Helping manufacturers across the globe achieve sustainable leaner manufacturing processes

Stainless Steel

Aerospace Approved

(R)

Austenitics

Ferritics

Martensitics

Precipitation Hardened Steels

Duplexes

Fast Turnaround Processing

> WIDE STOCK RANGE

> > Low Width Thickness Ratio 3:1 unique to the industry (normal minimum is 8:1)

Over 75 years Experience

Knight Group

Visit our websites: Main: www.knight-group.co.uk Offcuts: www.ksmdirect.co.uk

www.pmdirect.be

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Knight Strip Metals Ltd

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Precision Metals EU

Industriezone Mechelen-Noord (D) Omega Business Park Wayenborgstraat 25 2800 Mechelen Belgium Telephone: +32 (0) 15 44 89 89 Fax: +32 (0) 15 44 89 90 export.sales@knight-group.co.uk 01 Company

Information

O2 Quality & Approvals









About Us

The Knight Group is a family owned business that has built a reputation for providing the highest quality products and solutions to global manufacturers since 1940. We are now one of the largest Precision Strip Stockholding and Processing facilities in Europe.

Comprised of Knight Strip Metals Ltd (KSM), with production facilities in the UK and Precision Metals EU (PM) in Belgium, the Knight Group is a multi-metal stockist and processor, providing coil, strip and wire across 6 continents.

Our reputation for quality, innovation and reliability, has led to us being the favoured supplier across a wide range of sectors and our continued growth. Whilst we have an impressive existing operation, our commitment to investing in further processing capabilities, expanding our product ranges and developing the expertise of our team, ensures the continued expansion of the Knight Group.

We offer a comprehensive range of precision strip and wire, stocking one of the biggest ranges in Europe, including: Stainless Steel, Nickel Alloys, Titanium Alloys, Aluminium Alloys, Copper Alloys, Mild Steel and Clad and Plated Metals. We have established exclusive agreements with a number of mills to offer specialist and bespoke materials.

Our Key Benefits

Our People

At the heart of any business is people. At the Knight Group we have developed a dedicated team of people with a valued wealth of knowledge and experience within the metals industry. No matter what your metal needs are, our team will provide you with individual customer support and the best customer experience in the industry.

Products

We offer a comprehensive range of precision strip and wire, stocking one of the biggest ranges in Europe. We maintain a stock 2500 individual items of the most popular materials, adapting to suit our customers production needs. With established exclusive agreements with a number of mills to offer specialist and bespoke material, we can source most materials including those outside of our standard range.

Quality

Being able to supply high quality materials, reliably and ethically sourced is key to our business and one of the reasons we are a favoured supplier of manufacturers across the globe. Our materials are fully traceable and Certificates of Conformity can be supplied on request or downloaded from our website.

Extensive Processing Capabilities

We provide bespoke processing services to help reduce our customers costs and manufacturing times. We can supply you with material cut and finished to your specifications and production ready delivered.

Competitive Pricing

We know two of the key factors in purchasing decisions are quality and cost. We have established partnerships with key mills across the globe, and as one of the largest suppliers in Europe, we can negotiate the best price for material, meaning you don't have to compromise quality for cost.

AVAILABLE AS FOIL, COIL, SHEET AND WIRE **STAINLESS STEEL ALLOYS TITANIUM ALLOYS NICKEL ALLOYS ALUMINIUM ALLOYS CLAD ALUMINIUM COPPER ALLOYS MILD STEEL** CLAD AND PLATED METALS

Global Sourcing and Distribution

Thanks to our global exports network of freight providers, you can choose from air, land or sea freight so you can have your material where you want, when you want. We deliver to over 61 countries around the globe and each year that number grows. We ha preferred carriers who can offer short lead times on most products and custom packing solutions to ensure your materials arri and on time, wherever in the world you need them.

"Expertise and Experience Combined"

Our ongoing successful partnerships can be attributed to the specialist knowledge and expertise and the ability to understand customers' materials problems and apply our resources to find the appropriate solution. We continually invest in our sales and purchasing teams, building upon their experience with ongoing training and product knowledge support.

Our focus on developing partnerships with both our customer and supplier base have led to reducing costs and maximising efficiency in both directions, without compromising on quality or lead times. Through working closely together, and using innovation, experience and expertise, allows us to tailor make solutions for your individual needs.

With a diverse global customer base, the Knight Group supply materials to manufacturers across multiple sectors including: Aerospace, Automotive, Construction, Cryogenic, Defence, Energy, Oil and Gas, Telecommunications, Photo and Laser Etching, Medical and Pharmaceutical, Chemical and Precision Engineering.

Our Key Sectors Automotive Aerospace





Petrochemical, Oil and Gas





Chemical and Photo Etch



Precision Stamping & Springs



Renewable Energy



Medical

Our History

ESTABLISHED

E.A. Knight &

Sons, started

as family metals

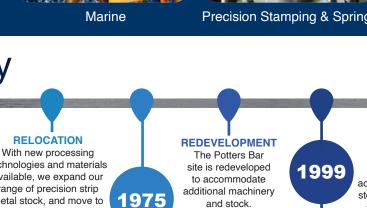
business in North

London, supplying

manufactures

across the UK.

1940



EXPANSION Our Processing and

warehouse facility is relocated to Saltley, accommodating additional stock lines and machinery and our growing team.

Today

EXPANSION Today we supply over 61 countries. As one of the largest independent Precision Strip and Wire Stock holding and Processing suppliers in Europe, we continue to invest in the skills and expertise of our team, extending out stock range and our facilities.

technologies and materials 1958 available, we expand our range of precision strip metal stock, and move to a purpose built combined warehouse processing **EXPANSION** and offices facility in

Potters Bar.

