

ArcelorMittal Usibor® 1500 Ultra high strength steel, Cold Rolled

Category : Metal , Ferrous Metal , Alloy Steel

Material Notes:

Description: Usibor® 1500 and 22MnB5 are hot formed grades intended for use in automobile structural and safety components. The very high mechanical strength of the final part makes it possible to achieve weight savings of 30% to 50% compared to conventional cold forming grades. The main advantages of Usibor® 1500 and 22MnB5 are: Ability to achieve complex geometry in both the direct process (forming in austenitic state) and the indirect process (good cold formability). Their very good hot formability makes it possible to offer steel solutions that integrate several functions (elimination of reinforcement parts and assemblies); Total absence of springback; Uniform mechanical properties obtained on the part; Exceptional fatigue strength (Usibor® 1500) and impact resistance, allowing substantial weight reduction. ArcelorMittal was the first steelmaker to deliver a coated press hardened steel, Usibor® 1500-AS with an aluminum-silicon coating. The additional advantages of Usibor® 1500-AS, above and beyond those of 22MnB5, are: Simplified process and cost savings: elimination of the shot-blasting step (no formation of scale), no need for protective atmosphere in austenitization ovens; Excellent temporary corrosion resistance after stamping, no need to oil parts before assembly; No decarburization; Excellent resistance to pitting corrosion, currently used in dry and wet areas (e.g. side sill) of the vehicle. Usibor® 1500-GI galvanized Zn (for indirect stamping process only) and Usibor® 1500-GA galvanized ZnFe (for both direct and indirect processes) now round out the coating offer. ArcelorMittal has now added the Ductibor® 500 grade to its range. This product is offered in association with Usibor® 1500 in Laser Welded Blank (LWB) solutions that locally provide more ductile properties than those of Usibor® 1500. This makes it possible to precisely control the crash deformation of specific vehicle parts (e.g. B-pillar reinforcement) and expands the use of hot stamping steels to energy absorption parts (e.g. front or rear rail). **Applications:** Usibor® 1500 and 22MnB5 are particularly well suited for the entire range of structural parts requiring good crash resistance. Current applications include: Front and rear bumper beams; Door reinforcements; Windscreen upright reinforcements; B-pillar reinforcements; Floor and roof reinforcements; Roof and dash panel cross members. Information provided by ArcelorMittal

Order this product through the following link:

http://www.lookpolymers.com/polymer_ArcelorMittal-Usibor-1500-Ultra-high-strength-steel-Cold-Rolled.php

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	500 - 700 MPa	72500 - 102000 psi	before hot stamping
	1500 MPa	218000 psi	after hot stamping
Tensile Strength, Yield	350 - 550 MPa	50800 - 79800 psi	before hot stamping
	1100 MPa	160000 psi	after hot stamping
Elongation at Break	6.0 %	6.0 %	after hot stamping, L ₀ = 80 mm, th < 3 mm
	≥ 10 %	≥ 10 %	before hot stamping, L ₀ = 80 mm, th < 3 mm
Fatigue Strength	475 MPa	68900 psi	R _D A, R=1
	@# of Cycles 2.00e+6	@# of Cycles 2.00e+6	
	727 MPa	105000 psi	

Mechanical Properties	Metric	English	Comments
	@# of Cycles 2.00e+6	@# of Cycles 2.00e+6	σ_D A, R=0.1
Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.25 %	<= 0.25 %	
Iron, Fe	>= 98 %	>= 98 %	as balance
Manganese, Mn	<= 1.4 %	<= 1.4 %	
Silicon, Si	<= 0.35 %	<= 0.35 %	

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