The global magazine for corrosion resistant alloy users, suppliers and fabricators

WORLD STAINLESS STEEL

30 YEARS
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1989-2019

cover story:

Langley Alloys, the home of super duplex

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Duplex

www.stainless-steel-world.net
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A new portable machine for stainless steel branching

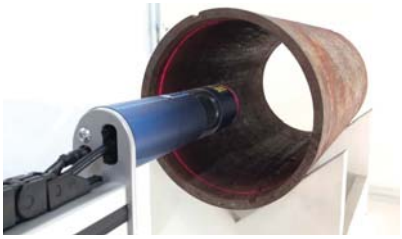
The T-DRILL process is a patented method of producing outlets for branch connections directly from the run material. Pipe branching by T-DRILL method is also called collaring, mechanical tee forming or simply T-DRILL tees. The entire process from pilot hole milling to a complete, trimmed branch outlet can be performed on a single workstation in three work cycles; pilot hole milling, collaring and trimming of the collar.

The new, powerful T-DRILL T-65 SS is an ideal portable solution for making tee joints of O.D. 17 – 54 mm in main run tubes up to 300 mm in just a couple of minutes. While giving comparable quality to commercial tee fittings, the profit will increase since the T-65 SS eliminates cutting of pipe, two welded joints, and the fitting cost. If tube polishing is required at the welding points, the T-65 SS also reduces that, as well as any inspection costs. The branch pipe can be connected to a formed outlet either by orbital welding or by manual welding.

The main goal with the new T-65 SS was to make the collaring process more effortless for the user. To achieve this goal, the machine was designed with two handles; one for drilling through and the other one for pilot hole side movement. This minimizes the amount of force needed to drill through the steel. The pilot hole adjustment was also made easier, and the tool changing is simple and quick. With this model, you just tilt the machine to switch from one tool to another without at any point holding the weight of the machine with your hands. Because of this, the machine is not only efficient and easy but also ergonomic to use.

The T-65 SS is an excellent solution to be used both in construction and renovation projects, as well as in the demanding field conditions in maintenance, repair work, and the process industry.

High-precision laser-based measurement



The new laser-based gauge developed by Dango & Dienenthal Umformtechnik measures the internal contour of tubes and pipes contact-free and with the highest precision. The system is capable of measuring the shape, e.g. ovality, over the complete internal circumference or specific surface features, such as weld seams. The recently patented system measures the internal contour of seamless metal tubes and longitudinally welded pipes in a non-contact process based on the circular laser triangulation technique. It captures the contour along the complete tube length and generates a complete 3D image of the internal tube wall from the measured data.

In longitudinally welded pipe making, the system can be employed - before welding - to capture the dimension of the weld gap, and - after welding - to measure the weld seam.

The system comes with different measuring ranges for tube diameters between 100 and 1,000 mm. It measures the internal contour at 2,048 points gaplessly distributed around the complete internal circumference of the tube. This corresponds to an angular resolution of 0.2 degrees. The distance measurement takes place with a resolution of one per mile of the measuring range.

The new gauge works on the principle of laser triangulation: A laser, accommodated in the measuring head, projects a line onto the complete internal circumference of the tube wall. The camera, which is also installed in the measuring head, captures the line at 2,048 points distributed around the internal circumference. The software derives the internal tube contour by calculating and aggregating the individual distances from the axis.

Mounted on a carrying arm, during the measurement the measuring head moves through the tube along the central axis, capturing up to 90 profiles per second. Based on these profiles, the complete internal contour can be represented in 3D.

Langley Alloys, the home of super duplex

For over 80 years, Langley Alloys has built a reputation as a leader in the development of high-performance alloys, and in the last 20 years as an expert stockist focusing on duplex, super duplex and nickel alloys. However, unlike most stockists, the company has a unique history which includes ownership of some outstanding trademarked alloys that were the first in their field, such as Ferralium, the first super duplex ever developed. The UK based company also employs several metallurgists, carries out in-house inspection and first stage machining, setting it apart from competitors. Today it is also a specialist supplier of (super) duplex within the US market too, where its business is growing from strength to strength.

By Joanne McIntyre

For over 80 years Langley Alloys has supplied corrosion resistant alloys to many of the worlds' most demanding applications. The flue gas desulphurization, oil & gas, paper & pulp, marine and fertiliser industries have made use of the company's products – and its extended customer service – to overcome these challenging environments. With headquarters in the United Kingdom, the company also has two large stock facilities supplying duplex and super duplexes in the USA. Far from being 'just' a stockist, Langley also provides extensive services to the materials industry including bar and plate processing, and custom forging and casting. Business Development Director Rodney Rice explains more about the company's activities around the world.

USA expansion

Langley Alloys opened shop in the USA nearly a decade ago and today operates in two locations.

Langley Alloys provides bar processing with fully automatic, CNC-controlled band saws, capable of accurate stock cutting up to a section size of 500mm (20").