1971

Adapting to the growing metal needs of an expanding customer base, the business is relocated to a larger, combined office, warehouse and processing facility in Potters Bar,

Hertfordshire

EXPANSION Precision Metals EU was opened to provide further support and stock holding facilities to our growing European customer base.

and stock.

1985

ACQUISITION Knight Group acquired

slitting machine manufacturer and metals processing company. Charles Harbage. The increase in capability makes the Knight Group one of 2000 the largest independent precision strip processors in Europe



Approvals



Customers purchasing decisions are not driven solely by price, but factor in quality, reliability and increasingly, ethical and environmental concerns. With growing pressures for transparency of practices, the Knight Group are proud to hold multiple approvals and accreditations, granted by national and international authorities, sector manufacturers and agencies. We continue to expand our range of approvals and accreditations in line with the needs of customers.

Our memberships of a number of key institutions, including the British Stainless Steel Association (BSSA), offer further assurance of our commitment to promoting manufacturing, whilst working to the highest standards of quality and integrity. All of our approvals are available to view and download from our website www.knight-group.co.uk

We hold a number of Approvals Including:

British Standard Approvals

- BS EN ISO 9001, 9120 No. FM 02114
- BS EN ISO 9001 No. FM 611455

Customer Approvals

- Rolls-Royce: Approval No. 01679
- Rolls-Royce Deutchland No. 118990 / 02
- Airbus UK: Approval No.20099 and 228990
- BAE Systems Regional Aircraft: Approval No. RALOA/00254/2
- BAE Systems: Approval No. BAE/AG/20384/MAA Airbus UK: Approval No.20099 and 228990
- Westland Helicopters: Approval No. SQA / V00246
- Safran DK6000
- Hawker Beachcraft Approval HBIFSAS/PART2/0595
- UTC Aerospace Systems/ HS Marston Aerospace Limited Approval Certificate AS 132
- Spirit Aero Approval Certificate No: SPIRIT1298
- Meggitt Certificate: MQAG/2012/MCSD/MCSC/D/115

Specialist Accreditations

- EcoVadis Silver Award
- Forestry Commission: Wood Packaging Certificate Number FC1051

For the most up to date list of our approvals and accreditations, please see our website for details.

Quality





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Our key objective is to provide our customers complete assurance and satisfaction in the quality of our products and services. We are the favoured supplier of manufacturers across the globe, owing to the reliable quality of the products and services our customers receive and their continued confidence that our competitive cost does not compromise quality.

Our companies work to a Quality Management System, as defined in ISO 9001/9120, and approved by the BSI. We work in partnership with the BSI, who carry out regular audits to ensure compliance with these standards and that we are operating with efficiency and accountability at all times.

Working within the framework of ISO 9001 and ISO 9120, our quality system meets or exceeds the criteria. We review our processes regularly to ensure an efficient and robust process is in place at all times, with necessary support and resources available. All of the Knight Group employees receive regular training to maintain familiarity and adherence to our Quality Management System. The commitment from our employees ensures the supply and processing of all material, meets the standards set. As a result, we are consistently able to comply with customers' demands, delivering quality products and processing.

To facilitate fast turnaround times, we offer in-house tensile, hardness and chemical analysis testing. We can also supply fully traceable records for our materials by request and Certificates of Conformity are issued as standard when materials are supplied. For further assurance of our integrity and longevity, we are long standing members of a number of institutions including the British Stainless Steel Association (BSSA), Institute of Spring Technology (IST), Midlands Aerospace Association (MAA) and the Photo Chemical Machining Institute (PCMI).

The Knight Group at all times complies with statutory and regulatory requirements. Additionally, we conduct our business in strict compliance with all applicable domestic and international legal standards. We strive to ensure business ethics are practiced with particular emphasis on free competition and rejection of any form of corruption.



Stainless Steel

The main justification for selecting Stainless Steel for a given application is its outstanding corrosion and oxidation resistance which, along with other exceptional properties, such as the ability to develop very high strength through cold working or heat treatment, excellent formability and capability to withstand cryogenic temperatures, makes it a very versatile material.

Stainless Steels have a wide range of microstructures which are controlled by composition and, although all Stainless Steels must contain chromium to form the complex oxide surface which gives Stainless Steel its protection, other alloying elements have significant effects. In discussing the generic group "Stainless Steels" it is convenient to categorise them in terms of microstructure.

STAINLESS STEEL STOCK RANGE										
ТҮРЕ	COIL STOCI	K RANGE	WIRE STOCK RANGE							
1166	Thickness (mm)	Width (mm)	Round	Shaped						
AUSTENITIC										
Annealed	0.01 - 3.0	3 - 1250								
All other Tempers	0.01 - 2.0	3 - 1250	0.1 – 10.00 mm dia	Upto 45 mm2 area						
FERRITIC										
Annealed	0.05 - 3.0	3 - 650		Upto 45 mm2 area						
All other Tempers	0.05 - 1.6	3 - 450	0.1 – 10.00 mm dia							
		MARTENSIT	IC							
Annealed	0.127 - 3.0	3 - 450	0.1 – 10.00 mm dia	Upto 45 mm2 area						
	PRECIPITA	TION HARDEN	IING (17/7 PH)							
Annealed	0.02 - 1.5	3 - 620								
Condition 'C'	0.025 - 1.0	3 - 620	0.1 – 10.00 mm dia	Upto 45 mm2 area						
	HEA	T RESISTING	STEELS							
Annealed	0.025 - 3.0	3 - 1000	0.1 – 10.00 mm dia	Upto 45 mm2 area						
	Other widths o	can be made avail	able upon request							

SURFACE FINISHES AVAILABLE OF SHEET, PLATE AND STRIP

Abbreviation	Type Of Process Route	Surface Finish / Notes		
2D	Cold rolled,heat treated, pickled.	Smooth and dull, a finish for good ductility, not as smooth as 2B or 2R.		
2B	Cold rolled, heat treated, pickled	Smoother than 2D, a common finish for further processing, not bright.		
2R	Cold rolled, bright annealed.	Smooth, bright, reflective, a common finish for further processing.		
2H	Cold rolled, work hardened.	Bright, temper rolled to obtain a higher strength.		
2Q	Hardened and tempered, scale free.	Free of scale, either bright hardened and tempered or descaled afterwards.		





