Technical Datasheet

Micro-alloyed Steel 38MnVS6 XTP

General product description:

Xtreme Performance Technology enables the properties of the microalloyed steel 38MnVS6 to be modified to meet customer-specific processing or component requirements. Optimisation can be achieved in either of two ways. One approach is to design the process to produce a disproportionately high increase in the material's strength characteristics, which is accompanied by a significant rise in toughness. Alternatively, the production process can focus on creating a significant increase in the material's ductility.

Mechanical-technological properties

Variant	$R_{p0.2}$ [MPa]	R_m [MPa]	A_5 [%]	A_g [%]	Z [%]	KV_{RT} [J]	T_{27} [°C]
high strength, very high toughness	640	840	20	10	55	≥ 100	-60
very high strength, high toughness	950	1100	18	10	55	≥ 90	-40

Typical mechanical-technological values

$R_{p0.2}$ = yield strength (at 0.2% offset), R_m = tensile strength, A_5 = elongation after fracture, A_g = uniform elongation, Z = reduction of area at fracture, KV = notch impact energy as per DIN EN ISO 148-1:2017-05, RT = room temperature, T = temperature, T_{27} = transition temperature at 27 J

Chemical composition (cast analysis by mass-%)

Variant	C	Si	Mn	P	S	Cr	V
min.	0.34	0.15	1.20	-	0.020	-	0.08
max.	0.41	0.80	1.60	0.025	0.060	0.30	0.20

The chemical analysis corresponds to 38MnVS6 (1.1303).

Maximum carbon equivalent:

Max. CET (CEV) 0.60 (0.81)

Typ. CET (CEV) 0.55 (0.70)

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40}$$

$$CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

Surface properties:

Bars are 100 % eddy current tested acc. to surface quality class 3 of EN 10277-1. Bar ends untested on both sides with a length of 50 mm if not otherwise requested by customer.

Miscellaneous:

Other agreements acc. to order.

Condition of delivery:

Bars, XTP-treated

Diameter range 18 – 40 mm, tolerance h11

Bar straightness 0.5 mm/m

Fabrication and other recommendations:

Moderately good machinability, excellent induction hardenability.

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