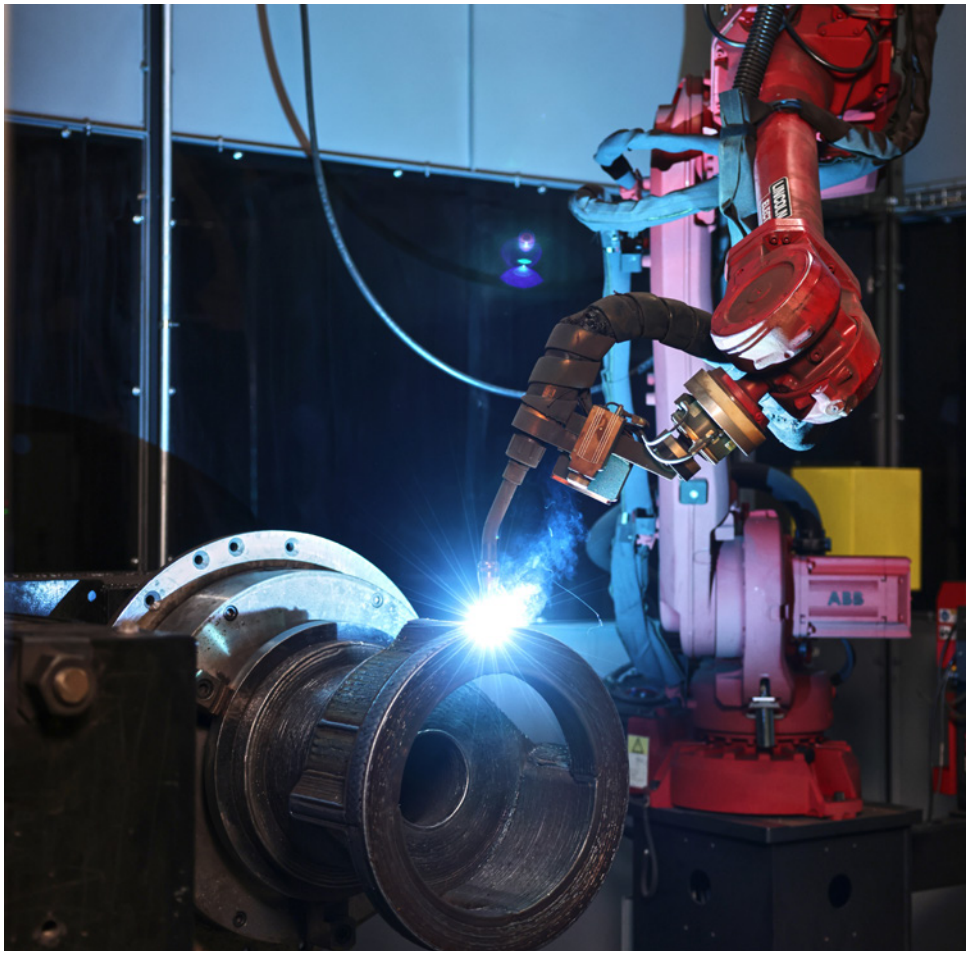
LINCOLN ELECTRIC ADDITIVE SOLUTIONS

# HIGH-STRENGTH LOW-ALLOY STEEL




## KEY FEATURES

High-Strength Low-Alloy (HSLA) steel is known for its high tensile and yield strength as well as its atmospheric corrosion resistance. Its good notch toughness and strength-to-weight ratio along with excellent formability and ductility makes HSLA steel ideal for applications such as: pressure vessels, shipbuilding, heavy construction and agricultural equipment, machinery replacement parts, bridges and building structures, and more.

The mechanical properties compare favorably to the following high strength low-alloy steel casting grades:

MIL S-16216 Grade HY-80

MIL S-21952 Grade HY-80

**Typical Applications »**

Pressure Vessels

Shipbuilding

Heavy Construction and Agricultual Equipment

Machinery Replacement Parts

Bridges and Building Structures

Energy and Oil & Gas

Rail Transportation

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## NOMINAL MECHANICAL PROPERTIES (AS-PRINTED)[1]

| GMAAM[2] | Room Temperature Strength | | | Toughness | | Vickers Hardness | CTE |
|---|---|---|---|---|---|---|---|
| Wire Feedstock | YS @ 0.2% Off (ksi) | UTS (ksi) | Elong (%) | ft-lbs @ 70 °F | ft-lbs @ -50 °F | HV10 | in/(in °F) |
| HSLA Steel | 80 | 105 | 20 | > 100 | > 20 | 280 | 7 |

(1) As-Printed indicates deposits were not subject to post-weld heat treatment

(2) Gas Metal Arc Additive Manufacturing (GMAAM)

### Test Results

Test results for mechanical properties were obtained from GMAAM deposits produced and tested according to prescribed standards. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any GMAAM component before use in the intended application. This data is for illustrative purposes only. Actual results may vary.




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