

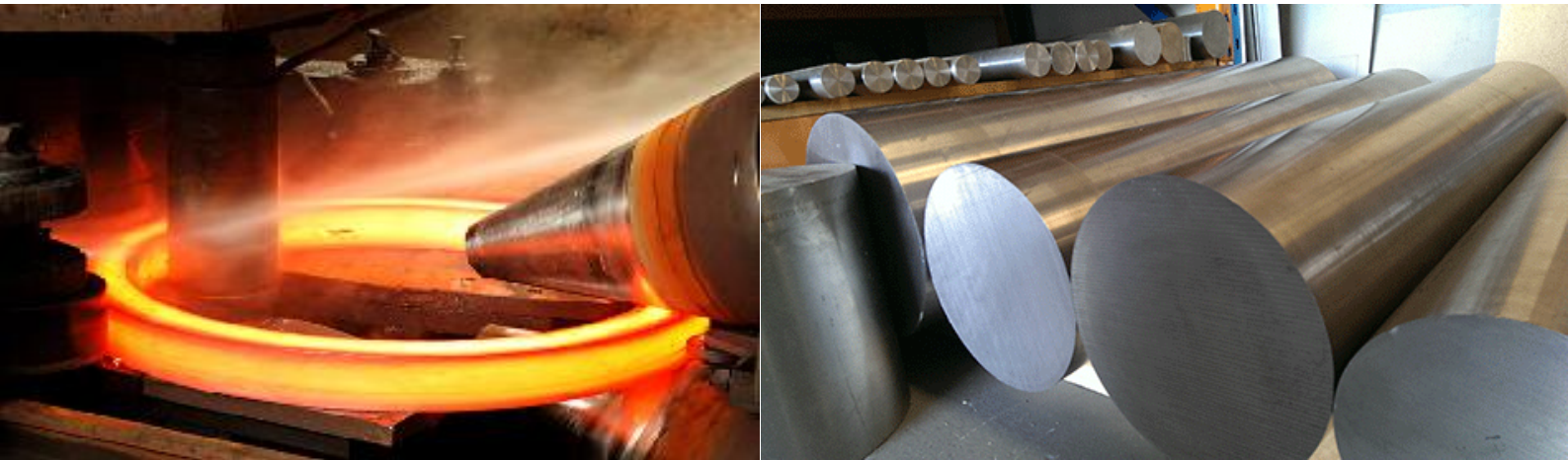
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TITANIUM - STAINLESS - EXOTIC

2015 Catalogue



Specialty Metals are suppliers to the energy, mining, chemical, marine and pulp and paper industries.



With well over 25 years of reliability and service,
we are your partner in procurement.



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TITANIUM - STAINLESS - EXOTIC

About Us



Specialty Metals are suppliers to the energy, mining, chemical, marine and pulp and paper industries.

Specialising in non-standard, non-stock and difficult to find alloys and product forms, Specialty Metals have been dependably serving the energy, mining, chemical, marine, pulp and paper industries since 1987. Based in Perth and delivering both nationwide and globally, Specialty Metals are known for their reliability and procurement skills.

In addition to stainless steel, nickel alloys and titanium, we cater for diverse client requirements by supplying an alloy range that includes (and is not limited to) zirconium, tantalum, copper alloys, aluminium, and carbon steel.

In addition our standard product shapes include:

- Pipe flanges, butt weld fittings, threaded fittings, plates, bars, angles, flats and cut shapes
- Forgings and ring rolled components
- Fasteners, bolts and nuts, and special shapes
- Pressure vessel components and heat exchanger tubes

We supply welding consumables in all alloys for MIG, TIG, electrodes, sub arc wire and flux, and flux cored wires.

We also supply capital equipment such as sub arc column and boom equipment, rotators and positioners. Our associations with mill stockists and specialist manufacturers worldwide allow us to fulfil most requirements to specification and meeting quality assurance requirements.

Urgent breakdown deliveries are something we live and breathe – we pride ourselves on understanding our clients and their needs.



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TITANIUM - STAINLESS - EXOTIC

TECHNICAL DATA SHEET

Stock List

Specialty Metals supply **Titanium** alloys, **Stainless** steels and **Exotic** alloys for near on 30 years.

