

## SubCOR™ SL 731

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Type no: 503

### Features

- Specially formulated to offer enhanced impact toughness than can be achieved by carbon steel solid wires such as SDX S2, SDX EM13K, SDX S2Si-EM12K or SDX 3Si-EH12K
- Seamless wire design virtually eliminates risk of moisture absorption and produces low hydrogen weld deposits
- Unique manufacturing process provides unmatched product consistency
- Composite (cored) wire can offer improved deposition rates compared to solid wires at comparable welding parameters
- Composite (cored) wires offer broader penetration profiles compared to solid wire at comparable welding parameters

### Benefits

- Helps to minimize the risk of cracking in demanding service conditions and the risk of cracking caused by improper depth-to-width ratio
- Assists in maintaining a low hydrogen process to minimize the risk of hydrogen-induced cracking
- Provides excellent uniformity of chemical properties, mechanical properties and arc characteristics
- Provides potential to increase travel speed for improved productivity
- Helps to prevent burn-through when welding at high currents on root passes and relatively thin materials

### Applications

- Shipbuilding
- Structural and bridge fabrication
- Heavy equipment
- Cranes
- Pressure vessel fabrication
- Industrial machinery

### Common Base Metal Types, Specifications & Grades

|       |  |
|-------|--|
| Types | Non-alloyed, fine-grained, carbon steels up to 490 MPa (70 ksi) tensile strength |
| ASTM  | A258, A516, A662, A738, A612, A299   |
| EN    | S185-S355, P235GH-P355GH, P235T1/T2-P460NL2, L210-L445MB, S255-S460QL1           |
| ABS   | A, B, D, AH32-EH36   |
| API   | X42-X60  |

For reference only. Not inclusive of all compatible applications or base metals. **Always** consider all design requirements when selecting an electrode/flux combination.

### Wire Characteristics

|                    |  |
|--------------------|--|
| Wire type          | Seamless composite (cored) submerged arc welding wire  |
| Recommended fluxes | SWX 110, SWX 120, SWX 150  |
| Type of current    | DC+/AC   |
| Standard diameters | 2.4 mm (3/32"), 4.0 mm (5/32")   |
| Re-drying          | Not recommended  |
| Storage            | Product should be stored in a dry, enclosed environment and in its original intact packaging |

### Wire/Flux - Combination Classifications

| With flux | EN ISO 14171-A  | AWS A5.17 | AWS A5.23 |
|-----------|-----------------|-----------|-----------|
| SWX 110   | AW S 46 4 AB T3 | F7A4-ECG  | F8A4-ECG  |
| SWX 120   | AW S 46 4 AB T3 | F7A4-ECG  | F8A4-ECG  |
| SWX 150   | AW S 46 6 FB T3 | F7A4-EC1  | F8A8-ECG  |

AW: as welded, all weld metal.

### Chemical Composition All Weld Metal - Typical Values

| With flux | %C   | %Si  | %Mn  | %P    | %S    |
|-----------|------|------|------|-------|-------|
| SWX 110   | 0.05 | 0.30 | 2.10 | 0.025 | 0.025 |
| SWX 120   | 0.06 | 0.50 | 2.10 | 0.025 | 0.025 |
| SWX 150   | 0.08 | 0.60 | 1.60 | 0.025 | 0.025 |

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### Mechanical Properties - Typical values

| With flux         |    | Re/Rp0.2<br>MPa | Rm<br>Mpa | A<br>% | CVN<br>J |     |     |
|-------------------|----|-----------------|-----------|--------|----------|-----|-----|
| -20°C -40°C -60°C |    |                 |           |        |          |     |     |
| SWX 110           | AW | 520             | 620       | 25     | 110      | 90  | 50  |
|                   | SR | 510             | 610       | 25     | 110      | 90  | 50  |
| SWX 120           | AW | 520             | 620       | 26     | 115      | 95  | 55  |
|                   | SR | 500             | 600       | 26     | 110      | 90  | 50  |
| SWX 150           | AW | 500             | 600       | 27     | 160      | 130 | 100 |
|                   | SR | 470             | 570       | 28     | 130      | 110 | 80  |

AW: as welded, all weld metal. SR: stress relieved, all weld metal, 620±15°C (1150±25°F)/1h.

