

ArcelorMittal USA – Plate Hardwear® Premium Abrasion Resistant Alloy Steels*

*Premium grades exhibiting through-hardening, improved forming and welding capabilities.

Grades with Hardness minimums not noted below are also available. Contact ArcelorMittal USA – Plate for details.

SPECIFICATION	400F	425F	450F	500F
Type of Steel	Alloy	Alloy	Alloy	Alloy
ArcelorMittal USA - Plate Thickness (Max. in.)	3	3	3	3
Chemical Composition (%)	Unless a range is specified, individual values are maximums			
Carbon	.12/.16	.17/.21	.20/.25	.25/.31
Manganese	1.55	1.55	1.35	0.95
Phosphorus	.025	.025	.025	.025
Sulfur	.005	.005	.005	.005
Silicon	.35/.55	.35/.55	.35/.55	.35/.55
Chromium	.55	.55	.55	.75
Nickel	1.00	1.00	1.00	1.00
Molybdenum	.55	.55	.65	.65
Vanadium	-	-	-	-
Boron	.0005/.005	.0005/.005	.0005/.005	.0005/.005
Heat Treatment Required	Q&T***	Q&T	Q&T	Q&T
Surface Brinell Hardness (HB)	360/444	401/477	429/495	460/544
Melting Practice	F/G/P	F/G/P	F/G/P	F/G/P
Remarks	CT	CT	CT	CT

*** Thin 400F may be produced un-tempered.

[Hardwear Brochure](#)

ArcelorMittal USA – Plate Abrasion Resistant Steels**

**Standard grades intended for applications with minimum forming; often require preheat during welding.

SPECIFICATION	AR200	AR235	MITTAL 400	MITTAL 450	MITTAL 500	MITTAL 550
Type of Steel	Carbon	Carbon	Alloy	Alloy	Alloy	Alloy
ArcelorMittal USA - Plate Thickness (Max. in.)	1	1	4	4	4	3
Chemical Composition (%)	Unless a range is specified, individual values are maximums					
Carbon	.32/.36	.40/.50	.19	.26	.32	.35
Manganese	.90/.130	.60/.90	1.55	1.35	.95	1.00
Phosphorus	.040	.040	.025	.025	.025	.025
Sulfur	.010	.050	.005	.005	.005	.005
Silicon	.35	.10/.40	.55	.55	.55	.65
Chromium	.25	-	.55	.55	.75	1.00
Nickel	.25	-	1.00	1.00	1.00	1.00
Molybdenum	-	-	.55	.65	.65	.75
Copper	.15/.45	-	-	-	-	-
Vanadium	-	-	-	-	-	-
Boron	-	-	.0005/.005	.0005/.005	.0005/.005	.0005/.005
Heat Treatment Required	-	-	Q&T	Q&T	Q&T	Q&T
Surface Brinell Hardness (HB)	~ 200 Nom.	~ 235 Nom.	360/444	429/495	460/544	514/600
Melting Practice	Killed	Killed	F/G/P	F/G/P	F/G/P	F/G/P
Remarks	-	-	CT	CT	CT	CT