

# 439 LT STAINLESS STEEL



AK Steel 439 LT is a ferritic stainless steel that outperforms Type 409 in both oxidation resistance and corrosion resistance, and is comparable to Type 439 stainless steel. Special attention to chemical composition combined with special processing give this alloy optimum formability that is reproducible, coil after coil and heat after heat. This provides special advantages when producing difficult-to-form exhaust systems components. The lower titanium content of AK Steel 439 LT Stainless Steel compared to Type 439 provides an improved surface essentially free from titanium scale.

Oxidation resistance and corrosion resistance superior to Type 409 stainless steel make AK Steel 439 LT Stainless Steel attractive for numerous automotive exhaust applications. Suggested applications include tubular manifolds and other exhaust system areas where temperatures may exceed the oxidation limit of Type 409 or where wet corrosion resistance, particularly to chlorides, is needed.

## COMPOSITION

	%
Carbon	0.025 max.
Manganese	0.50 max.
Silicon	0.75 max.
Chromium	17.0 - 19.0
Nickel	0.50 max.
Columbium + Titanium	≥ 0.20 + 4(C+N)- 0.50 max

## AVAILABLE FORMS

AK Steel 439 LT is available in thicknesses from 0.015" to 0.100" (0.381 to 2.54 mm) in widths up to and including 48" (1219 mm). For other sizes, inquire.

## MECHANICAL PROPERTIES

### Typical Mechanical Properties

UTS ksi (MPa)	0.2% YS ksi (MPa)	Elongation % in 2" (50.8 mm)	Hardness Rockwell B	n Value	Formability, r
64-72 (442-497)	40-48 (276-331)	30-35	73-79	0.19-0.23	1.3-1.8

\*0.040 to 0.070 inches (1.02 to 1.78 mm)

**CORROSION RESISTANCE**

AK Steel 439 LT Stainless Steel exhibits better corrosion resistance in synthetic muffler condensate than Type 409.

**OXIDATION RESISTANCE**

Like Type 439, AK Steel 439 Stainless Steel exhibits considerably better oxidation resistance than Type 409 at 1700°F (927°C) after 1022 hours of cyclic testing.

**FORMABILITY**

AK Steel 439 LT Stainless Steel provides good formability, comparable to Type 439. The product can be easily cut, blanked, drawn, stamped, roll formed and fabricated into a variety of exhaust system components. The r values range from 1.3 to 1.8.

**WELDABILITY**

This ferritic class of stainless steels is generally considered to be weldable by the common fusion and resistance techniques. Special consideration is required to avoid brittle weld fractures during fabrication by minimizing discontinuities,

maintaining low weld heat input, and occasionally warming the part somewhat before forming. This particular alloy is generally considered to have poorer weldability when compared to the most common alloy of the stainless class, Type 409, and is comparable to Type 439. When a weld filler is required, AWS E/ER such as 309 or 330 are most often specified. Type 439 is well known in reference literature and information can be obtained in this way.

**METRIC CONVERSION**

Data in this publication are presented in U.S. customary units. Approximate metric equivalents may be obtained by performing the following calculations:

Length (inches to millimeters) –  
Multiply by 25.4

Strength (ksi to megapascals or  
meganewtons per square meter) –  
Multiply by 6.8948

Temperature (Fahrenheit to Celsius) –  
(°Fahrenheit - 32) Multiply by 0.5556

Density (pounds per cubic inch to  
kilograms per cubic meter) –  
Multiply by 27,670

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Data referring to mechanical properties and chemical analyses are the result of tests performed on specimens obtained from specific locations of the products in accordance with prescribed sampling procedures; any warranty thereof is limited to the values obtained at such locations and by such procedures. There is no warranty with respect to values of the materials at other locations.

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