



REYNOLDS TECHNOLOGY LTD.

STEEL TUBE MATERIALS AND PROCESSES. – EXTRACT ONLY to page 4.

Please contact reytech@reynoldstechnology.biz for the current full version.

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Contents

1- Reynolds Technology Ltd.....	2
1-1- Background.....	2
1-2- Materials/Process Capability	2
2- Materials: Reynolds Weldable Steel Brands Overview.....	3
2-1- Mechanical Properties – Reynolds Materials.....	4

The contents of this document are provided for general information and should only used for design and manufacturing after due consideration of the alloy properties required.

Please contact Reynolds Technology Ltd if you have any questions:
reytech@reynoldstechnology.biz



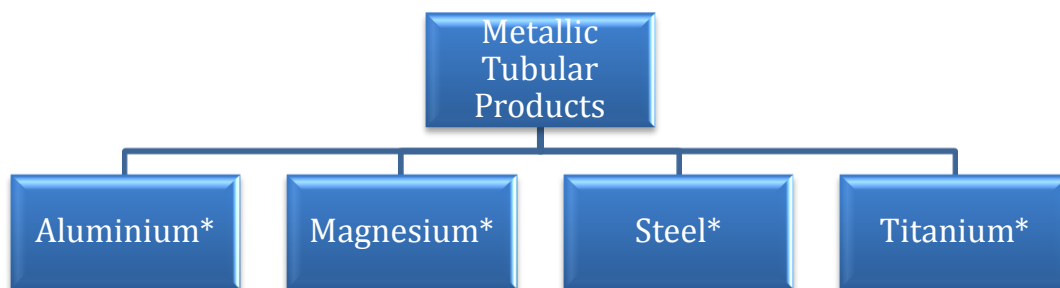
1- Reynolds Technology Ltd

1-1- Background

Birmingham-based **Reynolds Technology Ltd (RTL)** has a long history in the tube making industry. In particular, the Company is world renowned in the bicycle industry, with no fewer than 27 Tour de France champions crossing the finish line atop bicycles built with Reynolds tubing. As part of the TI Group PLC, it supplied “531” tubing to the automotive, motorcycle and wheelchair market.

Now a privately owned business, the company has invested in developing new materials. Reynolds aims to provide innovative, high quality products made from durable advanced materials to the aerospace, automotive, oil and sporting goods sectors.

1-2- Materials/Process Capability

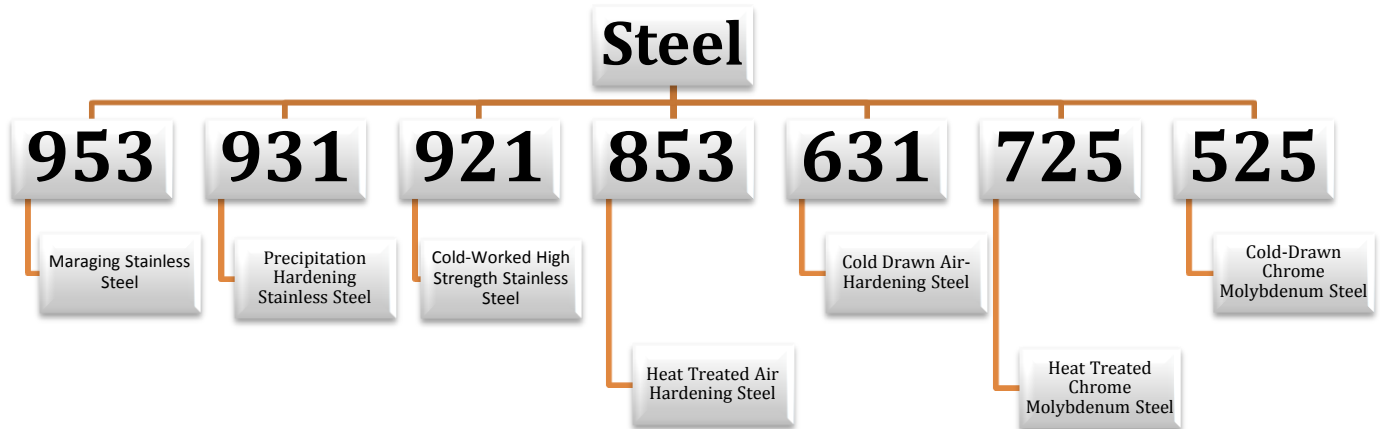


* For information please refer to our website (www.reynoldstechnology.biz OR www.rtl.cc)

- MANUFACTURING BASE IN THE UK for specialist or custom-made steel and titanium tubing applications. Can include “**butted**” (variable wall thickness) tubes – see page 6.
- EXTRUSION of Aluminium and Magnesium profiles, made under license in South Africa. CNC machining, painting and assembly of components, also in South Africa.
- HYDROFORMED aluminium (6061/7005), made under license in China, with possible options in titanium and 4130 steel.
- OFFSHORE PRODUCTION of tubing for volume markets in mild steel, 4130 seamless and cold-drawn/welded Cr-Mo, 6061 and 7005 grade aluminium, made under license in Taiwan and China.



2- Materials: Reynolds Weldable Steel Brands Overview



Reynolds branding started with the legendary “531” used for cycle, motorcycle, automotive and aviation use commencing in 1935. For our steel products, the increasing brand number generally indicates higher strength based on the alloy content.

Reynolds 953: Stainless Maraging Steel, currently used as premium-melted, precision welded and cold-drawn tube with maximum tensile strength at 2000MPa. The combination of stainless properties and martensitic-aging makes this a great engineering alloy with very high specific strength.

Reynolds 931: Stainless Precipitation Hardening Steel based on the Custom 630/17-4PH grade alloy composition. Tubes can be either welded or seamless depending on the application.

Reynolds 921: Cold worked, high strength austenitic stainless steel based on 21-6-9 grade alloy composition. High levels of manganese and nickel provide toughness whilst a high nitrogen content increases yield strength

Reynolds 853: Seamless Air-hardening Steel mainly cold-drawn and heat-treated. The air-hardening effect in the weld zone creates a fine grain structure, allied to the bainitic microstructure for this alloy, leading to fatigue life improvement.

Reynolds 631: is the cold-drawn version of the 853, with similar air-hardening advantages in the weld zone.

Reynolds 725: Chrome-moly steel, based on the industry standard 4130 steel alloy. This tube range is heat-treated.

Reynolds 525: Also based on the 4130 steel. Our Reynolds 520 series is normally a welded, cold-drawn version.



2-1- Mechanical Properties – Reynolds Materials

Comparative values for UTS in MPa and Stiffness in GPa for metals used by Reynolds in previous applications to date including 6061-T6 Aluminium and 3Al-2.5V titanium.

KTN/RTL/1211.

