

16 Mo3 Alloyed Steel for Elevated Service Temperature

Product Applications

Thanks to its improved mechanical properties (specified up to 500°C) and improved creep resistance, 16 Mo3 alloyed steel grade is particularly recommended for use at elevated service temperature.

This weldable steel grade is particularly relevant for use in **powerplant equipment, exhaust systems, hot machine parts** or **incineration plants**.

The heat resistance is obtained by alloying with molybdenum.

Reference data related to creep resistance are available (only for information) in annex C of EN10028-2 or annex B of EN10273.

Advantages

This special quality grade is now also available in sections and merchant bars.

Rolled sections in 16Mo3 steel are far more economical than cutting and welding plates to build up sections of 16Mo3 steel.



Available Sections :

- Parallel flange I sections : IPE (80-600)
- Wide flange beams : HE (100-600)
- Equal leg angles : L (120, 150, 180, 200)
- Taper flange channels : UPN (80-300)
- Other sizes : upon agreement

Maximum flange thickness : 40mm

Minimum order quantity: Upon agreement (one heat or multiples thereof)

Steel designation :

16Mo3 + AR in relation with EN10273 and EN 10028

Delivery condition and production :

Following EN 10025 Part 1 and 2 except chemical and mechanical values.

Mechanical testing :

Tensile test at room temperature is performed. Tests at elevated temperatures are possible upon agreement at an extra.

Processing

16Mo3 steel can be welded with all manual and automatic welding processes according to the general rules for welding.

Surface condition

EN10163-3 Class C, Subclass 1



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Mechanical properties

Standard	Grade	Minimum yield strength R_{eH} MPa		Tensile strength R_m MPa		Minimum elongation A $L_0 = 5,65 \cdot \sqrt{S_0}$ %	Notch impact test	
		Nominal thickness (mm)		Nominal thickness (mm)			Temperature	Min. absorbed energy
		≤ 16	>16 ≤ 40	≤ 16	>16 ≤ 40		$^{\circ}\text{C}$	J
EN 10028-2: 2009 & EN 10273: 2007	16Mo3*	275	270	440 - 590	440 - 590	24	-20 0 +20	¹⁾ ¹⁾ 40

¹⁾ A value may be agreed at the time of enquiry and order.

Mechanical properties at elevated temperatures (tested only upon agreement)

Standard	Grade	0,2% proof strength at temperature, min. N/mm ²												
		Nominal thickness (mm)												
		≤ 16	$16 < t \leq 40$	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C	450 °C	500 °C	
EN 10028-2: 2009 & EN 10273: 2007	16Mo3*	268	268	273	264	250	233	213	194	175	159	147	141	139

Chemical composition

Standard	Grade	Cast analysis										
		C %	Si max. %	Mn %	P max. %	S max. %	Al total min. %	N max. %	Cr max. %	Cu max. %	Mo %	Ni max. %
		0,12 - 0,20	0,35	0,40 - 0,90	0,025	0,010	²⁾	0,012	0,30	0,30	0,25 - 0,35	0,30
EN 10028-2: 2009 & EN 10273: 2007	16Mo3*	0,12 - 0,20	0,35	0,40 - 0,90	0,025	0,010	²⁾	0,012	0,30	0,30	0,25 - 0,35	0,30

²⁾ The Al content of the cast shall be determined and given in the inspection document.

* Delivery and production in accordance with EN10025-1 and EN10025-2 except for mechanical and chemical values.

Conditions of ArcelorMittal Sales Programme for Sections and Merchant Bars are applicable

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