Types

Austenitic Stainless Steel

Ferritic Stainless Steel

Martensitic Stainless Steel

Precipitation Hardening Stainless Steel



Duplex & Super Duplex Stainless Steel The high temperature form of iron with carbon in solid solution is known as Austenite which is nonmagnetic. With a range of alloying additions possible, the most common being Nickel, Austenitic Stainless Steel remains non magnetic at room temperature. Traditional Austenitic Stainless Steels are based on an 18% chromium, 8% Nickel alloy, commonly known as 18/8 stainless. The chromium and Nickel contents can be increased to further improve corrosion resistance and other elements, such as molybdenum, can be added, again to improve corrosion resistance. Similarly the Nickel content can be varied to give a range of mechanical properties, due to differing work hardening rates.

This has led to the familiar group of 300 Series Alloys, which were developed to exploit the full range of possibilities available when altering alloying levels. In the fully annealed condition they are essentially non-magnetic but cold working of the less alloyed grades will induce structural changes leading to increased levels of magnetism.

This group is so named because the alloys have the same structure as iron at room temperature. These alloys are based on a minimum chromium level of 11% and contain no Nickel but provide fair corrosion resistance and good formability at low cost. Chromium levels can be increased to improve corrosion resistance but these alloys have low work hardening rates, do not develop high strength from cold working and remain magnetic in all tempers. Ferritic Stainless Steels are the ideal solution for high volume applications, particularly in domestic environment where moderate corrosion resistance is acceptable. Good examples include hinges and stays in the UPVC window hardware industry.

Martensitic Stainless Steels are similar to plain Carbon Steels that are austenitised, hardened by quenching and tempered to give improved toughness and ductility. These alloys are magnetic and are generally formed in the annealed condition, then heat treated. The strength generated by heat treatment is dependent on the carbon content of the alloy; increasing carbon increases strength but at the expense of toughness and ductility. Martensitic Stainless Steel is a low cost stainless metal strip and was the first to be commercially developed and is used as cutlery steel. It is also used for the manufacture of complex spring shapes needing a soft steel for forming.

Precipitation Hardened Alloys are part of the Stainless Steel family, possessing a higher carbon content compared to Ferritic alloys, enabling them to harden through air, oil or water cooling, improving their strength. This alloy grade offers manufacturers many superior properties, combining high work hardening rates and very high strengths, superior fatigue properties, good corrosion resistance, and minimum distortion when heat treated. These properties, in addition to good formability, make 17-7PH ideal for aerospace applications, spring manufacturing and surgical instruments.

AVAILABLE GRADES

Austenitic 201, 301, 304L, 304, 305, 320, 321, 347, 316, 316L, 316Ti, 904L

> **Ferritic** 410S, 430, 430L, 430Ti (439), 441, 444

> > Martensitic 410, 420, 431

Precipitation Hardening Stainless Steel 17/4PH, 17/7PH

Duplex & Super Duplex 309, 310

Other grades available by request

Duplex Stainless Steel strip has a combined Austenitic-Ferritic structure. These magnetic alloys are not hardenable by heat treatment, but offer many added advantages over other Stainless Steels, with higher annealed strengths, stress relaxation and fatigue properties, superior tensile strength, greater corrosion and pitting resistance and lighter weight. Duplex Stainless Steel strip can be strengthened by cold work and has lower thermal expansion and higher heat conductivity than austenitic steel strip. With a lower Nickel content than other Stainless Steels, the material cost is also reduced. Super Duplex has a higher chromium content than standard Duplex, offering further mechanical and corrosion resistance.