### Mechanical Properties - Typical values

| With flux        |    | YS<br>ksi | TS<br>ksi | E<br>% | CVN<br>ft-lbf |    |    |
|------------------|----|-----------|-----------|--------|---------------|----|----|
| -4°F -40°F -76°F |    |           |           |        |               |    |    |
| SWX 110          | AW | 75        | 90        | 25     | 81            | 66 | 37 |
|                  | SR | 74        | 88        | 25     | 81            | 66 | 37 |
| SWX 120          | AW | 75        | 90        | 26     | 85            | 70 | 41 |
|                  | SR | 73        | 87        | 26     | 81            | 66 | 37 |
| SWX 150          | AW | 73        | 87        | 27     | 118           | 96 | 74 |
|                  | SR | 68        | 83        | 28     | 96            | 81 | 59 |

AW: as welded, all weld metal. SR: stress relieved, all weld metal, 1150±25°F (620±15°C)/1h.

### Recommended Fluxes - Standard Packaging and Item numbers

| Package                       | SWX 110    | SWX 120    | SWX 150    |
|-------------------------------|------------|------------|------------|
| 22.7 kg (50 lbs) EAE Bag      |            |            | 150022300H |
| 25 kg (55 lbs) EAE Bag        | 110022500H | 120022500H |            |
| 1000 kg (2200 lbs) Double Bag | 110071T00H | 120071T00H |            |

### Standard Diameters, Packages and Item numbers - North America

| Package                          | 2.4 mm (3/32") | 4.0 mm (5/32") |
|----------------------------------|----------------|----------------|
| 25 kg (55 lbs) Wire basket K-415 | 503241025H     | 503401025H     |
| 250 kg (550 lbs) Pay off drum    |                | 50340442FH     |

#### Customers Located In North America:

Refer to the table above for standard part numbers exclusive to North America.

For a complete list of diameters and packaging, please contact Hobart Brothers at +1 (800) 424-1543 for US customer service or e-mail [subarc@itw-welding.com](mailto:subarc@itw-welding.com)

### Standard Diameters, Packages and Item numbers - Outside North America

| Package                          | 2.4 mm (3/32") | 4.0 mm (5/32") |
|----------------------------------|----------------|----------------|
| 25 kg (55 lbs) Wire basket K-415 | 5032410250     | 5034010250     |
| 250 kg (550 lbs) Pay off drum    |                | 50340442F0     |

#### Customers Located Outside North America:

Refer to the table above for standard part numbers exclusive to locations outside North America.

For a complete list of diameters and packaging, please contact the ITW Welding GmbH sales office at +49 (0) 6356 966 119 or e-mail [subarc@itw-welding.com](mailto:subarc@itw-welding.com)

### Approvals

| With flux | ABS   | BV   | DNV    | GL  | LR     | CE | DB | TÜV |
|-----------|-------|------|--------|-----|--------|----|----|-----|
| SWX 150   | 3YMH5 | A3YM | III YM | 3YM | 5Y46H5 | √  | √  | √   |

Limitations (diameter, position, etc.) may exist. Please refer to product approval certificates for more information.



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**Maintaining a proper welding procedure - including pre-heat and interpass temperatures - may be critical depending on the type and thickness of steel being welded.**

**TECHNICAL QUESTIONS?** For technical support of Hobart Filler Metals products please visit [www.hobartbrothers.com/where-to-buy](http://www.hobartbrothers.com/where-to-buy) to find your closest Hobart representative or send an e-mail to [subarc@itw-welding.com](mailto:subarc@itw-welding.com) for further assistance.

**DISCLAIMER:**

The information contained or otherwise referenced herein is for reference purposes only and is presented only as "typical." Typical data are those obtained when welding and testing are performed in accordance with applicable AWS and/or EN ISO specification(s). Other tests and procedures may produce difference results and typical data should not be assumed to yield similar results in a particular application or weldment. No data is to be construed as a recommendation for any welding condition or technique not controlled by ITW Welding. ITW Welding does not assume responsibility for any results obtained by persons over whose methods it has no control. It is the user's responsibility to determine the suitability of any products or methods mentioned herein for a particular purpose. In light of the foregoing, ITW Welding specifically disclaims any liability incurred from reliance on such information, and disclaims all guarantees and warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, and further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

**CAUTION:**

Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standard Z49.1, "Safety in Welding and Cutting," published by the American Welding Society, 8669 NW 36 St, # 130, Miami, FL 33166-6672 (can also be downloaded online at [www.aws.org](http://www.aws.org)); OSHA Safety and Health Standards 29 CFR 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210.

Safety Data Sheets on any Hobart Brothers Company product may be obtained from Hobart Customer Service or at [www.hobartbrothers.com](http://www.hobartbrothers.com).

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**Specification:** PDS503 // **Type Number:** 503 // **Revision:** 3 // **Replaces:** 2 // **Approved By:** A.Holzner, P.Jeirud

**Prepared By:** G.Hiereth, L.Oziewicz // **Reason For Issue:** Change of article number.