# *Super Duplex — ASTM A890 4A*

Standard Specification for Castings, Iron-Chromium-Nickel-Molybdenum Corrosion-Resistant, Duplex (Austenitic/Ferritic) for General Application

MATERIAL DATASHEET

| GROUP | SUB GROUP | INDUSTRY |
|---|---|---|
| **Ferrous Stainless Steel Alloys** | **ASTM A890 / A890M** | **Investment Casting** |

This duplex austenitic-ferritic alloy combines chromium, molybdenum, and nitrogen to deliver excellent resistance to pitting and stress corrosion cracking across a wide range of corrosive environments. The carefully controlled low carbon content minimizes sensitization risk, while copper additions further enhance resistance to reducing acid environments. Its well-balanced composition and solution annealed condition make it a preferred casting grade for valves, pumps, and demanding industrial applications where both strength and corrosion resistance are critical.

## CHEMICAL COMPOSITION

| ELEMENT | SYMBOL | COMPOSITION |
|---|---|---|
| Carbon | C % | 0.030 max. |
| Silicon | Si % | 1.000 max. |
| Manganese | Mn % | 1.500 max. |
| Phosphorus | P % | 0.040 max. |
| Sulphur | S % | 0.020 max. |
| Chromium | Cr % | 21.000 – 23.500 |
| Nickel | Ni % | 4.500 – 6.500 |
| Molybdenum | Mo % | 2.500 – 3.500 |
| Copper | Cu % | 1.000 max. |
| Nitrogen | N % | 0.100 – 0.300 |
| Iron | Fe % | Balance |

## MECHANICAL PROPERTIES

### PERFORMANCE SPECIFICATIONS

| | | |
|---|---|---|
| **Tensile Strength** | Minimum Value | **620** MPa |
| **Yield Strength** | Minimum Value | **415** MPa |
| **Elongation** | Minimum Value | **25** % |

✓ HEAT TREATMENT
**Solution Annealing**

## INDUSTRY APPLICATIONS

- **Chloride-rich chemical plants**
- **Offshore process systems**
- **Corrosion-critical valves**
- **Seawater pumps**
- **Heat exchangers**

**DISCLAIMER**: All information in this datasheet is indicative only and is not intended to be a substitute for the full specification. It provides typical values for comparison between metal alloy options rather than a definitive statement of mechanical performance. Values may vary with temperature, product type, and application. This data does not constitute any guarantee of properties.

**Tamboli Castings Limited**
Bhavnagar, Gujarat, India

**Phone:** +91 278 2541000
**Email:** info@tambolicastingslimited.com