

Press Release

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Corrosion meets its nemesis - Duplex Alloys from Multi Alloys

Multi Alloys is South Africa's leading supplier of an extensive range of Duplex Alloys suitable for highly corrosive applications.

Ken Perel, part owner of Multi Alloys, gives an overview of this valuable Alloy: "Duplex Alloys, so called because of a microstructure which is a mix of austenite and ferrite, continue to increase in popularity. They offer the end user an extremely useful combination of properties including high strength, reasonable cost and corrosion resistance. Alloy composition plays an important role in determining these properties and with respect to corrosion resistance it's the level of chromium, nickel, molybdenum and nitrogen that are the core elements but copper, tungsten and manganese have important roles in enhancing the properties. A useful property of duplex stainless steels is their coefficient of thermal expansion which is closer to that of a carbon steel than an austenitic stainless steel. This means that, when combined with resistance to stress corrosion cracking and pitting corrosion, as may occur in seawater and chloride contaminated waters, duplex grades are eminently suitable to use in heat exchanger applications."

"The strength benefit of duplex grades is often emphasised in structural applications but it also has spin offs in rotating machinery as well. If the amount of material that is needed can be reduced by optimising the design for duplex grades, there is a direct benefit but there may be an indirect benefit as well – the drive system and support structure can possibly be downgraded. And in process industry applications it may be possible to use a lighter wall pipe and still attain the design operating pressure."

Multi Alloys has made a huge commitment to stock investment in a wide range of Duplex stainless steel items. "Duplex stainless steels' was once a term that applied to a few alloys but today, this branch of the stainless steel family tree is developing in to a family tree in its own right!" Perel adds, "Sandvik 3RE60 was probably the first duplex grade used on a large scale in South Africa. This was during the 1980's and was for heat exchanger applications. Since then we have come to know Lean Duplex grades, Super Duplexes and even Hyper Duplex grades but the work horse alloy is the middle of the range SAF 2205 and it's in this alloy that the bulk of our investment has been made. We are also carrying stock of SAF 2507".

Perel observes, "It's interesting to note that this range of alloys is at a stage in which 'grade extension' is taking place e.g. our round bar is stocked in SANMAC 2205 which has enhanced machinability and of course this is beneficial in a production environment."

2/...Duplex Alloys

2/...Duplex Alloys

“This basic grade is also available in 2 compositional specifications the newer one, UNS S32205, having tighter limits on elements that provide for enhanced resistance to pitting corrosion. For specific applications there is a duplex grade variant that has enhanced formability.”

Remarks EEP Director of Business Development, Graham Whitty, “Multi Alloys, through its affiliation with Associate Company, Energy Engineered Products (EEP), offers a range of Duplex Alloy products unmatched in South Africa. Our association sets us in a truly unique position as very few companies are able to offer such a holistic product and service package. Our expansive range enables us to straddle both the manufacturing industry with round bar, hex bar, plate and sheet material ex stock, as well as the processing industry with an offering of pipes, flanges and valves.

“With regards to service we offer a free day-long product knowledge training seminar on the materials we supply,” continues Whitty. We have expertise in material selection for corrosive applications as our products are primarily used in challenging environments. Overall, our in-depth knowledge and understanding of the performance characteristics and technical aspects of our product range are paramount to assisting and guiding our customers in selecting the correct materials best suited for complicated and stringent environments.”

“In summary, owing to its many property and cost saving benefits, Duplex Alloys are unsurprisingly being used more and more by industries such as power generation, water, mineral processing, general engineering and fabrication, pollution control, automotive, petrochemical, marine, oil & gas. Their properties make them highly suitable for heat exchangers and desalination plants,” concludes Perel.

The complete Duplex Alloys product offering, provided ex-stock or on order from world leading suppliers, includes:

- Round bar (from 10mm to 350 mm dia. in Alloy / SANMAC 2205; and SAF 2507 to 150mm dia)
- Hex bar in SAF 2507
- Plate from 3 to 30 mm thick (to 25mm thick in SAF 2507)
- Pipes and pipe fittings including a Super Duplex range.
- Duplex Alloy Valves (ex-stock through Multi Alloys’ association with Energy Valves, an EEP Division)
- A limited range of Duplex Alloy Fasteners. (ex-stock through Multi Alloys’ association with EEP)
- Flanges

“We are also able to supply heat exchanger tubing through Multi Alloys’ association with Sandvik, although not available from stock at this stage,” adds Ken.

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3/..Duplex Alloys

Multi Alloys and EEP support their extensive product range with professional customer service offering which includes cut-to size of round bar and profile cutting of plate material at their shared facilities in Kyalami, Gauteng. "We add value across our entire supply chain, from our wide product offering and expert knowledge to our large stock holding and fast ex-stock supply and finally, our association with many world leading suppliers," conclude Perel and Whitty.

Multi Alloys, established in 1997, also supplies nickel alloys, high alloy stainless steel, titanium and other niche products to South African industry. /Ends.

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