

**ALLOY 255**

ALLOY INFORMATION SHEET

UNS S32550 W Nr 1.4507

■ HEAT AND/OR CREEP RESISTANT   
 ■ CORROSION RESISTANT   
 ■ OTHER

Alloy 255 is regarded as a “super” duplex stainless steel in that it displays strength and corrosion resistance properties that are better than those of Alloy 2205 and other second generation duplex stainless steels. The levels of chrome, molybdenum and nitrogen in this alloy are all higher than those in Alloy 2205 and since it is these elements which also have a positive effect on pitting and crevice corrosion resistance, these properties are enhanced. Pitting Resistance Equivalent (PREN) values >40 may be obtained. The balanced duplex structure of the alloy results in good resistance to chloride stress corrosion cracking. The presence of copper in the alloy imparts good corrosion resistance in sulphuric and phosphoric acids. The high proof strength of the alloy combined with its corrosion resistance have been used to good effect in the manufacture of vessels, pumps, agitators, fans/blowers, valves, fasteners and target plates. Alloy 255 has been used very successfully in the following industries: Agrochemicals; chemical process; marine and shipbuilding; oil and gas; pollution control; mineral processing; pulp and paper.

**Caution : Alloy 255 should not be used continuously above 260 deg C.**

| NOMINAL COMPOSITION (%) |    |     |     |     |     |     |     |        |
|-------------------------|----|-----|-----|-----|-----|-----|-----|--------|
| Ni                      | Cr | Mo  | Mn  | Si  | N   | C   | Fe  | Other  |
| 5,5                     | 26 | 3,4 | 1,5 | ,45 | ,18 | ,02 | Rem | Cu-2,0 |

| APPLICABLE SPECIFICATIONS |                            |
|---------------------------|----------------------------|
| PLATE, SHEET              | ASTM A240                  |
| PIPE, TUBE                | ASTM A790/789              |
| BAR                       | ASTM A479                  |
| FASTENERS                 |                            |
| FORGINGS                  | ASTM A 182 / ANSI B 16.5 * |
| FITTINGS                  | ASTM A 815 / ANSI B 16.9 * |
| WELDING PRODUCTS          |                            |

\* In applicable parts

**FABRICATION**

The high strength of this duplex alloy will necessitate that the loads used in the forming of Alloy 255 will have to be greater than those for 316L of equivalent thickness. This will apply to tube expansion as well as the bending of plate etc. Alloy 255 possesses good weldability but precautions should be observed to maintain a balanced microstructure if need be by the addition of nitrogen to inert gas used. NO preheating must be carried out prior to welding and the interpass temperature should be below 150 deg C. An overalloyed filler metal may be needed with the corrosion resistant properties of the weld comparable to the parent metal. Further fabrication information is available upon request.

| TYPICAL MECHANICAL PROPERTIES # |     |
|---------------------------------|-----|
| U T S (MPa)                     | 800 |
| 0.2% PROOF STRENGTH (MPa)       | 560 |
| ELONGATION                      | 30% |
| HARDNESS (Brinell)              | 265 |

| TYPICAL PHYSICAL PROPERTIES # |          |
|-------------------------------|----------|
| DENSITY (kg / cu m.)          | 7810     |
| YOUNGS MODULUS (GPa)          | 200      |
| THERMAL CONDUCTIVITY (w/ m.C) | 14       |
| THERMAL EXPANSION (per Deg C) | 0,000012 |

# - At room temperature

**Please call for details of availability and price**

**Detailed technical data available upon request**

*Note: Data shown are typical and full research should be done to determine the usefulness in any application or design. No warranty is expressed or implied and we assume no responsibility for the accuracy, completeness or usefulness of the conforming of Alloy 255 will have to be greater than those for 316L of equivalent thickness. This will apply to tube expansion.*