Stainless Steel Features

EURO.	ASTM	NAME	FEA	TURES		
NAME	AISI	UNS	Key Features	Key Markets	Applications	
			AUSTENITICS			
1.4310	301	S 30100	An Austenitic Nickel-Chrome alloy with high toughness and corrosion resistance. In annealed form it is non magnetic, but develops magnetic properties through cold working. It has good surface brightness, making it useful for decorative applications.	Aerospace, Automotive, Chemical, Transport, Springs & Pressings, Decorative	Aircraft Structural Parts, Automotive Par Including Trims And Wheel Covers Spring Pressings, Connectors, Gaskets, Watch Parts, Chemically Etched Components, Building Tools, Decorative Purposes, Tableware, Appliances	
1.4301	304	S 30400	The most common grade of Stainless Steel due to its versatility. Excellent corrosion resistance in a wide range of environments, excellent formability and welding, superior deep drawing properties.	Food, Springs & Pressings	Flexible Tube, Pipes, Domestic Appliance Gaskets, Kitchen Wares, Springs, Threa Fasteners, Sinks, Computer And Monito Parts, Battery Cases, Window Spacers, Architectural Panels, Heat Exchangers	
1.4307	304L	S 30403	Low Carbon version of 304, ideal for more corrosive environments. Greater resistance to intergranular corrosion in welds. Moderate pitting corrosion resistance.	environments. Greater resistance to intergranular corrosion in Springs & Pressings		
1.4303	305	S 30500	An Austenitic Stainless Steel with good corrosion resistance. It has capability for polishing and electroplating, as well as soldering and welding. It has good Cold Workability.	Electronic, Stationary	Electronic Parts, Deep Drawn Parts, Battery Cases, Pens	
1.4833	309S	S 30908	The low Carbon Version of 309, improves weldability and minimises carbide precipitation. Good resistance to oxidation and high-temperature corrosion combined with good mechanical strength at elevated temperatures. Not suited for use in highly carburizing environments.		Gas Burner Radiators, Electrical Heatin Element Tubes, Energy Conversion Plants, Furnace Parts, Heat Exchangers Automotive Exhausts	
1.4845	310/ 310S	S 31008	A Refractory Austenitic Stainless Steel, which has high toughness and excellent high-temperature oxidation resistance due to its high Chromium and Nickel content. Food Industry		Nuclear Thermal Insulation, Furnaces, A Heaters, Food Processing Components	
1.4401	316	S31600	Molybdenum added to increase corrosion resistance, with higher resistance to pitting and crevice corrosion in chloride environments than other common austenitic grades. Excellent welding and formability characteristics. Good for			
1.4436			applications requiring continuous work in a temperature range of 450 and 850C.			
1.4404	- 316L	S 31603	The Low Carbon Version of 316, better for uses at sensitization temperatures, such as welding, as intergranular corrosion resistance is increased. Slightly	Chemical, Petrochemical, Marine, Food	Bursting Discs, Seals, Bellows, Gaskets Expansion Joints, Explosion Panels, Tubes, Diaphragms, Heat Exchangers, Coastal Architectural Features, Food An	
1.4432			more corrosion resistant than 1.4401. More heavily alloyed. Excellent corrosion resistance in Food, Beverage and Agricultural sectors.		Laboratory Benches, Threaded Fastener Springs, Boat Fittings, Chemical Container	
1.4571	320/ 316Ti	S 31635	Titanium-stabilised version of 316, prevents intergranular corrosion of welded structures by preventing formation of Chromium Carbide. The addition of Titanium offers improved mechanical strength at temperatures above 600C.			
1.4541	1.4541 321 S		Titanium added to reduce Chromium Carbide precipitation, giving increased protection against intergranular corrosion. Combines high strength, resistance to scaling and phase stability with resistance to subsequent aqueous corrosion, excellent welding and forming capabilities. Ideal for applications in the temperature range of up to 900°C.	Aerospace, Automotive	Heating Systems, Welded Tubes, Gaskets, Profile Pipes, Expansion Joint Seals, Bellows Gaskets, Furnace Parts Honeycomb Seals, Thermal Insulation Tube, Flexible Tube, Diaphragms,	
1.4550	347	S 34700	Additions of Niobium and Titanium give excellent resistance to intergranular corrosion.		Aerospace Components Including Exhaust Manifolds	
1.4539	904L	N 08904	A low Carbon Austenitic Stainless Steel, alloyed with Copper to improve resistance in acidic conditions. As it is alloyed with expensive components, Molybdenum and Nickel, it has become largely replace by lower cost Duplex alloys. 904L is non-magnetic, and offers excellent formability, toughness and weldability.	Oil & Gas, Paper & Pulp	Seals, Gaskets And Shims, Thermal Insulation Panels, Distillation, Column Packing	

Features

EURO.	ASTM NAME		FEA	TURES	
NAME	AISI	UNS	Key Features	Key Markets	Applications
			FERRITICS		
1.4016	430	S 43000	Good Formability. Good corrosion resistance in moderately aggressive media and good oxidation resistance at elevated temperatures. It is not susceptible to stress cracking corrosion.	Automotive, Chemical Etching	Automotive Trim, Domestic Appliance Panels, Chemically Etched Components, Paint Brushes, Gaskets, Lights Bulbs, Hose Clamps, Oil Refinery Components In Acidic Environments
1.4113	434	S 43400	A low Carbon Ferritic Stainless Steel with additions of Molybdenum. Corrosion resistance is better than 430. Excellent polishing characteristics.	Automotive, Architectural	Automotive Trim, Dishwashers, Restaurant Equipment, Nitric Acid Plant Equipment
			MARTENSITICS		
1.4006	410	S 41000	A low hardness Martensitic Stainless Steel which is corrosion resistant in water and steam. Not considered to be weldable, although it is possible with thin gauge material.	Medical, Mechanical	Stainless Steel Springs, Valves, Axles, Surgical Instruments, Wear Resistant Surfaces
1.4028	420	S 42000	Higher hardness than 410. Useful for applications in which wear and abrasion resistance is important.	Springs & Pressings, Printing Industry, Mechanical	Cutlery, Machine Knives, Scissors, Measuring Tools, Springs, Mechanical Parts
1.4122	-	-	The most corrosion resistant of the common Martensitic grades. Medium-High hardness. Very good wear resistance and mechanical properties.	Medical, Food, Mechanical	Surgical Instruments, Pumps, Mechanical Parts, Food Processing
			PRECIPITATION HARDENIN	G	
1.4542	-	17-4PH	Good combination of corrosion resistance and excellent mechanical properties. The corrosion resistance is very similar to 1.4301, but significantly more resistant to Stress Corrosion Cracking. It is susceptible to Crevice Corrosion in stagnant sea water.	Aerospace, Marine, Sport And Leisure, Mechanical, Pulp And Paper Industry	Pump Components, Mechanical Parts, Golf Clubs, Seals
1.4568	-	17-7PH	Good formability and strength. Corrosion resistance is generally higher than the Martensitic Stainless Steels and 17- 4PH but lower than 304. The formability is comparable to 301.	Springs & Pressings	Stainless Steel Springs, Diaphragms, Encapsulated Bellows, Strain Gauges
			DUPLEX		
1.4062	2202	S 32202	A dual-phase Austenitic-Ferritic Stainless Steel. Offers elevated yield strength, good resistance to stress corrosion cracking and good mechanical strength. Suitable for cold forming.	Pulp And Paper Industry, Water, Food, Construction, Automotive	Crash barriers, Desalination Cladding of paper machines, Oil tanks Juice tanks, Automotive Structures
1.4462	2205	S 32205	A dual-phase Austenitic-Ferritic Stainless Steel. Achieves high yield strength while maintaining sufficient ductility. The corrosion resistance is comparable to grades 304 and 301. Good weldability and formability. High Design Strength, allowing for a reduction in section thickness.	Automotive, Chemical, Transport,	Pulp and Paper Processing, Desalination,
1.4362	2304	S 32304	A dual-phase Austenitic-Ferritic Stainless Steel with low carbon content. Good resistance to corrosion and offers much higher proof strength as Austenitic Stainless Steels. Other properties include good weldability and good toughness.	Springs & Pressings, Decorative	Automotive Trim, Offshore Platforms
1.4410	2507	S 32750	A dual-phase Austenitic-Ferritic Stainless Steel. High resistance to all corrosion, high mechanical strength and good weldability. Suitable for service in highly corrosive conditions.	Automotive, Chemical, Marine	Pulp and Paper Processing, Desalination, Automotive Trim, Seawater Systems, Heat exchangers
1.4662	(LDX) 2404	S 82441	A Duplex Stainless Steel with high contents of Chromium and Nitrogen. This combination gives the material high corrosion resistance and a higher mechanical strength than other common Duplex materials. Other properties include good fatigue resistance and good weldability.	Automotive, Chemical, Marine, Energy, Architectural	Structural Components, Piping Systems, Pulp and Paper Processing, Oil ad Gas, Water Treatment.
1.4162	(LDX) 2101	S 32101	A low-alloyed, general purpose, Duplex Stainless Steel. Offers good general corrosion resistance, high sulphide and chloride stress corrosion resistance, good strength and weldability.	Chemical, Water Treatment, Paper & Pulp	Chemical Processing Vessels and Piping. Pulp and Paper Mill Equipment, Water Treatment Tanks.