Additional in-house services include deep hole boring, machining and CNC-controlled bands saws, capable of accurate stock cutting up to a section size of 500mm (20").

for the same reason we also opened an office and warehouse in Singapore," explains Mr. Rice.

"The Houston facility has steadily grown; however, our partnership with Sandvik launched last year has taken us to the next level. We took Sandvik's stock and racking and now undertake the distribution of their super duplex bar products across North America."

US duplex & super duplex specialist

The partnership with Sandvik also prompted a change of focus for Langley's US operations. "Originally both the Portland and Houston sites served a broad range of alloys and markets, as our UK operations do. However, we have now streamlined our US operations with a much clearer focus. Today we only stock and

The site in Portland was originally an independent distributor and a former customer which the company acquired in 2010. Rather uniquely, the Portland site focuses on plate products – a legacy of its relationship with Haynes International. Haynes was a licensee of the Ferralium trademark for many years and successfully developed the American market for plate into projects such as mining, geothermal, pulp and paper, and flue gas desulphurization. Today this legacy continues, with Langley continuing to supply metal into these applications.

Once the Haynes license expired the local market for Ferralium was served by an independent distributor called National Metal Distributors (NMD) which Langley Alloys acquired ten years ago.

"Our second site in Houston opened in 2013 as we followed a number of our global customers to their main markets;

All products are visually and dimensionally inspected during processing, but additional testing is undertaken in-house as required.

distribute four alloys: 2205, 32750, 32760, Ferralium 255 in bar, plate, pipe and fittings."

The strategy has given the company a much sharper product focus as reflected by its hashtag **#thehomeofsuperduplex.**

"Our strength in the American market lies in the simplicity of our product offering of one duplex and three super duplexes" continues Mr. Rice. "By contrast, in the UK market we supply 14-15 different alloys including stainless steel, super duplex, nickel alloys and even some copper alloys; generally high strength and highly corrosion resistant products, suitable for the oil & gas and chemical industries. While our alloy range in the US is much narrower, it covers bar, plate, pipe and fittings which end up in many different end applications and projects."

Main industries

Mr. Rice explained that duplex and super duplex bar is mostly destined for pumps, valves, fasteners, sensors, marine components, down-hole tooling in oil and gas applications and chemical processing. Plate is utilised by a more diverse group of end users, who fabricate it into a vast range of products for applications as varied as mining, desalination, water treatment, and fertiliser production, flue gas desulphurization and water treatment systems. These are applications that have aggressive operating conditions but where the temperature isn't the primary factor.

Langley Alloys qualified inspectors undertake non-destructive testing beyond the original mill offer, including both ultrasonic and dye penetrant tests to customer-specific procedures.

#thehomeofsuperduplex

"Any aggressive, corrosive operations that operate between -50°C and up to 250°C are ideal for duplex and super duplex."

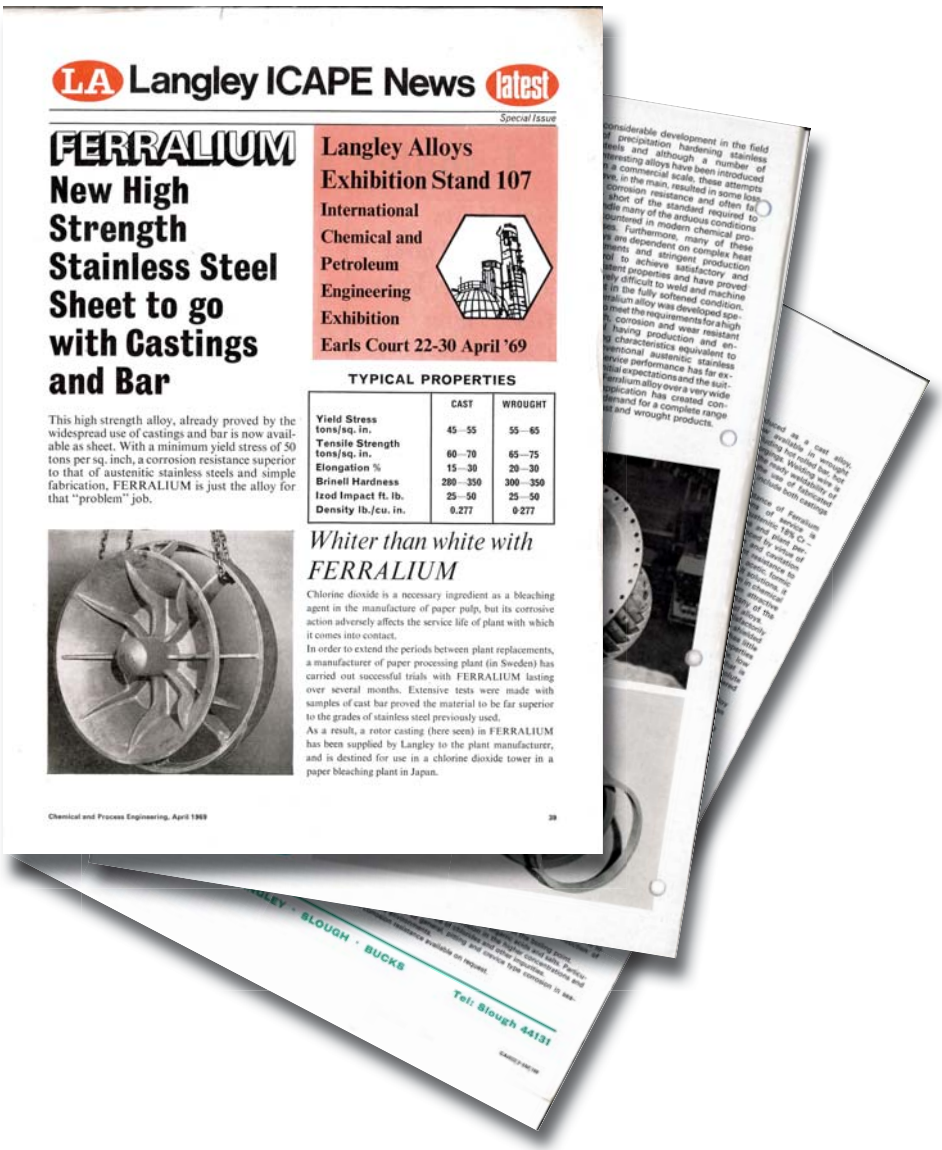
The company's duplex and super duplex pipe products are mainly destined for water treatment, chemical processing and desalination, although recently they have supplied some huge geothermal projects in the US.

