



Product Data Sheet

G 'Gas-shielded metal-arc welding'

OK Autrod 12.64

| | | | | | | |
|---------------------------|---------------------------|--------------------------------|--------------------|------------------------|------------------------|---------------|
| Prepared by Mats Linde | Qualified by Tero Borg | Approved by Helene Rasmuson | Reg no EN007255 | Cancelling EN006104 | Reg date 2016-05-19 | Page 1 (2) |
|---------------------------|---------------------------|--------------------------------|--------------------|------------------------|------------------------|---------------|

REASON FOR ISSUE

Mechanical data updated.

GENERAL

A copper coated, G4Si1/ER70S-6 solid wire for GMAW of general structural and engineering unalloyed and low-alloyed carbon-manganese steels. Compared with OK Autrod 12.51, OK Autrod 12.64 has a slightly higher silicon and manganese content, which increases the weld metal strength. The high silicon content promotes low sensitivity to surface impurities and contributes to smooth, sound welds. The electrode may be welded with either a gas mixture or with pure CO₂ as the shielding gas.

OK Autrod 12.64 can even be delivered in the unique Esab Octagonal Marathon Pac, which 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 636-A | W 46 3 W4Si1 |
| EN ISO 14341-A | G 42 3 C1 4Si1 |
| EN ISO 14341-A | G 46 4 M21 4Si1 |

CLASSIFICATIONS Wire Electrode

| | |
|----------------|---------|
| EN ISO 636-A | W4Si1 |
| EN ISO 14341-A | G 4Si1 |
| SFA/AWS A5.18 | ER70S-6 |

APPROVALS

| | |
|-----------|------------|
| ABS | 3YSA |
| BV | SA3YM |
| CE | EN 13479 |
| DB | 42.039.11 |
| DNV-GL | III YMS |
| LR | 3YS H15 |
| NAKS/HAKC | 1.2-1.6 mm |
| RS | 3YMS |
| VdTUV | 04294 |

CHEMICAL COMPOSITION

| | All Weld Metal (%) | | Wire/Strip (%) | |
|----|--|-----------------------------|----------------|-------|
| | 80Ar/20CO ₂ (M21) Nom | CO ₂ (C1) Nom | Min | Max |
| C | 0.10 | 0.09 | 0.06 | 0.14 |
| Si | 0.80 | 0.70 | 0.80 | 1.15 |
| Mn | 1.28 | 1.08 | 1.60 | 1.85 |
| P | 0.013 | 0.013 | | 0.025 |
| S | 0.013 | 0.013 | | 0.025 |



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MECHANICAL PROPERTIES OF WELD METAL

All Weld Metal

| Properties | AWS CO ₂ (C1) | EN 80Ar/20CO ₂ (M21) | | | EN CO ₂ (C1) | | | EN 80Ar/20CO ₂ (M21) |
|-----------------------|-----------------------------|------------------------------------|-----|-----|----------------------------|-----|-----|------------------------------------|
| | As welded | As welded | | | As welded | | | Stress relieved 620°C 15h |
| | Min | Min | Max | Typ | Min | Max | Typ | Typ |
| Rp0.2 (MPa) | 400 | | | | 400 | | 427 | |
| ReL (MPa) | | 460 | | 525 | 420 | | 475 | 385 |
| ReH (MPa) | | | | 535 | 485 | | | 395 |
| Rm (MPa) | 480 | 530 | 680 | 595 | 500 | 640 | 537 | 520 |
| A4-A5 (%) | 22 | 20 | | 26 | 20 | | 25 | 28 |
| Z (%) | | | | 68 | | | 70 | 73 |
| Charpy V at 20°C (J) | | | | 130 | | | 110 | 120 |
| Charpy V at -20°C (J) | | 90 | | 90 | | | | 90 |
| Charpy V at -29°C (J) | 27 | | | | 47 | | 76 | |
| Charpy V at -30°C (J) | | | | 75 | | | | |
| Charpy V at -40°C (J) | | 47 | | 70 | | | | |

ECONOMICS & CURRENT DATA

| Dimension (mm) | Current (A) | | W | η | H | | Feed | | | U | |
|----------------|-------------|-----|----|--------|-----|------|------|-----|-----|-----|-----|
| | Min | Max | | | Nom | Nom | Min | Max | Min | Max | Min |
| 0.8 | 60 | 185 | 14 | 95 | 0,8 | 2,5 | 3,2 | 10 | 18 | 24 | 24 |
| 0.9 | 70 | 250 | 15 | 96 | 0,8 | 3,3 | 3 | 12 | 18 | 26 | 26 |
| 1.0 | 80 | 300 | 16 | 96 | 1 | 5,5 | 2,7 | 15 | 18 | 32 | 32 |
| 1.2 | 120 | 380 | 18 | 97 | 1,2 | 8 | 2,3 | 15 | 18 | 35 | 35 |
| 1.4 | 150 | 420 | 19 | 97 | 1,7 | 8,5 | 2,5 | 12 | 22 | 36 | 36 |
| 1.6 | 225 | 550 | 20 | 98 | 2,1 | 11,4 | 2,3 | 12 | 28 | 38 | 38 |
| 2.0 | 300 | 650 | 22 | 98 | 3,2 | 12,5 | 4 | 15 | 32 | 44 | 44 |

W = Gas consumption (l / min)

η = Recovery, g weld metal / 100g wire (%)

H = Deposit rate (kg weld metal / hour arc time)

Feed = Feeding rate (m/min)

U = Arc voltage (V)