View our products: Titanium, Stainless, Exotic materials, Welding Consumables and Welding Positioners.

Titanium Round Bar (ASTM B348)

Grade 2 (UNS R50400): 6.35, 7.94, 9.53, 12.7, 15.88, 19.05, 25.4, 31.75, 38.1, 50.8, 76.2, 88.9, 101.6, 152.4, 203.2, 254.0

Grade 3 (UNS R50550): 101.6, 152.4, 203.2, 254.0

Grade 5 (UNS R56400): 25.4, 38.1, 50.8, 76.2, 101.6, 152.4

Grade 7 (UNS R52400): On request

Grade 12 (UNS R53400): 6.35, 7.94, 9.53, 12.7, 15.88, 19.05, 25.4, 31.75, 38.1, 50.8, 76.2, 88.9, 101.6, 152.4, 203.2, 254.0

Titanium Sheet (ASTM B265)

Grade 2 (UNS R50400): 1.0, 1.5, 2.0, 3.0. Grade 12 (UNS R53400): 3.0

Titanium Pipe

Grade 12 (UNS R53400): 2" Sch 40S, 2" Sch 80S, 3" Sch 40S, 4" Sch 40S, 6" Sch 40S, 8" Sch 9.27, 10" Sch 40S, 10" Sch 80, 10 Sch 80S

Stainless Steel & Duplex Stainless Steel Round Bar

2205 ASTM A182-F51 (UNS S31803): 25.4, 50.8

2507 ASTM A182-F53 (UNS S32750): 25.4, 38.1, 50, 76.2, 101.6, 152.4, 203.2, 254.0

Zeron 100 ASTM A182-F55 (UNS S32760): 50.8, 63.5, 76.2, 101.6, 152.4

Ferrallium F255 ASTM A182-F255 (UNS S32550): 50.8, 101.6, 152.4

Nitronic 50 (XM-19, UNS S20910) : 44.45, 50.8, 76.2, 79.735, 88.9, 101.6, 114.3

Nitronic 60 (A218, UNS S21800): 50.8, 76.2

410SS (UNS S41000): 152.4, 203.2

630SS (17-4/PH, UNS S63000): 25.4, 38.1, 50.8, 76.2, 101.6, 152.4, 203.2, 254.0, 304.8

Copper & Nickel Based Alloys

K500 (UNS N05500): 44.45, 57.15

625 (UNS N06625): 114.3

718 (UNS N07718): 25.4, 50.8, 76.2, 101.6

C276 (UNS N10276): 50.8



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TECHNICAL DATA SHEET

Welding Wire

Solid MIG Wire

Carbon steel

Er70S-6

Stainless steel

Er308H, Er308L, Er308LSi, Er309LMo, Er312, Er316L, Er316LSi, Er2209, Er2594

Nickel based alloys

ErNi-1(200), ErNiCr-3(82), NiCrMo-3(625), ErNiCrMo-4(C276), ErNiCrMo-10(C22), ErNiCrMo-13(Alloy59)

Titanium based alloys

ErTi-2, ErTi-3, ErTi-5, ErTi-7, ErTi-12

Solid TIG Wire

Carbon steel

Er70s-2, Er70s-3, Er70s-4, Er70s-6

Stainless steel

Er308H, Er308L, Er308LSi, Er309LMo, Er312, Er316L, Er316LSi, Er2209, Er2594

Nickel based alloys

ErNi-1(200), ErNiCr-3(82), NiCrMo-3(625), ErNiCrMo-4(C276), ErNiCrMo-10(C22), ErNiCrMo-13(Alloy59)

Titanium based alloys

ErTi-2, ErTi-3, ErTi-5, ErTi-7, ErTi-12

Flux Cored Wire

Carbon steel

E70T-1, E71T1-1, E71T-9, E81T1-1 Ni-1, E91T1-1 Ni-1, E81T1-B2(L), E91T1-1 B3(L)