Celebrating Ferralium – the worlds' first super duplex

This year marks a special occasion for super duplex as it is the 50th anniversary

Order processing and stock control are facilitated by a fully integrated computer system which links to item production and inspection.

The company's plate processing facilities can process anything from simple rectangles to complex shapes.



Original documents dating from the launch of Ferralium fifty years ago.

of Ferralium, the world's first super duplex, which was developed by Langley Alloys through the 1960's and patented in 1969.

"This is a major landmark for our company and indeed for the stainless steel industry," explains Mr. Rice.

"A search through our archives turned up folders of material relating to the development of this earliest super duplex, including a letter that was sent to customers in 1969 effectively launching the product. Developed under the name Langalloy 40V, a brochure in 1969 announced to the market that the material would from then on be available under the patented trademark Ferralium. This was many years before any other super duplex came onto the market, and Ferralium was cited by the developers of other super duplex alloys, such as Arcelor Mittal and Thyssen Krupp, during their development. For example, materials such as S32760 reference the original Langley Alloys work in their patent applications in the 1980's. Ferralium was a trail-blazer for the industry, and it continues to be an important material today."

Half a century of expertise

The specification and use of (super) duplexes around the world have grown over the years, and this family of materials now enjoys widespread acceptance.

"Fifty years ago, super duplex alloys were seen as difficult to work with, with potential pitfalls or complications compared to the other types of stainless steels available at that time. However today they are seen as just another family of stainless steel. Our customers have built up a lot of experience in terms of how to weld and fabricate with them. Even the manufacturing of super duplexes, once considered to be niche and exotic, is now reasonably widespread. One thing that remains unchanged is our appreciation of the history of Ferralium. It's an important material for very many customers, and is well-stocked and supported strongly by ourselves across our branches."

While it is quite unusual for a stockist to hold patents to materials, Mr. Rice explains that Langley Alloys has always had several metallurgists on its teams, including himself and several colleagues amongst the company's staff.

"Ferralium is not our only patented material; Langley Alloys registered numerous patents for materials developed by our experts over the years. One of the most well known is a copper-nickel alloy called Hidurel 5 which we developed in the 1940s for use in Spitfire aircraft; it is still a popular material, used by Rolls Royce and also in Formula 1 racing today. Then through the 1960's and 1970's we developed and patented the Hiduron family of alloys, the highest strength copper alloys available on the market, with exciting properties for subsea applications."

The home of (super) duplex

Their position as specialised suppliers of duplex and super duplex remains Langley Alloys core strength today, and it has helped the company to build a strong reputation across the industry.

"As a specialised supplier, our offering is unique in terms of the depth of stock, the range of sizes and our distribution partnership with Sandvik for these alloys. Adding to that our history of developing alloys such as Ferralium and the fact we are very committed to these materials, I think it's fair to say we truly are the home of duplex and super duplex," Mr. Rice concludes with a smile.

Facts & Figures

Name:	Langley Alloys
Founded:	1938
Products:	Stainless Steel, duplex, super duplex, nickel alloys, copper alloys
Locations:	Stoke on Trent & Newcastle under Lyme (UK), Portland & Houston (USA), Singapore
Key markets:	Oil & Gas, desalination, flue gas desulphurization, marine, paper & pulp, phosphoric acid based fertiliser production
Website:	www.langleyalloys.com