMS
VdTÜV	10052

### APPROVALS (SPECIFIC)

CWB	B-G 49A 3 C1 S6	PV,ZG
JIS	YGW12 (C1)	ZG
NAKS/HAKC	1.0-1.6 mm	PV
NAKS/HAKC	1.2-1.6 mm	ZG
RINA	3Y S	PV, ZG, UF

### APPROVAL COMMENT

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

### CHEMICAL COMPOSITION

	All Weld Metal (%)		Wire/Strip (%)	
	C1	M21	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
Cu	0,07	0,07		0.15
Ti+Zr	<0,01	<0,01		0.10



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### MECHANICAL PROPERTIES OF WELD METAL

#### All Weld Metal

Standard	Shielding Gas	Condition	Rp0.2 [MPa/ksi]		ReL [MPa/ksi]		Rm [MPa/ksi]			A4 [%]		A5 [%]	
			Min	Typ	Min	Typ	Min	Max	Typ	Min	Typ	Min	Typ
AWS	C1	As welded	400/58	430/62			480/70		530/77	22	30		
EN	M21	As welded			420/61	470/68	510/74	640/93	560/81			22	26
EN	M21	Stress relieved 620°C 15h				370/54			495/72				28
EN	C1	As welded			400/58	440/64	510/74	600/87	540/78			22	25

Comments:

Standard	Shielding Gas	Condition	Temp [°C/°F]	Charpy V [J/ft-lb]		Lateral Expansion [mm]
				Min	Typ	Typ
AWS	C1	As welded	20/68 -20/-4 -30/-22 -40/-40 -50/-58	27/20	75/56	20.0
EN	M21	As welded	20/68 -20/-4 -30/-22 -40/-40 -50/-58	47/35	130/96 120/89 100/74 90/67 70/52	
EN	M21	Stress relieved 620°C 15h	20/68 -20/-4 -30/-22 -40/-40 -50/-58		120/89 90/67	
EN	C1	As welded	20/68 -20/-4 -30/-22 -40/-40 -50/-58	47/35	110/81 75/56	

Comments:



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### ECONOMICS & CURRENT DATA

Dimension Ø	Current (A)		W	η	H			Feed			U		
	Min	Max			Nom	Nom	Min	Max	Nom	Min	Max	Nom	Min
0.8 mm (0.030 in.)	60	200	14	95	0.8 kg/h (1.8 lb/h)	2.3 kg/h (5.1 lb/h)		3.2 m/min (126 in/min)	10.0 m/min (394 in/min)		18	24	
0.9 mm (0.035 in.)	70	250	15	96	0.9 kg/h (2 lb/h)	3.5 kg/h (7.7 lb/h)		3.0 m/min (118 in/min)	12.0 m/min (472 in/min)		18	26	
1.0 mm (0.040 in.)	80	300	16	96	1.0 kg/h (2.2 lb/h)	5.5 kg/h (12.1 lb/h)		2.7 m/min (106 in/min)	15.0 m/min (591 in/min)		18	32	
1.14 mm (0.045 in.)	100	350	17	96	1.2 kg/h (2.6 lb/h)	7.0 kg/h (15.4 lb/h)		2.6 m/min (102 in/min)	15.0 m/min (591 in/min)		18	34	
1.2 mm (0.047 in.)	120	380	18	97	1.3 kg/h (2.9 lb/h)	8.0 kg/h (17.6 lb/h)		2.5 m/min (98 in/min)	15.0 m/min (591 in/min)		18	35	
1.32 mm (0.052 in.)	130	400	18	97	1.5 kg/h (3.3 lb/h)	8.5 kg/h (18.7 lb/h)		2.4 m/min (94 in/min)	15.0 m/min (591 in/min)		19	35	
1.4 mm (0.055 in.)	150	420	19	97	1.6 kg/h (3.5 lb/h)	8.7 kg/h (19.2 lb/h)		2.3 m/min (91 in/min)	12.0 m/min (472 in/min)		22	36	
1.6 mm (1/16 in.)	225	550	20	98	2.1 kg/h (4.6 lb/h)	9.4 kg/h (20.7 lb/h)		2.3 m/min (91 in/min)	10.0 m/min (394 in/min)		28	38	
2.0 mm (5/64 in.)	300	650	22	98	4.4 kg/h (9.7 lb/h)	10.2 kg/h (22.5 lb/h)		3.0 m/min (118 in/min)	7.0 m/min (276 in/min)		32	44	

- W** = Gas consumption (l/min)  
**η** = Filler metal efficiency (g weld metal x 100 / g wire)(%)  
**H** = Deposition rate (kg weld metal/hour arc time)  
**Feed** = Wire feed speed (m/min)  
**U** = Arc voltage (V)