Stainless Steel Chemical Properties

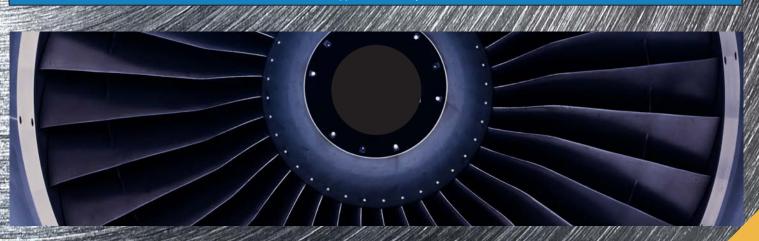
		STM							IDOSITU	N %			
EURO.		AME	TYPICAL CHEMICAL COMPOSITION %										
	AISI	UNS	С	Si	Mn	Р	S	Cr	Мо	Ni	N	Cu	Other
1.4310	301	S 30100	0.05 - 0.15	1.00 - 2.00	2.00	0.045	0.015 - 0.030	16.00 - 19.00	0.80	6.0 - 9.5	0.10	-	-
1.4301	304	S 30400	0.07	1.00	2.00	0.045	0.030	17.50 - 19.50	-	8.0 - 10.5	0.10	-	-
1.4307	304L	S 30403	0.03	1.00	2.00	0.045	0.030	17.50 - 19.50		8.0 - 12.00	0.10	-	-
1.4303	305	S 30500	0.06 -0.12	1.00	2.00	0.045	0.030	17.00 - 19.00	-	10.50 - 13.00	0.10	-	-
1.4833	309S	S 30908	0.08 - 0.15	1.00	2.00	0.045	0.015 - 0.030	22.00 - 24.00	-	12.00 - 15.00	0.11	-	-
1.4845	310/ 310S	S 31008	0.08 - 0.10	1.50	2.00	0.045	0.015 - 0.030	24.00 - 26.00	-	19.00 - 22.00	0.11	-	-
1.4401	1 1		0.07 - 0.08	1.00	2.00	0.045	0.030	16.50- 18.50	2.00 - 3.00	10.00 - 14.00	0.10	-	-
1.4436	316	S31600	0.05 -0.08	1.00	2.00	0.045	0.030	16.00 - 18.50	2.50 - 3.00	10.50 - 14.00	0.10	-	-
1.4404													
1.4432	316L	S 31603	0.03	1.00	2.00	0.045	0.030	16.00 - 18.50	2.00 - 3.00	10.00 - 14.00	0.10	-	-
1.4571	316Ti	S 31635	0.08	1.00	2.00	0.045	0.030	16.00 - 18.50	200-300	10.00 - 14.00	-	_	Ti 5 x C
									2.00 - 3.00			-	to max 0 Ti 5 x C
1.4541	321	S 32100	0.08	1.00	2.00	0.045	0.030	17.00 - 19.00	-	9.00 - 12.00	0.10	-	to max 0
1.4550	347	S 34700	0.08	1.00	2.00	0.045	0.015	17.00 - 19.00	-	9.00 - 13.00		-	Nb = 10 x to max 1
1.4539	904L	N 08904	0.02	0.70	2.00	0.030 - 0.045	0.010 - 0.035	19.00 - 23.00	4.00 - 5.00	23.00 - 28.00	0.10 - 0.15	1.00 to 2.00	-
	·	·		÷	·	F	ERRITICS	÷	·		·		
)	ì	С	Si	Mn	Р	S	Cr	Мо	Ni	N	Cu	Other
1.4016	430	S 43000	0.08 - 0.12	1.00	1.00	0.040	0.030	16.00 - 18.00	-	0.75	-	-	-
1.4113	434	S 43400	0.08 - 0.12	1.00	1.00	0.040	0.030	16.00 - 18.00	0.75 - 1.40	-	-	-	-
						MA	RTENSITIC	CS					
	Ì	ì	С	Si	Mn	Р	S	Cr	Мо	Ni	N	Cu	Other
1.4006	410	S 41000	0.08 - 0.15	1.00	1.00 - 1.50	0.040	0.030	11.50 - 13.50	-	0.75	-	-	-
1.4028	420	S 42000	0.26 - 0.35	1.00	1.50	0.040	0.030	12.00 - 14.00	-	-	-	-	-
1.4122	-	-	0.33 - 0.45	1.00	1.50	0.040	0.030	15.50 - 17.50	0.80 - 1.30	1.00	-	-	-
						PRECIPIT	ATION HAP	RDENING					
	1	1	С	Si	Mn	Р	S	Cr	Мо	Ni	N	Cu	Other
1.4542	-	17-4PH	0.07	0.70	1.50	0.040	0.030	15.00 - 17.00	0.60	3.00 - 5.00	-	3.0 - 5.0	Nb: 5x C to 0.4
1.4568	-	17-7PH	0.09	0.70	1.00	0.040	0.015	16.00 - 18.00	-	6.50 - 7.80	-	-	Al: 0.70 - 1.5
	1	Į	ļ	ļ	1		DUPLEX	ļ	1		1		
			С	Si	Mn	Р	S	Cr	Мо	Ni	N	Cu	Other
1.4062	2202	S 32202	0.03	1.00	2.00	0.040	0.010	21.5 - 24.0	0.45	1.00 - 2.90	0.16 - 0.28	-	-
1.4462	2205	S 32205	0.03	1.00	2.00	0.035	0.015	21.0 - 23.0	2.50 - 3.50	4.50 - 6.50	0.10 -0.22	-	-
1.4362	2304	S 32304	0.03	1.00	2.00	0.035	0.015	22.0 - 24.0	0.10 - 0.60	3.50 - 5.50	0.05 - 0.20	0.10 - 0.62	-
	2507	S 32750	0.03	1.00	2.00	0.035	0.015	24.0 - 26.0	3.00 - 4.50	6.0 - 8.0	0.24 - 0.35	-	-
1.4410											1		
1.4410	(LDX) 2404	S 82441	0.03	0.70	2.50 - 4.00	0.035	0.005	23.0 - 25.0	1.0 - 2.0	3.0 - 4.50	0.20 - 0.30	0.10 - 0.80	-

