

ArcelorMittal TRIP 780 Very high strength steel, Cold Rolled Steel

Category : Metal , Ferrous Metal , Alloy Steel

Material Notes:

Available in the following: uncoated (HCT780T), electrogalvanized (HCT780T+ZE) and Extragal®/Galvannealed

(HCT780T+Z/+ZZF)Description: TRIP steels offer an outstanding combination of strength and ductility as a result of their microstructure.

They are thus suitable for structural and reinforcement parts of complex shape. The microstructure of these steels is composed of islands of hard residual austenite and carbide-free bainite dispersed in a soft ferritic matrix. Austenite is transformed into martensite during plastic deformation (TRIP: TRansformation Induced Plasticity effect), making it possible to achieve greater elongations and lending these steels their excellent combination of strength and ductility. These steels have high strain hardening capacity. They exhibit good strain redistribution and thus good drawability. As a result of strain hardening, the mechanical properties, and especially the yield strength, of the finished part are far superior to those of the initial blank. High strain hardening capacity and high mechanical strength lend these steels excellent energy absorption capacity. TRIP steels also exhibit a strong bake hardening (BH) effect following deformation, which further improves their crash performance. The TRIP range of steels comprises 2 cold rolled grades in both uncoated and coated formats (TRIP 690 and TRIP 780) and one hot rolled grade (TRIP 780), identified by their minimum tensile strength expressed in MPa. Applications: As a result of their high energy absorption capacity and fatigue strength, TRIP steels are particularly well suited for automotive structural and safety parts such as cross members, longitudinal beams, B-pillar reinforcements, sills and bumper reinforcements. ArcelorMittal has extensive data on the forming and service characteristics of the TRIP family of steels. To integrate these steels at the design stage, a team of experts is available to carry out specific studies based on modeling and experimental tests. Information provided by ArcelorMittal

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http://www.lookpolymers.com/polymer_ArcelorMittal-TRIP-780-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	460 - 550 MPa	66700 - 79800 psi	
Elongation at Break	>= 23 %	>= 23 %	L₀=80 mm, th<3 mm

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.25 %	<= 0.25 %	
Iron, Fe	>= 95.75 %	>= 95.75 %	as balance
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Silicon, Si	<= 2.0 %	<= 2.0 %	

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.comEmail : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China