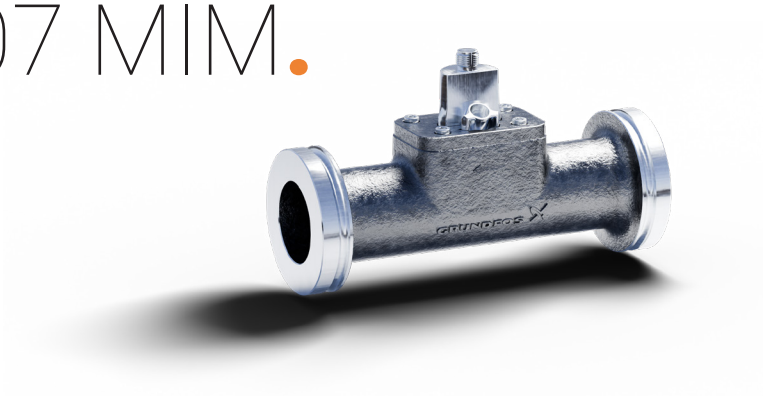
# Metal Injection Molding - Duplex 2507.

Pushing Boundaries. Engineering Possibilities.

# STX Duplex 2507 MIM.



STX Duplex 2507 has been know for years and has solved many jobs within offshore-, food-, and chemical- industries where demands for high corrosion resistance combined with high mechanical properties are needed.

At Sintex we have developed STX Duplex 2507 based on traditional Metal Injection Molding (MIM) process added up with our experts knowhow on optimization of corrosion resistance resulting in a new product that enables the delivery of STX Duplex 2507 parts in complex shapes and in high numbers.

This preliminary datasheet covers the first findings and we expect that further optimization is possible in collaboration with costumers and partners in the market.

## Chemical Composition

| Cr | Ni | Mo | N* | Fe |
|---|---|---|---|---|
| 24-26% | 6-8% | 3-4,5% | 0,2-0,4% | Balanced |

Table 1: Chemical content. *variation from surface to core can occur and is depending on the test method.

Figure 1: Typical parts that are made with the Metal Injection Molding process showing the degree of freedom that exist with the MIM process now open for STX Duplex 2507 alloys.

In a saltspray chamber the alloy is unaffected, and even in 3% FeCl3 solution we cannot measure any weigthloss. Therefore we have changed our corrosion test into a traditional CPT rising the temperature untill we have breakdown.

STX Duplex 2507 Critical Pitting Temperature (CPT) 24 h test:

| 6% FeCl3 Corrosion Resistance | Weightloss | Observation |
|---|---|---|
| 30 °C | 0,093 g | No Visual |
| 40 °C | - | - |
| 50 °C | - | - |

Table 2: Preliminary resultsfrom CPT test.

Preliminary mechanical properties from ISO 2740 Tensile bars:

| | Mechanical Properties |
|---|---|
| Tensile Strength | 590 MPa |
| UTS | 690 MPa |
| Elongation | 7,4% |

Table 3: Mechanical properties measured on standard sintering conditions. There is a potential for improving these on several parameters.

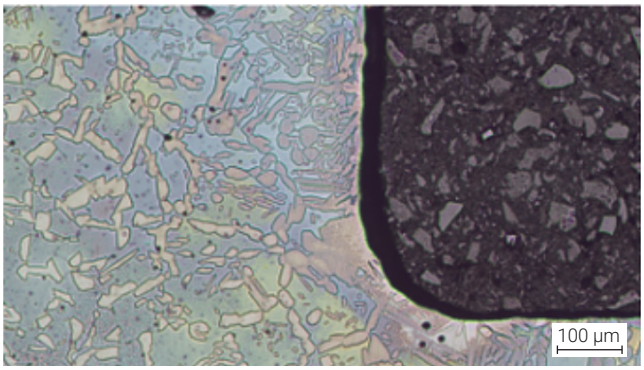



Figure 2: Typical microstructure near surface of a sintered STX Duplex 2507 MIM component.

## Results

It is expected that the new MIM STX Duplex 2507 material can be used successfully in new application areas like offshore-, food-, and chemical industry where demands for high corrosion resistance combined with solid mechanical properties are known. Further development will be carried out in collaboration with application partners optimizing the needed properties.

Please contact us for more information or potential collaboration on your application.

Please contact us for more information.

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