Stainless steel

E308HT1-1, E308LT0-1/1-1, E309LT0-1/1-1, E316LT0-1/1-1, E2209LT0-1/1-1, E2594LT1-1

Sub Arc Wire and Flux

Carbon steel

EM12K, F7A2, F7A4, EB2

Stainless steel

E308, E309, E316, E2209

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TECHNICAL DATA SHEET

Titanium Welding Consumables

Welding Product List

AWS A5.16 2004	UNS Number	AMS	ASTM B 348 (grade)	C	O	N	H	Fe	Al	V	Mo	Ni	Pd
ERTi-1	R50100	4951	1	0.03	0.03-0.10	0.012	0.005	0.08					
ERTi-2	R50120	4951	2	0.03	0.08-0.16	0.015	0.008	0.12					
ERTi-3	R50150	4951	3	0.03	0.13-0.20	0.020	0.008	0.16					
ERTi-4	R50130	4951	4	0.03	0.18-0.032	0.025	0.008	0.25					
ERTi-5	R56402	4954	5	0.05	0.12-0.20	0.030	0.015	0.22	5.5-6.5	3.5-5.5			
ERTi-7	R52401	N/A	7	0.03	0.08-0.16	0.015	0.008	0.12					0.12-0.25
ERTi-9	R56320	N/A	9	0.03	0.08-0.16	0.022	0.008	0.25					
ERTi-12	R53401	N/A	12	0.03	0.08-0.16	0.015	0.008	0.15			0.6-0.9	0.2-0.4	
ERTi-23	R56408	4956	5 ELI	0.03	0.03-0.11	0.012	0.005	0.2	5.5-6.5	3.5-5.5			

Available Diameter, Type and Packing

Size (mm)	0.8	1.0	1.2	1.6	2.0	2.4	3.0	3.2	4.0	6.0
Size (inch)	0.031	0.039	0.047	0.062	0.079	0.093	0.120	0.125	0.160	0.240
Straight				*	*	*	*	*	*	*
Spool	*	*	*	*	*	*				
Coil			*	*	*	*	*	*	*	*

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TECHNICAL DATA SHEET

Titanium Properties

Tensile and Chemical Requirements

Elements

Grade	1	2	3	4	5	7	9	11	12	16	17	23
N% (max)	.03	.03	.05	.05	.05	.03	.03	.03	.03	.03	.03	.03
C% (max)	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
H% (max)	.015	.015	.015	.015	.015	.015	.015	.015	.015	.015	.015	.0125
Fe% (max)	.20	.30	.30	.50	.40	.30	.25	.20	.30	.30	.20	.25
O% (max)	.18	.25	.35	.40	.20	.25	.15	.18	.25	.25	.18	.13
Al%					5.5-6.75		2.5-3.5					5.5-6.5
V%					3.5-4.5		2.0-3.0					3.5-4.5
Pd%						.12-.25		.12-.25		.04-.08	.04-.08	
Mo%									.2-0.4			
Ni%									.6-9			

Tensile Strength

Grade	1	2	3	4	5	7	9	11	12	16	17	23
MPa (min)	240	345	450	550	895	345	620	240	483	345	240	828

Yield Strength (0.2% Offset)

Grade	1	2	3	4	5	7	9	11	12	16	17	23
MPa (min)	170	275	380	483	828	275	483	170	345	275	170	759
MPa (max)	310	450	550	655		450		310		450	310	

Elongation (in 50mm)

Grade	1	2	3	4	5	7	9	11	12	16	17	23
% (min)	24	20	18	15	10	20	15	24	18	20	24	10

Hardness Vickers

Grade	1	2	3	4	5	7	9	11	12	16	17	23
(approx.)	140	170	240	310	330	170	290	140	200	170	140	330

Notes

Grade 7 + Grade 2 + .12-.25 Pd, Grade 11 = Grade 1+ .12-.25 Pd, Grade 16 = Grade 2 + .04-.08 Pd, Grade 17 = Grade 1+.04-.08 Pd, Grades 1, 2, 3 & 4 can be supplied at ASTM F67-95 and Grade 23 to ASTM F136-96 (Ti 6/4 Eli) both surgical implant applications, Grade 23 (Ti 6/4 Eli) is also used in corrosive environments such as offshore production equipment and piping, for severely corrosive environments, palladium and ruthenium can be added to the titanium alloys .

