



	Grade Designation		Hot Rolled (HR)	Cold Rolled (CR)			
	Generic	North America		Uncoated	Hot Dip Galvanize (GI)	Galvanneal (GA)	Aluminized (AlSi)
<b>Dual Phase Steels</b>	DP500	T490/Y280					
	DP590	T590/Y340, T590/Y305					
	DP590HY	T590/Y450					
	DP780	T780/Y420, T780/Y440					
	DP780 LCE	T780/Y420, T780/Y440					
	DP980	T980/Y600					
	DP980 LCE	T980/Y600					
	DP1180	T1180/Y875					
	DP1470						
<b>High Formability</b>	980HF						
	980HF	Fortiform®980					
	1180HF						
	1180HF	Fortiform®1180					
<b>Ferrite-Bainite/Improved Formability</b>	540HHE						
	590HHE						
	780 HHE						
<b>Multiphase</b>	MartInsite® MP980						
	MartInsite® MP1300						
	MartInsite® MP1500						
<b>Press Hardened Steels</b>	22MnB5						
	USIBOR®1500						
	USIBOR®2000						
	Ductibor®500						
	Ductibor®1000						

Commercial      In Development

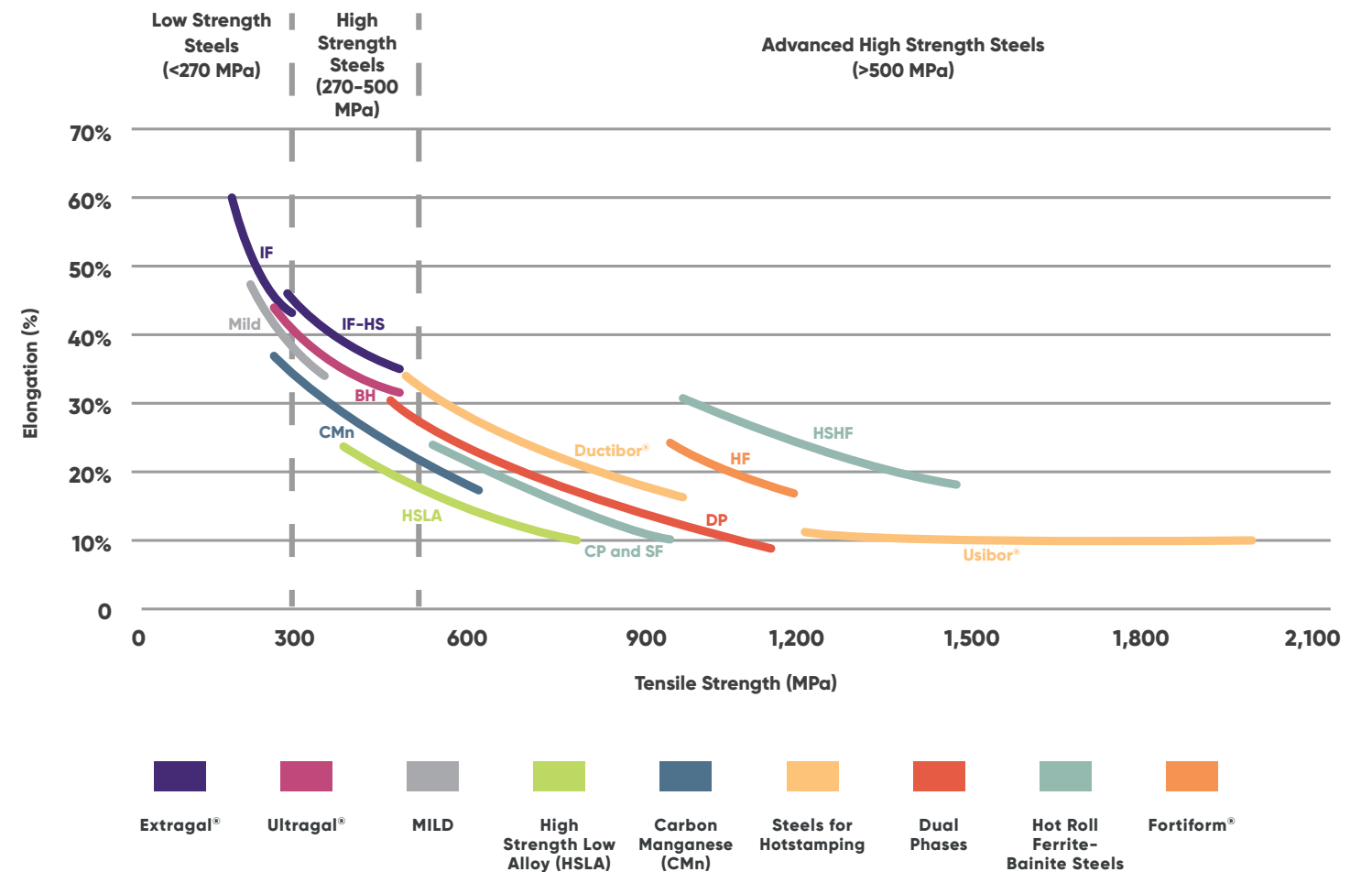
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# Product Catalogue

## Expanding the Limits in Formability and Strength of Steel

This chart demonstrates the traditional trade-off between formability and strength, and how ArcelorMittal has developed and commercialized advanced high-strength steels and ultra high-strength steels to expand these limits in order to provide our customers with grades of steel that support the design of lighter, safer, more energy-efficient vehicles.