Please contact the Knight Group Sales Team with your requirements.

Stainless Steel Mechanical Properties

ACCESSION THE	and the second s				1 Mary all	121 March Carl	N. S. I. H. W. S. M.			
			TYPI	CAL MECHANICAL	PROPERTIES					
EURO. NAME	ASTM AISI	NAME UNS	Proof Strength 0.2% Min (N/mm2)	Tensile Strength	Elong. % Min. (50mm Gauge Length)	Hardness Max (VPN)	Surface Finish			
AUSTENITICS										
1.4310	301	S 30100	195	500 - 750	40	242	2B & 2R			
1.4301	304	S 30400	190	500 - 700	45	226	2B & 2R			
1.4307	304L	S 30403	175	500 - 700	45	226	2B & 2R			
1.4303	305	S 30500	190	500 - 700	45	226	2B & 2R			
1.4833	309 S24	S 30908	210	500 - 700	33	192	2B & 2R			
1.4845	310/ 310S	S 31008	210	500 - 700	33	192	2B & 2R			
1.4401	316	S31600	200	500 - 700	40	226	2B & 2R			
1.4404 1.4432	316L	S 31603	200	500 - 700	40	226	2B & 2R			
1.4571	320	S 31635	200	500 - 700	40	226	2B & 2R			
1.4541	321	S 32100	190	500 - 700	40	226	2B & 2R			
1.4550	347	S 34700	205	510 - 740	40	242	2B & 2R			
1.4539	904L	N 08904	230	530 - 730	35	242	2B & 2R			
			·	FERRITICS	S		·			
1.4016	430	S 43000	240	400 - 630	20	200	2B & 2R			
1.4113	434	S 43400	280	440 - 660	18	200	2B & 2R			
			· ·	MARTENSIT	ICS		•			
1.4006	410	S 41000	450	650 - 850	15	231	2B & 2R			
1.4028	420	S 42000	650	850 - 1000	10	258	2B & 2R			
1.4122	-	-	550	750 - 950	12	280	2B & 2R			
	·		PI	RECIPITATION HA		· · · · · · · · · · · · · · · · · · ·	·			
1.4542	-	17-4PH	520 - 1000	800 - 1270	10 - 18	380	2R			
1.4568	-	17-7PH		max. 850		268	2R			
	·		· · ·	DUPLEX	· · · · · · · · · · · · · · · · · · ·	·	·			
1.4062	2202	S 32202	380	650 - 900	30	305	2B & 2R			
1.4462	2205	S 32205	450	650 - 880	25	284	2B & 2R			
1.4362	2304	S 32304	400	600 - 830	25	274	2B & 2R			
1.4410	2507	S 32750	530	730 - 950	25	305	2B & 2R			
1.4662	(LDX) 2404	S 82441	450	650 - 900	25	305	2B & 2R			
1.4162	(LDX) 2101	S 32101	400	650 - 900	25	305	2B & 2R			

*VPN has been converted from the Brinell Hardness Values and are an approximation only





Processing

YOUR MATERIAL YOUR WAY

The Knight Group are industry leaders in the supply and processing of strip, coil and wire, consistently exceeding expectations of quality, service and performance. With a number of accreditations, including BS EN ISO 9001 and BS EN AS 9120, we are the supplier of choice for global manufacturers where quality, reliability and lean manufacturing at the heart of their priorities. Most manufacturers are facing increasing demands for goods to be delivered with tighter time frames and even tighter margins. By selecting the processing to meet your specific needs, your material can be prepared and delivered to the exact size, length and finish you need, saving valuable production time and costs. Our processing is offered at a comprehensive price and with a flexibility to select only the services you need and want, giving you maximum versatility and minimum cost.

