

# Triten™ T237X Technical Data Sheet

## GENERAL DESCRIPTION

The T237X overlay alloy for steel plate has been developed for applications requiring an improved abrasion resistance compared with T211X, with an impact resistance between T211X and T223X.

## TYPICAL PROPERTIES OF UNDILUTED T237X ALLOY

These properties given directly below refer only to the T237X alloy, **undiluted** by base material (substrate). These properties differ from the properties of actual overlay deposits on a particular substrate, examples of which are given in the next section.

Type of alloy	Iron based
Group of alloys	High chromium iron
Nominal composition (undiluted)	4.9% C, 4% Mn, 22% Cr, 9% Nb +Ti
Microstructure	Hyper-Eutectic with M7C3 primary chromium carbides in an austenitic eutectic matrix, and added Nb-carbides
Typical hardness range	50-55 Rc
Cracking	Yes
Abrasion resistance	Excellent
Impact resistance	Moderate to low
Typical service temperature	Up to 650°C (1,200°F)
Machining	Only grinding
Flame cutting	No

## TYPICAL PROPERTIES OF T237X OVERLAID PLATES

### Standard Base plate grades

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in the USA: ASTM A-36

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in the UK BSEN 10025:1993 Fe 430A (BS 4260-43A)

### Typical chemical compositions and hardnesses of single and double overlays:

	Element	C	Mn	Si	Cr	Nb	Ti	Fe	Hrc
Single layer	Wt%	4.2	3.3	0.4	18.5	7.5	0.3	Remainder	46-50
Second layer	Wt%	4.5	3.6	0.5	20	8	0.4	Remainder	48-52



A typical microstructure is shown.

## **AREAS OF INDUSTRIAL USE**

T237X overlaid plates are used in many segments of industry: Steelworks, Dredging, Mining, Refineries, Cement, Glass, Timber, Power Generation Plants, Earthmoving, Sugar Mills, etc.

## **TYPICAL FIELDS OF APPLICATION**

- Pump shells and pump impellers
- Suction and discharge dredge pipes
- Shovel bucket wear liners
- Screw conveyors
- Chutes and decks of all types and sizes
- Vibratory feeders
- Chain conveyors wear plates
- Cyclones
- Feed pipes and lift pipes
- Hopper liners
- Riser liners
- Crusher liners
- Fan blades and housing liners
- Coal mill classifier cones
- Catalyst fee nozzles
- Pulverized fuel systems
- Auger flights
- Bottom ash screws
- Chopper hoods
- Grizzly and breaker bars, etc.

## **MACHINING, CUTTING, WELDING AND REPAIR OF T237X PLATES**

Edges and surfaces may be ground with an abrasive disk.

The high chromium content of the alloy is incompatible with the use of oxy-fuel flame cutting processes.

Plasma-arc is the generally preferred method of cutting. The quality of plasma cutting is excellent, in terms both of precision and cleanliness.

Localized removal of the overlay material is possible using the Carbon-Arc/Air process.

T237X plates can be welded to themselves or to any weldable substrate structural material using mild steel low hydrogen welding consumables.

Structural welding must be carried out on the mild steel side of the plate.

Local repairs, or reconstruction of the overlay at the location of welded joints can be carried out using matching manual electrodes or corresponding tubular wires.

For more details, please consult Triten's Fabrication Guide.

### **FURTHER SERVICES AVAILABLE FROM TRITEN**

Triten's proprietary technology, technical knowledge and 50 years of experience as a leader in the field, provides the basis from which to select base plate qualities and overlay alloy properties to suit specific, non-standard requirements. This service is available from Triten's Technical Department, which will be pleased to assist.

Triten has also the specialized in-house capability of fabricating a wide range of components and structures, notably to ASME Code requirements, from overlaid plates.