



Metallic Materials

The following are our most widely used alloys in manufacturing industrial gaskets, their major characteristics, temperature limits and approximate Brinell hardness (HB).

CARBON STEEL

Material frequently used in manufacturing jacketed gaskets and Ring Joints. Due to its low resistance to corrosion it should not be used in water, diluted acids or saline solutions. It may be used in some alkalis and in some concentrated acids. Temperature limit 900° F (500° C).

Approximate Hardness: 90 to 120 HB.

STAINLESS STEEL AISI 304

Alloy with 18% Cr and 8% Ni is the material most used in the manufacturing of industrial gaskets due to its excellent resistance to corrosion, low cost and availability in the market. Its maximum operating temperature is 1400° F (760° C). Due to Stress and Intergranular Corrosion, its continuous service temperature is limited to 790° F (420° C).

Approximate Hardness: 160 HB.

STAINLESS STEEL AISI 304L

It has the same resistance to corrosion as the AISI 304. Since its Carbon content is limited to 0.03%, it has less Intergranular Carbon precipitation and therefore less Intergranular Corrosion. Its operational limit for continuous service is 1400° F (760° C). It is susceptible to Stress Corrosion.

Approximate Hardness: 160 HB and in some cases, 140 HB.

STAINLESS STEEL AISI 316

This alloy with 18% Ni, 13% Cr and 2% Mo, offers excellent resistance to corrosion. It can have carbonate precipitation at temperatures between 860° F (460° C) and 1650° F (900° C), under severe corrosion conditions. Maximum recommended temperature for continuous service is 1400° F (760° C).

Approximate Hardness: 160 HB.

STAINLESS STEEL AISI 316L

It has the same chemical composition as the AISI 316 but its Carbon content is limited to 0.03%, which inhibits the Intergranular Carbon precipitation and consequently, the Intergranular Corrosion. The maximum service temperature is 1400° F (760° C).

Approximate Hardness: 160 HB.

STAINLESS STEEL AISI 321

Austenitic stainless steel alloy with 18% Cr and 10% Ni stabilized with Ti, which reduces the Intergranular Carbon precipitation and also the Intergranular Corrosion. It can be used in temperatures up to 1500° F (815° C).

Approximate Hardness: 160 HB.

STAINLESS STEEL AISI 347

Alloy similar to the AISI 304 stabilized with Cb and Ta to reduce carbonate precipitation and Intergranular Corrosion. It is subject to Stress Corrosion. Has good performance in high temperature corrosive service. Maximum temperature: 1550° F (815° C).

Approximate Hardness: 160 HB.

MONEL

Alloy with 67% Ni and 30% Cu, it offers excellent resistance to the majority of acids and alkalis, except to extremely oxidant acids. Subject to stress corrosion and therefore should not be used in the presence of fluorine-silicon acid and Mercury. In combination with PTFE, it is used frequently in spiral wound gaskets for severe corrosion services, such as Hydrofluoric acid. Operating maximum temperature: 1500° F (815° C).

Approximate Hardness: 95 HB.

NICKEL 200

Alloy with 99% Ni, offers great resistance to caustic solutions, even though it does not have the same global resistance of Monel. It is also used in spiral wound and jacketed gaskets for special applications. Maximum operating temperature: 1400 F (760° C).

Approximate Hardness: 110 HB.

COPPER

Material often used in small dimension gaskets, where the maximum seating stress is limited.

Maximum operating temperature: 500° F (260° C).

Approximate Hardness: 80 HB.

ALUMINUM

Due to its excellent resistance to corrosion and easy handling it is very often used in manufacturing gaskets. Maximum service temperature: 860° F (460° C).

Approximate Hardness: 35 HB.

INCONEL

Alloy with 77% Ni, 15% Cr and 7% Fe, it has excellent corrosion resistance from cryogenic to high temperatures. Temperature limit: 2000° F (1100° C).

Approximate Hardness: 150 HB.

TITANIUM

Metal with excellent corrosion properties in elevated temperatures, oxidant service, Nitric acid and caustic solutions. Temperature limit: 2000° F (1100° C).

Approximate Hardness: 215 HB.

Properties and application parameters shown throughout this datasheet are typical. Your specific application should not be undertaken without independent study and evaluation for suitability. For specific application recommendations consult TEADIT. Failure to select proper sealing products could result in property damage and/or serious personal injury. Specifications are subject to change without notice. This edition supersedes all previous issues.