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TECHNICAL DATA SHEET

Valves

Titanium materials & services applications

Common Designation	Forging Spec	Casting Spec	Service Application
Titanium Gr2	B381 Gr F2	B367 Gr C2	Good resistance to corrosion together with low specific weight. It is widely applied in the chlor-alkali industry, soda industry, pharmaceutical industry, fertilizer industry and nitric acid industry. Best choice for paper and pulp application.
Titanium Gr3	B381 Gr F3	B367 Gr C3	
Titanium Gr5	B381 Gr F5	B367 Gr C5	
Titanium Gr6	B381 Gr F6	B367 Gr C6	
Titanium Gr12	B381 Gr F12	B367 Gr C12	
Titanium Pd7B	B381 Gr F7	B367 Pd7B	

Nickel alloy materials & service applications

Common Designation	Forging Spec	Casting Spec	Service Application
Nickel 200	B160 N02200	A494 CZ100	Used in high temperature this alkali corrosive medium condition
Nickel 201	B160 N02201		
Monel 400	B564 N04400	A494 M35-1	For corrosive service such as acids, alkalies and salt solutions. Mainly used in hydrogen fluoride gas and hydrofluoric acid solution conditions.
Monel K500	B865 N05500		
Inconel 600	B564 N06600	A494 CY40	For high temperature service, used for nuclear applications.
Inconel 625	B564 N06625	A494 CW6MC	
Incoloy 800	B564 N08800	A351 CT15C	
Incoloy 825	B564 N08825	A494 CU5MCuC	
Hastelloy B	B335 N10001	A494 N12MV	
Hastelloy B-2	B462 N10665	A494 N7M	Hastelloy super alloys is that of effective survival under high-temperature, high-stress service in a moderately to severe corrosive or erosion-prone environment where more common and less expensive iron-based alloys would fail, including the pressure vessels of some nuclear reactors, chemical reactors, distillation equipment and pipes and valves in chemical industry.
Hastelloy C276	B574 N10276	A494 CW12MW	
Hastelloy C-22	B574 N06022	A494 CX2MW	
Hastelloy C-4	B574 N06455	A494 CW2M	
Hastelloy G	B574 N06007	A494 CW2M	
Hastelloy G30	B462 N06030		

Zirconium materials & service applications

Common Designation	Forging Spec	Casting Spec	Service Application
Zirconium 702	B493 R60702	B752 702C	Outstanding corrosion resistance to hydrochloric acid and sulphuric acid, acetic acid, applicable for any density alkaline solution
Zirconium 705	B493 R60705	B752 705C	

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TECHNICAL DATA SHEET

Valves

Duplex stainless steel materials & service applications

Common Designation	Forging Spec	Casting Spec	Service Application
Duplex S31803	A182 F51	A995 4A	Very high strength, resistance to corrosion, pitting and stress corrosion in chloride media.
Super Duplex S32750	A182 F53	A995 5A	
Super Duplex S32760	A182 F55	A995 6A	

Austenitic stainless steel materials & service applications

Common Designation	Forging Spec	Casting Spec	Service Application
904L	A182 F904L		Chemical processes for highly concentrated chloride, flue gas desulfurization, acid and alkali reactor, salt manufacturing processes and seawater desalination.
254SMO	A182 F44	A351 CK3MNi	
AL-6XN	B462 N08367	A351 CN3MN	
ALLOY 20	B462 N08020	A351 CN7M	

Austenitic stainless steel materials & service applications

Common Designation	Forging Spec	Casting Spec	Service Application
304	A182 F304	A351 CF8	Stainless steel is used where both the properties of steel and resistance corrosion are required
304L	A182 F304L	A351 CF3	
316	A182 F316	A351 CF8M	
316L	A182 F316L	A351 CF3M	
316Ti	A182 F316Ti		
317	A182 F317	A351 CG8M	
317L	A182 F317L	A351 CG3M	
347	A182 F347	A351 CF8C	
310	A182 F310	A351 CK20	
310S	A182 F310S	A351 KC20	

Copper alloy materials & service application

Common Designation	Forging Spec	Casting Spec	Service Application
B148 C95800		B148 C95800	General sea water-related services. Oil and petrochemical industries. Specialised anti-corrosive applications