

Fabricación de Aleaciones Especiales S.A.

# FAE



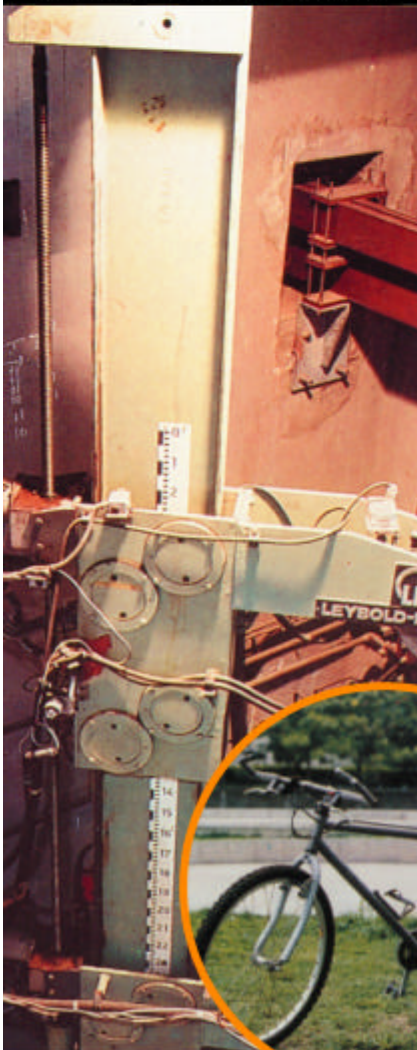
# TITANIUM



**Electron Beam Welded**



**Vacuum ARC Remelting Furnace**



*FAE supplies a large range of special alloys in small quantities to suit customer requirements.*

## Products

Type	Sizes	Alloys
Ingots	250 mm to 340 mm	Gr. 2 - 3 - 4 - 5 - 5 ELI - 7 - 9 - 12 - 16 - 23 6-2-4-2 6-6-2
Forged Bars	44.45 mm to 250 mm	Gr. 2 - 3 - 4 - 5 - 5 ELI - 7 - 9 - 12 - 16 - 23 6-2-4-2 6-6-2
Rolled Bars	6.00 mm to 44.45 mm	Gr. 2 - 3 - 4 - 5 - 5 ELI - 7 - 9 - 12 - 16 - 23 6-2-4-2 6-6-2
Welded tubes and pipes	19.05 mm x 0.71 mm to 38.10 mm x 2.50 mm	Gr. 2 - 3 - 7 - 9 - 12 - 16
Seamless tubes and pipes	6.35 mm x 0.89 mm to 60.33 mm x 3.90 mm	Gr. 2 - 3 - 7 - 9 - 12 - 16

## Manufacture Specifications

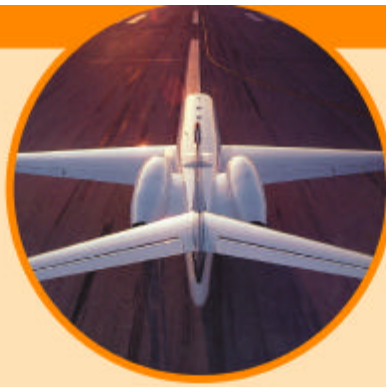
Products	Specifications		
	ASTM	AMS	MIL STANDARD
Ingots, billets and bards	B 348 F67 F 136	4920 - 4928 - 4930 - 4931 4963 - 4965 - 4967	F83142 F81556 T9047
Welded tubes	B 338 B 862	4941	-----
Seamless tubes	B 338 B 861	4942 - 4943 - 4944 - 4945	-----

*Due to our flexibility, we are capable of supplying tailor made tubes, for heat exchangers and condensers, in the shortest delivery time.*

## Equipments for titanium's manufacture

Ingots, Billets and Bars	2500 Tn hydraulic press, Electron Beam welded, Vacuum Arc Remelting Furnace
Tubes	8 cold pilger, 1 forming machine with a inert gas chamber, Heat treatment furnace
Laboratories	metallographic, chemical, mechanical, eddy current and ultrasonic test





## Chemical Requirements

Elements	Gr 1	Gr 2	Gr 2*	Gr 3	Gr 4	Gr 5	Gr 5 ELI**	Gr 7	Gr 9	Gr 12	Gr 16	Gr 23
Nitrogen Max	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.03
Carbon Max	0.08	0.08	0.10	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Hydrogen Max	0.015	0.015	0.0125	0.015	0.015	0.015	0.012	0.015	0.015	0.015	0.015	0.0125
Iron Max	0.20	0.30	0.30	0.30	0.50	0.40	0.25	0.30	0.25	0.30	0.30	0.25
Oxygen Max	0.18	0.25	0.25	0.35	0.40	0.20	0.13	0.25	0.15	0.25	0.25	0.13
Aluminium	.....	.....	.....	.....	.....	5.5-6.75	5.5-6.50	.....	2.5-3.5	.....	.....	5.5-6.50
Vanadium	.....	.....	.....	.....	.....	3.5-4.5	3.5-4.5	.....	2.0-3.0	.....	.....	3.5-4.5
Tin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Palladium	.....	.....	.....	.....	.....	.....	.....	0.12-0.25	.....	.....	0.04-0.08	.....
Molybdenum	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.2-0.4	.....	.....
Nickel	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.6-0.9	.....	.....
Residuals Max Each	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Residuals Max Total	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Titanium	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance

\* As ASTM F-67 / \*\*As ASTM F-136 / Others as ASTM B-348

*FAE manufacturer special cast alloys that are used in very specific processes. Wherever high performance is required, FAE will be your partner for special alloys.*

## Tensile Requirements

	Tensile Strength		Yield Strength 0,2 %		Elongation in 4D	Reduction of area
	Ksi	MPa	Ksi	MPa	min %	min %
Gr 1	35	240	25	170	24	30
Gr 2	50	345	40	275	20	30
Gr 2*	50	345	40	275	20	30
Gr 3	65	450	55	380	18	30
Gr 4	80	550	70	483	15	25
Gr 5	130	895	120	828	10	25
Gr 5 ELI**	125	860	115	795	10	25
Gr 7	50	345	40	275	20	30
Gr 9	90	620	70	483	15	25
Gr 12	70	483	50	345	18	25
Gr 16	50	345	40	275	20	30
Gr 23	120	828	110	759	10	15

\* As ASTM F-67 / \*\*As ASTM F-136 / Others as ASTM B-348



**FABRICACION DE ALEACIONES ESPECIALES S.A.**

**FAE**

Fabrication and inspection of seamless and welded stainless steel, nickel alloys, titanium and zircalloy tubes and of titanium bars.

**DIN EN ISO 9001 : 2000**



**FABRICACION DE ALEACIONES ESPECIALES S.A.**

**FAE**

Tubes, bars and ingots of zircalloy, titanium, nickel alloys and stainless steel.

**ISO 14001**



**FAE S.A. / Planta Industrial**

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