

## ArcelorMittal Dual Phase 780 Y500 Very high strength steel, Cold Rolled Steel

Category : Metal , Ferrous Metal , Alloy Steel

**Material Notes:**

Description: Dual Phase steels offer an outstanding combination of strength and drawability as a result of their microstructure, in which a hard martensitic or bainitic phase is dispersed in a soft ferritic matrix. These steels have high strain hardenability. This gives them good strain redistribution capacity and thus drawability as well as finished part mechanical properties, including yield strength, that are far superior to those of the initial blank. The yield strength of Dual Phase steels is further increased by the paint baking (also called Bake Hardening, BH) process. High finished part mechanical strength lends these steels excellent fatigue strength and good energy absorption capacity, making them suitable for use in structural parts and reinforcements. The strain hardening capacity of these steels combined with a strong bake hardening effect gives them excellent potential for reducing the weight of structural parts and even – notably in the case of FullFinished 280 DP (FF 280 DP) – skin parts. Applications: Given their high energy absorption capacity and fatigue strength, cold rolled Dual Phase Steels are particularly well suited for automotive structural and safety parts such as longitudinal beams, cross members and reinforcements. FF 280 DP can be used to make visible parts with 20% higher dent resistance than conventional high strength steels, resulting in a potential weight saving of some 15%. As a result of its mechanical strength, hot rolled Dual Phase 600 can be used to reduce the weight of structural parts by decreasing their thickness. Relevant automotive applications include: wheel webs longitudinal rail shock towers fasteners Information provided by ArcelorMittal

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[http://www.lookpolymers.com/polymer\\_ArcelorMittal-Dual-Phase-780-Y500-Very-high-strength-steel-Cold-Rolled-Steel.php](http://www.lookpolymers.com/polymer_ArcelorMittal-Dual-Phase-780-Y500-Very-high-strength-steel-Cold-Rolled-Steel.php)

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	780 - 900 MPa	113000 - 131000 psi	
Tensile Strength, Yield	500 - 600 MPa	72500 - 87000 psi	
Elongation at Break	>= 13 %	>= 13 %	L<Sub>0</sub>=80 mm, th<3 mm

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.17 %	<= 0.17 %	
Iron, Fe	>= 97.03 %	>= 97.03 %	as balance
Manganese, Mn	<= 2.2 %	<= 2.2 %	
Silicon, Si	<= 0.60 %	<= 0.60 %	

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