We have invested heavily in our bespoke machinery and training our established team of operators, so that we can offer a truly comprehensive range of processing to complement our extensive range of stocked material



Reduced Machine Downtime Longer Production Runs Reduced Storage and Scrap Safer Material Handling Reduced Production Time and Costs TRAVERSE WINDING LINES
5 EDGE FINISHING LINES
8 CUT TO LENGTH LINES
27 RECOILING LINES
26 SLITTING LINES



Low Width Thickness Ratio 3:1 unique to the industry (normal minimum is 8:1)

Ability to offer Ultrafine Width Tolerances down to +/- 0.025mm (0.001")

> Thicknesses 0.013mm to 6.5mm (0.0005" to 0.26")

> Widths 0.64mm to 1100mm (0.025" to 43")

Packaging

BESPOKE PACKAGING

If you need bespoke material sizes and processing, then you probably want bespoke packaging as well. Thanks to our in house packaging design team, we can offer bespoke packaging solutions to protect your materials in transit. Whatever processing and finishing options you have chosen, your products will packaged to arrive safely and ready to use

You can choose to have strip material as pancake coils, traverse wound coil, flat blanks and sheets. Wire can be supplied as cut lengths, coils, formers or spools to suit your needs.









CHOOSE FROM OUR TRUSTED PARTNERS OR YOUR PREFERRED CARRIER

We firmly believe that all of our customers should be able to have your material, your way. Thanks to our global network of freight providers, you can choose from air, land or sea freight so you can have your material where you want, when you want.

There is also the option to arrange your own collection from our site in Birmingham, which can be organised through our sales team.



Standard Stock

WE ARE DRIVEN TO CONTINUE BUILDING A BETTER BUSINESS, BY WORKING CLOSELY WITH OUR CUSTOMERS TO GROW THEIRS.

Our materials and processing are carefully chosen to meet the exacting needs of manufacturers around the globe. We work alongside our suppliers to ensure we are at the forefront of material innovation, ensuring the availability of the highest quality material with the most competitive pricing. With over 2500 items in stock and sourcing of an extensive range or alloy grades, you can have your material, your way.

8 Cut To Length Lines 5 Edge Finishing Lines 27 Recoiling Lines 26 Slitting Lines 5 Traverse Winding Lines

Standard Stock Range

WE STOCK IN EXCESS OF 2500 ITEMS, AVAILABLE AS CUT LENGTHS/ STRAIGHTENED, COILS, FORMERS OR SPOOLS

М	laterial			Mild Steel							
т	emper		ANNEALED					HARD F	HARD ROLLED		
	iropean Norm	EN 10088-2:2005 EN 10151:2002								EN 10139:1998	
	ickness erances		EN ISO 9445-1:2010(P) (Thickness X* not within precision range)								
NOI	European Spec.		541 5526	1.4404 1.4401		1.4307 1.4301	1.4310 +C1300			301 300	DC01 C590
DESCRIPTION	AISI	32	21	316/	316L	304L/304	3(01	3	04	-
ESC	AMS	55	10	55	607	5511/5513	55	519	59	13	-
	ASTM	A-2	240	A-240, A-266		A-240, A-266	A-(666	A-	666	-
						WIDTH	l (mm)				
THICK	NESS (mm)	610	980	305	610	610	305	610	305	610	610
(0.025						√*		\checkmark	\checkmark	
	0.05	√*		1	1	\checkmark	1	1	1	1	\checkmark
(0.076	\checkmark	\checkmark		<i>✓</i>	\checkmark	\checkmark		\checkmark	<i>√</i>	\checkmark
	0.08	√*	<i>√</i> *	~							\checkmark
	0.1	\checkmark	~		✓	√*		<i>✓</i>	<i>✓</i>	\checkmark	\checkmark
(0.127	\checkmark	~		✓	\checkmark			\checkmark	~	\checkmark
	0.15	\checkmark	\checkmark		✓	\checkmark		~	✓	\checkmark	\checkmark
	0.18		~								\checkmark
	0.2	\checkmark			\checkmark	\checkmark		<i>✓</i>	\checkmark	\checkmark	\checkmark
	0.25	\checkmark	\checkmark		✓	\checkmark			<i>√</i>	\checkmark	\checkmark
	0.3	\checkmark			\checkmark	\checkmark		\checkmark	<i>√</i>	\checkmark	\checkmark
	0.38	\checkmark						<i>✓</i>			\checkmark
	0.39				\checkmark	\checkmark	✓	✓	∕	✓	
	0.45	\checkmark				\checkmark					
	0.5	\checkmark			\checkmark	\checkmark	√	\checkmark	✓	✓	\checkmark
	0.6							<i>√</i>	<i>√</i>	\checkmark	
	0.7						\checkmark		✓	\checkmark	
	0.8						1		1	1	
	0.9								✓	✓	
	1						~	<i>√</i>	~	~	\checkmark
	1.2						\checkmark		✓		
	1.5						\checkmark	✓	\checkmark		

