Australian Special Metals Pty Ltd
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Sumiten 780S (ASM 80)

We carry a large range of Sumiten 780S Wearplate ranging in thickness from 2.5mm up to 140mm.

Sumiten 780S is a high strength, low alloy carbon steel with a 780 MPa tensile strength. It is highly economical and suitable for use in industrial machinery because it is highly resistant to weld cracking.

The high strength of **Sumiten 780S** gives the advantage of:

* Reducing the weight of the finished product without affecting its structural integrity.
* Increasing the working load of the finished product without increasing its size or weight.

	C MAX	Si	Mn Max	P	S	Cu	Cr	Mo	V	B
Chemical Composition %	0.18	0.6	1.20	0.25	0.015	0.050	1.20	0.10-0.60	0.10	0.005

Heat Treatment			**Quenched & Tempered**		
Mechanical Properties	**Yield Point, min Mpa**			≤ 50mm	685 MPa
				> 50mm	665 MPa
	Tensile Strength, Mpa			≤ 50mm	780-930 MPa
				> 50mm	760-910 MPa
			Thickness mm	**% min**	**Test Specimen**
	Elongation		≤ 16mm	16	JIS No.5
			> 16mm	24	JIS No.5
			> 20mm	16	JIS No.4
	Bending Properties (180° bend radius)		**Thickness mm**	**Angle of Bend**	**Internal Radius**
			≤ 32mm	180°	1.5t
			> 32mm	180°	2.0t
			Charpy 2mm V-Notch Impact Value min		
Notch Toughness			**Thickness mm**	**Test Temp (C°)**	**Charpy Absorption (J)**
			> 12mm	-20	47min

Typical Applications:

Transportation - Long Span Bridges - Offshore Structures - Construction Machinery - Crane Booms - Forklift Tynes - Truck Chassis - Fabricated Beams - Container Handling Equipment - Garbage Compactor Units - Dragline Buckets

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CUTTING:

- Cutting is possible with oxy-propane, oxy-acetylene, plasma, laser and water.
- Stack cutting should be avoided.
- After gas cutting, the steel plate should not be sprayed or cooled with water.
- High speed steel drills are recommended with close attention to cutting speeds and feeds.

MACHINING:

- Machining speeds are 40—50% of plain carbon steel.
- Constant feed and lubrication should be maintained.

FORMING:

- Cold forming can be carried out using the following guidelines:

Thickness	Grain Orientation	Minimum Radii
6mm – 12mm	Transverse	2.0 x T
	Longitudinal	3.0 x T
16mm – 32mm	Transverse	2.5 x T
	Longitudinal	3.5 x T
40mm – 50mm	Transverse	3.0 x T
	Longitudinal	3.5 x T

WELDING: Welding can be carried out by manual metal arc, submerged arc or gas metal arc welding.
Because the properties of **Sumiten 780S** results from quenching and tempering, to obtain optimum results the following recommendations should be observed when welding.

- Electrodes and fluxes should be of the low hydrogen type, baked and stored strictly in accordance with the manufacturers recommendations.
- It is recommended that **Sumiten 780S** be preheated to a suitable temperature to eliminate the risk of cold cracking in the weld area.
- The selection of preheat temperatures are dependant upon the plate thickness, geometry and other associated factors. The minimum preheat temperatures for optimum results are set out in the following chart:

Recommended preheat temperatures (°C)			
Welding Process	Plate Thickness		
	$t < 12$	$13 \leq t < 25$	$25 \leq t < 50$
Fillet Welding	5	50	100
Butt Welding	25	75	125

Note: When plates are welded using a low strength welding material or under low hydrogen atmosphere in the case of CO^2 gas shielded GMA welding, the value in the tables can be reduced by around 25°C.

ASM Processing: Four head oxy machine, Fagan computerised Profiling software, Bevel cutting, Stud Welding, Metal Disintegration, Hypertherm Plasma Machine, Radial Drilling Straight line cutting.