

Ymagine® H420

High-strength steel for lightweight structural efficiency

Ymagine is Tata Steel's range of high-quality, direct-rolled steel products engineered for reliable performance and efficient processing. Supplied pickled and oiled, Ymagine offers excellent dimensional control, consistent mechanical properties and tight tolerances – making it a smart alternative to cold-rolled or hot-rolled steel. All grades are delivered in weld-free coils and available in various thicknesses,

widths and coil weights to optimise productivity and reduce waste. Ymagine H420 combines high strength with reliable forming behaviour, suitable for engineering parts subjected to mechanical stress. It is ideal for load-bearing components, such as reinforcements, supports and beams where performance and consistency matter.

Mechanical properties (measured parallel to the rolling direction)

	Min.-Max. yield strength	Min.-Max. tensile strength	% elongation at fracture		Bending at 180° min. mandrel diameter* t < 5 mm
			t < 3 mm	t ≥ 3 mm	
	R _p in MPa	R _m in MPa	L ₀ = 80 mm (%)	L ₀ = 5.65√S ₀ mm (%)	(t)
Typical	465	530	23	28	0
Guaranteed	420-500	480-580	≥ 18	≥ 22	0

* values apply to test bars transverse to the rolling direction

Chemical composition (% by weight)

	C	Mn	P	S	Si ¹	Nb	Ti	V
Typical	0.045	0.800	0.009	0.006	0.02	0.013	0.033	0.04
Guaranteed	≤ 0.065	≤ 1.000	≤ 0.025	≤ 0.015	≤ 0.035	≤ 0.020	≤ 0.050	≤ 0.06

¹ For the purpose of batch galvanising, Ymagine high-strength steels can be ordered on consultation with a maximum Si content of 0.030%.

Tolerances

Thickness	Tolerances
1.15 ≤ t ≤ 2.0	± 0.05
2.0 < t ≤ 2.5	± 0.06
2.5 < t ≤ 3.0	± 0.07
3.0 < t ≤ 4.0	± 0.09
	± 0.07 on request

Weldability

Ymagine can be welded using all conventional welding processes. Thanks to the low content of residual elements, the material offers good weldability, comparable to that of hot-rolled or cold-rolled steel with a similar chemical composition.

Surface quality

The surface quality of Ymagine is more than sufficient for hot-rolled and cold-rolled applications that are not surface critical. The surface roughness is comparable to that of hot-rolled pickled and oiled material, i.e. 1-3 µm Ra (cut-off length = 2.5 mm).

Coatability

Ymagine has been tested for both wet paint and powder coatings. Adhesion test results were positive on flat sample material, indicating good coatability.

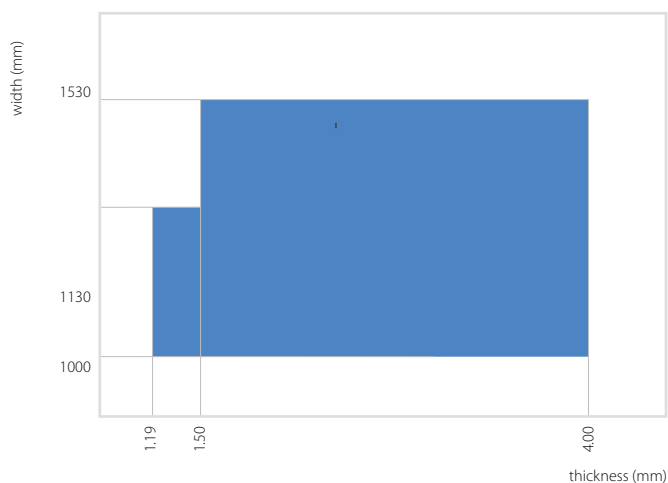
Galvanising

Ymagine can be hot-dip galvanised without any restrictions.

Product support

Our proactive Customer Technical Services team is available to help you optimise your processes and maximise performance with tailored advice and hands-on support. Backed by deep steel expertise and in-depth application knowledge, we'll work with you to boost efficiency, reduce waste, and get the best out of Ymagine H420.

Available dimensions of Ymagine® H420



Ymagine® range

Steel grades: Ymagine D1 – drawing steel
Ymagine S1 – structural steel
High-strength low-alloy steels:
H240, H320, H360, H420, H500

Thickness range: 1.15 – 4 mm

Width range: 1000 – 1530 mm

Surface treatment: pickled and oiled

Further information

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