

Hot-rolled FB590

High strength, high ductility and high formability

Hot-rolled FB590 is a ferrite-bainite high strength steel (AHSS), designed to offer high strength, ductility, and formability. This steel can be used in automotive chassis and suspension applications, such as, upper and lower control arms, engine sub-frames and road wheels (specifically wheel discs) where a high strength highly formable material is required.

FB590 offers a high hole expansion coefficient in combination with a high tensile strength where components have a significant amount of edge stretching. Another benefit is that this hot-rolled steel offers excellent fatigue resistance in relation to the high tensile strength. Substitution of standard grades with FB590 provides opportunities to reduce thickness whilst maintaining the in-service performance and potential cost and weight savings.

Tata Steel can advise you with regard to forming and welding when switching to FB590 or designing new components with this material.

Mechanical properties

FB590	Test direction	Yield strength	Tensile strength	Elongation
		$R_{p0.2}$ (N/mm ²)	R_m (N/mm ²)	A_{80} (%) min
VDA 239: HR440Y580T-FB	L	480	580 - 700	≥15
EN 10338: HDT580F	L	440-600	≥580	≥15
Typical Tata Steel	L	490	595	20
product properties	T	530	600	18

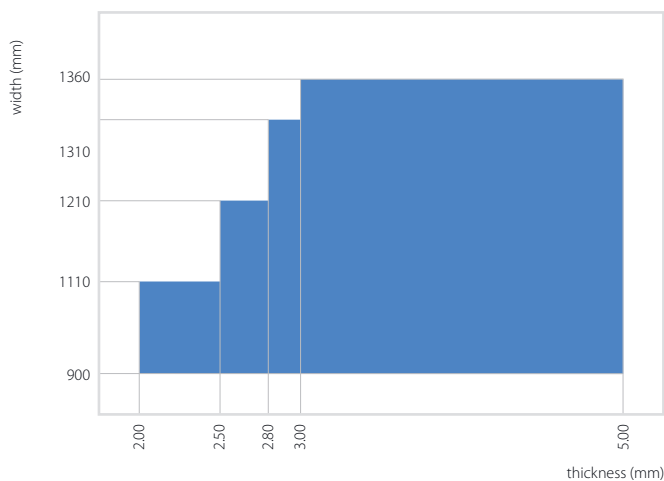
Hole Expansion Co-efficient values can be supplied on request but not as part of the production release test.

Chemical composition

FB590	C	Mn	P	S	Si	Al _{tot}	Nb+Ti	V	Cr+Mo	B
VDA 239: HR440Y580T-FB	≤0.12	≤1.6	≤0.025	≤0.01	≤0.50	0.015	0.05			
EN 10338: HDT580F	0.18	2.00	0.050	0.010	0.50	0.015 to 2.0	0.15	0.15	1.00	0.01
Tata Steel product properties	0.07	1.40	0.018	0.004	0.185	0.05	0.07	0.01	0.08	0.001

Values provided in maximum mass percentages unless shown otherwise

Dimensional window of Hot-rolled FB590



■ Available

Please refer to Tata Steel or your local sales representative for dimensions which fall outside of the above chart.

Our material experts are there to support the deployment of FB590 in your specific application area. Our online material database Aurora Online can provide our customers with comprehensive data sheets and ready to run input decks.

For more information (also for access to Aurora Online):

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