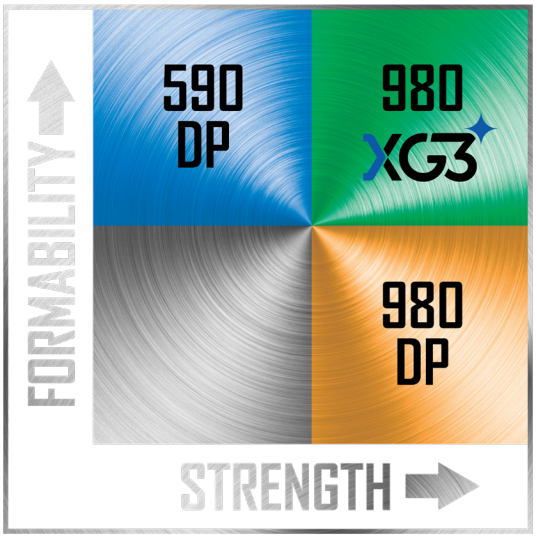
INTRODUCTION
AUTOMOTIVE SOLUTIONS

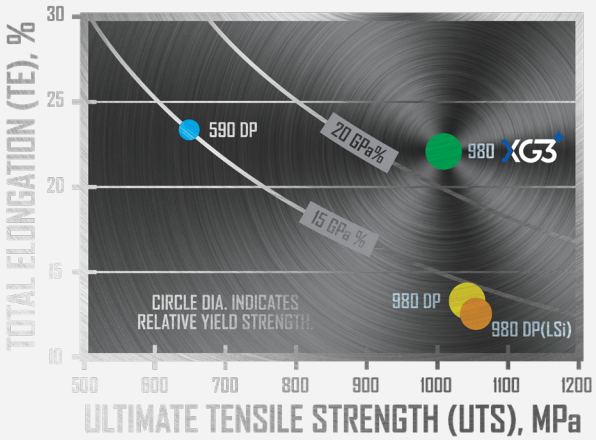
XG3

STRENGTH & FORMABILITY



980 XG3 Concept

The true measurement of superior strength is adaptability. Get the formability of a 590 with the strength of a 980. Introducing XG3 from U. S. Steel.



Global Formability Diagram

At a glance, the performance advantage of U. S. Steel 980 XG3 is demonstrated by its position on the so-called “Banana Diagram” or Global Formability Diagram (WorldAutoSteel 2017).

Conventionally, AHSS performance is defined by the product of ultimate tensile strength and total elongation (UTSxTE).

For 1st Generation AHSS, UTSxTE is typically 15,000 MPa·% (15 GPa·%) or less, while the target for 3rd Generation AHSS is typically greater than 20 GPa·% (Davenport 2017).

From the nation’s most iconic steelmaker comes our most Advanced High Strength Steel available. This is our Generation 3 steel. One with high strength and high formability.

One that adapts to your current processes without compromising weldability while providing the most cost effective material for a safer and lighter vehicle.

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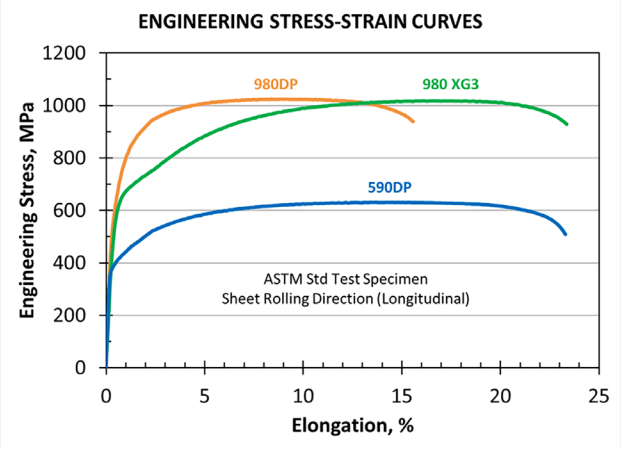
PROPERTIES & STRUCTURE

Specimen	Orientation[a]	U. S. Steel 980 XG3: Typical Tensile Properties		
		YS, MPa	UTS, MPa	TE, %
ASTM Std	L	640	1,020	23
JIS No. 5	T	660	1,030	25

[a] L = longitudinal (rolling direction, RD); T = transverse (90° from RD)
[b] YS = yield strength, UTS = ultimate tensile strength, TE = total elongation

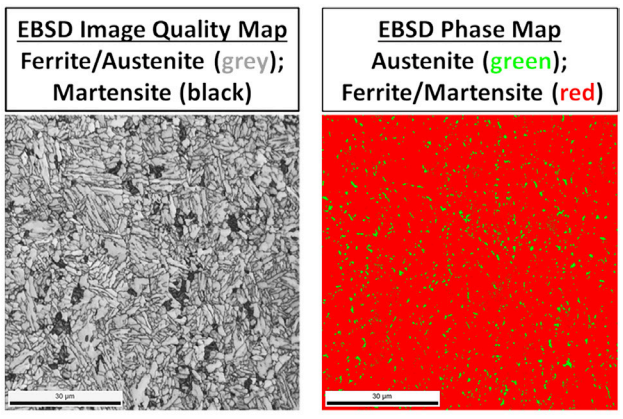
Typical Properties: U. S. Steel 980 XG3

U. S. Steel 980 XG3 has an excellent combination of strength and ductility with a low yield-to-tensile ratio (YS/UTS < 0.7) and total elongation consistently above 20%.



Stress-Strain Curves

The unique, sustained work-hardening behavior of U. S. Steel 980 XG3 is revealed by its tensile stress-strain behavior. The net result is greater than 60% strength increase over 590DP and approximately 50% greater total elongation vs 980DP.



Microstructure: U. S. Steel 980 XG3

U. S. Steel 980 XG3 derives exceptional properties from its complex multi-phase microstructure – a fine, uniform mixture of ferrite, martensite and austenite. Here, electron back-scattered diffraction (EBSD) reveals the distribution of various micro-constituents.