

Special materials

KASAG Swiss AG has many years of experience in the processing and welding of special materials. Based on our knowledge of aluminium and stainless steel, we have continuously expanded our know-how and apply a comprehensive range of welding procedure qualifications and welder certificates in accordance with ISO 3834-2. We are well versed in all MIG, MAG, WIG, Plasma as well as Orbital welding processes, and work exclusively with certified welding materials.



Special materials include both corrosion and heat resistant materials as well as other special alloys with other specific advantages. The examples below illustrate two areas in which special materials are used:

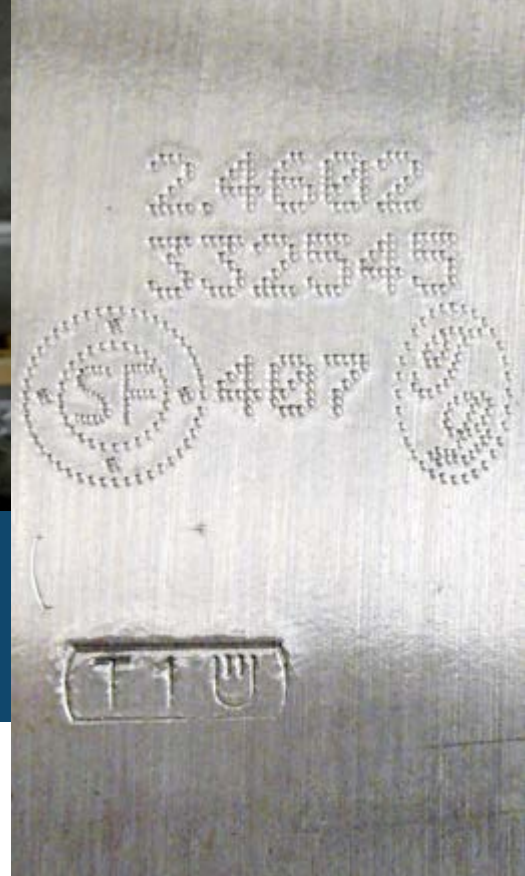
Duplex steels comprise a blend of the characteristics of stainless chrome steels and stainless chrome-nickel steels (austenitic). These have higher strength than stainless chrome-nickel steels, but also greater ductility than stainless chrome steels. Like corrosion-resistant, purely austenitic steels, duplex materials have lower nickel content (approximately 4-8% less), but usually have a significantly higher chrome content.

Nickel-based alloys are materials whose main constituent is nickel, but which have been optimised by means of a smelting process with at least one other chemical element. These alloys offer good corrosion resistance and/or high-temperature performance. Most nickel alloys are classified in accord with international standards.

Processing special materials

The processing stages for special materials can be divided into cutting, mechanical processing, bending, welding and surface treatment. Every special material has specific processing requirements when compared to stainless steel. For example, pipes in 1.4462 cannot be bent in the same radii as stainless steel, or cutting speed when turning C22 are greatly reduced.

When welding special materials, attention must be paid to the various properties and requirements of each individual material, for example lower energy input or high levels of cleanliness.



Design, engineering and welding of special materials

Special material categories

A “Special Materials Overview” with brand names, material numbers, characteristics and areas of application for the following special material categories can be requested from KASAG (non-exhaustive and provided without guarantee):

Corrosion-resistant special alloys:

- Martensite
- Duplex
- Super austenite
- Nickel-based
- Nickel-copper
- Pure nickel

Heat-resistant special alloys:

- Ferrite
- Martensite
- Duplex
- Austenite
- Nickel-based

Special alloys:

- Titanium

Availability

The availability and price of special materials in raw material forms as sheet, pipe, profile, and forging forms are heavily dependent on worldwide demand. When demand is low, there is often no inventory on the procurement market for specific special materials. Because the cost of specialist production would be excessively high, it is not possible to use these special materials.

Area of application

Special materials are mostly used in the offshore, gas and oil industries, the maritime (desalination plants, ship construction), chemical, pharmaceutical and biotech industries, aviation (engine construction, aircraft construction, aerospace), the energy and environmental sectors (reactor construction, turbine construction, waste incineration plants, flue gas desulphurisation), defence technologies, industrial furnace construction and medical technologies

Certifications, manufacturer approvals

ISO 9001 / ISO 3834-2

PED (EN13445 / AD-2000)

ASME (U-Stamp, Code Section VIII Div. 1)

China Stamp (A1), China License

TP TC 032/2013 (EAC), Customs Union

In addition to our existing manufacturing approvals, we are able to perform the respective approval procedures for almost every country around the world (e.g. Singapore, Japan, Malaysia, Canada, etc.).