<b>MILD</b>	<b>Commercial Steel (CS)</b>	Typically produced using low carbon content, CS is used in applications with more limited forming requirements.
	<b>Drawing Steel (DS)</b>	DS is a readily available specification which offers good formability. DS is aluminum killed and typically has lower carbon or controlled processing resulting in improved formability.
	<b>Deep Drawing Steel (DDS)</b>	A specification of steel with excellent formability characteristics which is recommended for difficult forming applications. DDS is also available in standard and extra low carbon forms. It is sometimes produced using ultralow carbon (ULC) or interstitial free (IF) steels.
	<b>Extra Deep Drawing Steel (EDDS)</b>	A highly formable specification of steel ideal for the most difficult forming applications where other steels lack sufficient ductility. This product is produced using IF steel, requiring the use of a degasser in steelmaking as well as close control of alloy additions.
<b>Bake Hardenable</b>		These specifications are unique in that they are designed to increase yield strength after the paint curing process, providing the benefit of both superior formability over traditional high-strength steels and higher part strength than previously described specifications. They acquire their added strength via the amount of strain generated in the part during stamping, and through the time and temperature inherent in the paint curing process.
<b>(BH) High-strength Low Alloy (HSLA)</b>		HSLA specifications offer higher strengths for applications where forming requirements are not as severe as previously described specifications. The product is sold to guaranteed mechanical properties of yield strength, tensile strength and elongation. The strength is obtained not only through carbon and manganese but also through the addition of one or more microalloys (Cb, Ti, V) coupled with controlled processing.
<b>Carbon Manganese (CMn)</b>		Carbon steels containing more than 1.2 percent up to approximately 1.8 percent manganese are referred to as Carbon Manganese steels. The manganese content in carbon steels is increased for the purpose of increasing depth of hardening and improving strength and toughness.
<b>Multiphase</b>		Multiphase MartInsite® MP steels are multi-constituent phase grades that achieve the high tensile strengths of other Advanced and Ultra High-Strength Grades with higher Yield Strengths and Lower Total Elongations than many Dual Phase steels. In exchange, they have improved local formability as measured by Hole Expansion, Bendability, etc. These grades are traditionally at the 780, 980 and 1180 MPa tensile levels, however recent work done by ArcelorMittal has pushed these grades to higher tensile strengths.
<b>MartInsite® MP</b>		

<b>Dual Phase (DP)</b>	DP steels offer an outstanding combination of strength and initial drawability as a result of their microstructure, in which a hard martensitic or bainitic phase is dispersed in a soft ferritic phase. These steels have high strain hardening capacity. As a result, finished part mechanical properties, especially yield strength, are superior to those of the initial blank. These steels have excellent fatigue strength and good energy absorption capacity making them suitable for use in structural parts and reinforcements.
<b>High Formability (HF)</b>	HF or GEN 3 grades exhibit the high formability of lower strength dual-phase steel grades at higher strength levels and have excellent ductility. These steels allow the realization of lightweight structural elements by cold forming methods such as stamping and roll forming. These third-generation steels are used to provide additional weight reduction thanks to their higher strength levels while maintaining the same level of formability or by increasing their formability at same strength levels as the second-generation advanced high-strength steels grades. Thanks to their combination of excellent mechanical properties and formability, these grades are particularly suitable for automotive safety parts with requirements for energy absorption at higher strength. Typical applications include front and rear rails, shotguns, sled runners and various cross-members.
<b>Ferrite-Bainite/ Improved Formability</b>	Improved Formability grades extend the HSLA range of micro-alloyed steels to include products combining high tensile strength (UTS) with excellent formability and hole expansion (stretch flangeability) based on their ferrite-bainite microstructure. As a result of their high tensile strength and microstructure, these grades exhibit good fatigue strength. Applications are cold stamped automotive parts with applications including control arms, cross members and wheels.
<b>Press Hardened Steels (PHS)</b>	PHS are designed to be heat treated and then quenched during the hot stamping process. The mechanical properties of the final part make significant weight savings possible. The very high yield strength of these steels after heat treatment and hot stamping make them suitable for anti-intrusion components such as fender beams, door reinforcements and B-pillars.
<b>Usibor®</b>	Usibor® has an aluminum-silicon pre-coating and was developed to protect the metal from oxidation (scale) and decarburization during the hot stamping process. The coating offers excellent resistance to oxidation resulting from the hot stamping heat treatment process. Final parts using this forming technology have improved corrosion resistance after painting.
<b>Ductibor®</b>	When Ductibor® Al-Si coated products, e.g., Ductibor® 500 and 1000, are combined in a laser welded blank application, i.e., mated to Usibor® 1500, "softer zones" in the finished/hot-stamped finished part are obtained without having to alter the hot-stamping parameters. These "soft zones" are areas where increased crash ductility is either a desirable or required characteristic.