Product Range

	RANGE CAN BE SUPPLIED AS CUT LENGTHS/ STRAIGHTENED, COILS, FORMERS OR SPOOLS										
	OTHER GRADES AND	SPECIFICATIONS AVAILAI	BLE, PLEASE C	ONTACT OUR S	SALES TEAM		EQUEST				
	ТҮРЕ	GRADES AVAILABLE		TANDARD R	ANGE		DUND AND PROFILE E STANDARD RANGE				
			Tempers Available	Thickness (mm)	Width (mm)	Tempers Available	Specifications and Forms				
	AUSTENITIC	201, 301, 304L, 304, 305, 320, 321, 347, 316, 316L, 316Ti, 904L	Annealed All Other	0.01 - 2.5	3 - 1250 3 - 1250		Round Wire 0.1 to 10.00mm dia* Profile Wire Upto 45mm2 area For cold worked condition,				
Ē		310, 310L, 310H, 304L	Tempers Annealed	0.05 - 2.0	3 - 650		please contact us with your requirements.				
STE	FERRITIC	410S, 430, 430L, 430Ti (439), 441, 444	All Other			Annealed	Coils from 1kg to 1000kgs				
STAINLESS STEEL			Tempers	0.05 - 1.6	3 - 450	Light Drawn Hard Drawn	Formers from 500kgs to 1000kgs				
NLE	MARTENSITIC	410, 420, 431	Annealed	0.127 - 2.50	3 - 450	Specified Tensile	Spools - Wide Range Available Cut Lengths/ Straightened				
ЗТАІ	PRECIPITATION HARDENING	17/4PH, 17/7PH	Annealed	0.02 - 1.5	3 - 620	-	from 10mm to 4m * *Duplex				
0)			Condition 'C'	0.025 - 1.0	3 - 620	-	Round Wire 0.8 – 8.00mm dia*				
	HEAT RESISTING STEELS	309, 310	All Tempers Available	0.025 - 3.0	3 - 1000		Cut Lengths/ Straightened from 10mm to 10m				
MU	ALPHA	Grade 1, Grade 2, Grade 3, Grade 4		0.005 0.00		Annealed (soft) 1/8 Hard	Round Wire 0.1 to 10.00mm dia Profile Wire Upto 45mm2 area				
TITANIUM	ALPHA/BETA	Grade 5 (Ti 6Al-4V) Grade 9 (Ti 3Al 2.5V)	All Tempers Available	0.025 - 3.00	3 - 1000	1/4 Hard 1/2 Hard Hard	Coils from 1kg to 1000kgs Formers from 500kgs to 1000kgs Spools - Wide Range Available				
	BETA	21S				Spring Hard	Cut Lengths from 10mm to 10m				
	COMMERCIALLY PURE NICKELS	200, 201		0.025 - 2.5	2 - 1000	Annealed Spring Hard					
Š	NICKEL-COPPER ALLOYS	400					Round Wire 0.1 to 10.00 mm dia Upto 45 mm2 area				
NICKEL ALLOYS	NICKEL-CHROMIUM & NICKEL-CHROMIUM-IRON ALLOYS	alloy K500, alloy X, C22, alloy C2000, alloy 600, alloy 601, alloy 625, alloy C 276, alloy 718, alloy X750	All Tempers Available				Coils from 0.5 kg to 1000kgs Formers from 500kgs to 1000kgs Spools - Wide Range Available Cut Lengths/ Straightened				
ž	IRON-NICKEL-CHROMIUM ALLOYS	alloy 800, alloy 825					from 10mm to 10mm				
	CONTROLLED EXPANSION ALLOYS	29/18			3 - 610						
	PURE ALUMINIUM	1000 SERIES		0.01 - 3.0	3 - 1000	Annealed (soft)	Round Wire 0.1 to 10.0 mm dia Upto 45mm2 area				
	ALUMINIUM COPPER ALLOY	2000 SERIES									
N N	ALUMINIUM MANGANESE ALLOY	3000 SERIES			Sheet up to	1/8 Hard 1/4 Hard	Coils from 1kg to 1000kgs Formers from 500kgs to 1000kgs				
N N	ALUMINIUM MAGNESIUM ALLOY	5000 SERIES	All Tempers Available	0.01 - 1.5	2000mm	1/2 Hard Hard Spring Hard	Spools - Wide Range Available				
ALUMINIUM	ALUMINIUM MAGNESIUM + SILICON ALLOY	6000 SERIES	Wallable	0.01 - 3.0			Cut Lengths/ Straightened from 10 mm to 10m				
	ALUMINIUM ZINC ALLOY	7000 SERIES			Please cor	ntact us with your requirements					
	CLAD ALUMINIUM	n/a			Please cor	intact us with your requirements					
s S	COMMERCIALLY PURE HIGH CONDUCTIVITY COPPER	C101, C102, C103, C106				Annealed	Round Wire 0.1 to 10.00 mm dia				
RAS TE	BRASS	CZ106, CZ107, CZ108				(soft) 1/8 Hard	Upto 45 mm2 area				
, BF ONZ	PHOSPHOR BRASS	PB102, PB103	All Tempers Available	0.01 - 3.0	3 - 1220	1/4 Hard	Coils from 1kg to 1000kgs Formers from 500kgs to 1000kgs				
COPPER, BRASS & BRONZE	NICKEL SILVERS CUPRONICKEL & HIGH COPPER CONTENT ALLOYS	NS103, NS104, NS106, NS107, C72500	, wallable			1/2 Hard Hard Spring Hard	Spools - Wide Range Available Cut Lengths/ Straightened from 10mm to 4m				
Ö	COPPER BERYLLIUM ALLOYS	CB101									
BON	LOW CARBON STEEL	DC01, DC03, DC04, DC05, DC06	Annealed All Other Tempers	0.01 - 3.0	3 - 1220 3 - 1000	Annealed (soft)	Round Wire 0.1 to 10.00 mm dia Upto 45 mm2 area				
AR EL			Annealed	0.05 - 3.0	3 - 650	1/8 Hard 1/4 Hard	Coils from 1kg to 1000kgs				
MILD & CARBON STEEL	HIGH CARBON STEEL	C55S, C60S, C67S, C75S, C85S, C90S, C100S, C125S, 48Si7,	All Other Tempers	0.05 - 1.6		1/2 Hard Hard	Formers from 500kgs to 1000kgs Spools - Wide Range Available Cut Lengths/ Straightened				
W		56Si7, 51CrV4, 80CrV2, 75Ni8, 125Cr2, 102Cr6	Hardened &	0.127 - 3.0	3 - 610	Spring Hard	from 10mm to 10m				

Tempered CLAD METALS AND PLATED METALS AVAILABLE, PLEASE CONTACT US WITH YOUR REQUIREMENTS

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