# Technical Data Sheet (TDS)

GMAW (MIG/MAG) Solid Wire — DEGA SG3 (EN ISO 14341-A: G 4Si1; AWS A5.18/A5.18M: ER70S-6)

## Purpose:

A Technical Data Sheet (TDS) provides product performance data, recommended usage parameters, and classification details.
It is not a legal or safety document (unlike an SDS) but a technical and marketing document for engineers, welding inspectors, and procurement departments.

## Section 1. Product Identification

**1.1 Product identifier**

**Product name:** DEGA SG3

**Product category:** Gas Metal Arc Welding (GMAW) – MIG/MAG solid wire

**Classification:** AWS 5.18/A5.18M: ER70S-6, EN ISO 14341-A (2011): G46 4 M21 4Si1 / G 46 3 C1 4Si1.

**Product size:** 0.80 / 1.00 / 1.20 / 1.60 (mm)

**1.2 Relevant area of usage of the product**

**Identified uses:**
This product is intended for industrial use in welding applications, specifically for Gas Metal Arc Welding (GMAW) and similar processes.

**Uses advised against:**
None identified. Always review this data sheet before use.

## Section 2. Product Classification and Standards

All applicable standards and designations:

- EN ISO 14341-A / AWS A5.18
- Shielding gas classification: ISO 14175: M21 (Ar-$CO_2$), C1 ($CO_2$)
- Polarity: DC+ (DCEP)

## Section 3. Typical Chemical Composition (wt. %)

Wire chemistry for SG3 (G 4Si1); diameters 0.80 / 1.00 / 1.20 / 1.60 mm. Values are typical/spec ranges; Fe = balance. Tolerances per EN ISO 14341-A.

| Element | Symbol | % (w/w) |
|---|---|---|
| Carbon | C | 0.06–0.14 |
| Silicon | Si | 0.80–1.20 |
| Manganese | Mn | 1.60–1.90 |
| Phosphorus | P | ≤ 0.025 |
| Sulfur | S | ≤ 0.025 |
| Copper | Cu | ≤ 0.35 |
| Nickel | Ni | ≤ 0.15 |
| Chromium | Cr | ≤ 0.15 |
| Molybdenum | Mo | ≤ 0.15 |
| | | |
| Aluminium | Al | ≤ 0.02 |
| Iron | Fe | balance |

*All concentrations are percent by weight

## Section 4. Typical Mechanical Properties of Weld Metal

| Property | Typical Value | Test Standard |
|---|---|---|
| Ultimate tensile strength, $R_m$ | 540–680 MPa | ISO 5178 |
| 0.2% proof strength, $R_p0.2$ | ≥460 MPa | ISO 5178 |
| Elongation, **A5** | ≥20% | ISO 5178 |
| Charpy V-notch impact energy, **KV** at **–20 °C** | ≥47 J | ISO 148-1 |

*Tested with shielding gas per ISO 14175 M21 (e.g., Ar/$CO_2$ 82/18), 1.2 mm wire, flat position (PA). Specimen prep per ISO 15792-1. Values are typical and depend on procedure/heat input.*

## Section 5. Recommended Welding Parameters

| Wire Ø (mm) | Shielding Gas | Current (A) | Voltage (V) | Stick-out (mm) |
|---|---|---|---|---|
| 0.80 | M21 (typ. Ar/$CO_2$) | 60–180 | 18–22 | 10–15 |
| 1.00 | M21 | 80–250 | 18–30 | 10–20 |
| 1.20 | M21 | 120–330 | 18–34 | 15–25 |
| 1.60 | M21 or C1 | 225–480 | 28–40 | 20–25 |

*Parameters should be adjusted according to base metal thickness and welding position.*

## Section 6. Welding Characteristics

**Qualitative performance aspects:**

- Smooth, stable arc

- Low spatter levels
- Consistent feeding characteristics
- Suitable for robotic and semi-automatic welding
- Consistent mechanical properties under Ar + $CO_2$ shielding gases

## Section 7. Typical Application Areas

*Unalloyed and fine-grain steels (ISO 15608 material groups 1 & 2).*

- Structural steel fabrication (beams, frames, bridges)
- Automotive, trailers, and general machinery fabrication
- Pressure-bearing equipment and piping in carbon steels (where permitted by code and with qualified WPS/PQR)
- Construction equipment, agricultural implements, and steel containers
- General fabrication, repairs, and workshop welding

## Section 8. Packaging and Available Sizes

| ***Wire Diameter (mm)*** | ***Packaging Type*** | ***Weight*** | ***Reel/Pack Type*** |
|---|---|---|---|
| *0.80 / 1.00 / 1.20 / 1.60* | Plastic spool | 15 kg | D300 |
| *1.00–1.60* | Drum | 250 kg | Centre-pull bulk drum |

**Storage note:** Store in a dry, dust-free environment at 10–30 °C, <60 % RH. Avoid condensation and floor contact; keep in original packaging until use.

## Section 9. Approvals and Certifications

**CE marking (CPR 305/2011):** Conforms to EN 13479:2017, AVCP System 2+.

**Notified Body:** Türk Standardları Enstitüsü (TSE), NB 1783.

**Certificate:** *Certificate of Conformity of Factory Production Control* No. 1783-CPR-1060.

**Scope (per certificate):** Wires for gas-shielded metal-arc welding of non-alloy and fine-grain steels (ref. EN ISO 14341), diameters 0.8 / 1.0 / 1.2 mm.

**Declaration(s) of Performance:** DoP–SG2–001 and DoP–SG3–001 (EN/TR) — available via product QR or on request.

**Manufacturer approval (Germany):** VdTÜV-Merkblatt 1153 in connection with AD 2000 ..Merkblatt W 0.

**Certification Body:** TÜV SÜD Industrie Service GmbH.

**Certificate No.:** VdTÜV – S 157.2023.001

**Quality Management System:** ISO 9001:2015.

**Certification Body:** URS (United Registrar of Systems).

**Scope:** Manufacture of Steel Bolts and Welding Wires.

**Certificate No.:** 81124/A/0001/UK/En — issued 06-Apr-2023, expires 05-Apr-2026 (certification cycle 3).

***Note:*** *ISO 9001 certifies the organisation's management system; it is not a product approval. CE/CPR compliance and DoPs listed above apply to the welding wire products.*

## Section 10. Storage and Handling Recommendations

- Store in original packaging until use.
- Keep away from moisture and contaminants.
- Use within 12 months of manufacture for optimal results.
- Do not expose to direct sunlight or extreme temperature changes.

## Section 11. Disclaimer

The information contained in this document is based on typical test data and provided for reference purposes only. Actual results may vary depending on specific application conditions. The user is responsible for determining the suitability of the product for the intended use.