

2RK66 Datasheet

Wire



Zapp is certified according to ISO 9001

2RK66

is a high-alloy austenitic stainless steel of '904L' type for use in severe corrosive environments, including environments with high chloride content and acids. The grade is recommended for service in, for example, dynamic electrostatic precipitator environments.

Wire in 2RK66 is manufactured with a bright, lustrous finish, which provides increased fatigue strength and better corrosion resistance over matt finished materials. Service temperature for 2RK66 ESP is -200 to 300 °C (-330 to 570 °F). The grade has a PRE* value of minimum 34.

* PRE, Pitting Resistance Equivalent = % Cr + 3.3 x % Mo + 16 x % N

Chemical composition (nominal) %

C	Si	Mn	P	S	Cr	Ni	Mo	Cu
≤ 0.020	0.4	1.8	≤ 0.015	≤ 0.010	20.0	25.0	4.5	1.5

Forms of supply

2RK66 for dynamic electrostatic precipitators (ESP) is supplied bright drawn and degreased, in continuous lengths, without welds, on metallic spools.

Dimensions

Standard dimension for the product is 2.70 mm. Other dimensions can be manufactured on request.

Tolerances

Standard diameter tolerance: +/- 0.020 mm
Roundness tolerance: max 0.020 mm

Surface purity

Wire is supplied with a cleaned surface with a maximum chloride ions content of 0.2 mg/dm².

Standards

- ASTM: 904L
- UNS: N08904
- EN Number: 1.4539
- EN Name: X1NiCrMoCu25-20-5
- W.Nr.: 1.4539
- SS: 14 25 62
- BS: 904S14

Mechanical properties

2RK66 for dynamic electrostatic precipitators (ESP) is tested and certified in accordance with a minimum nominal tensile strength. The proof strength is approximately 85 % of the tensile strength.

At 20°C (68°F)

Proof strength	Tensile strength
R _{p0.2}	R _m
MPa	MPa
min	min
830	975

Physical properties

Density: 8.0 g/cm³ (0.29 lb/in³)

Thermal expansion

30 - 100 C	86 - 210 °F
15.5 x 10 ⁻⁶ / °C	8.5 x 10 ⁻⁶ / °F

Thermal conductivity

12 W/m °C 7 Btu in./ft² h °F

Specific heat

12 W/m °C 7 Btu in./ft² h °F

Corrosion resistance

General corrosion

In formic acid, high-alloy 2RK66 shows better resistance than conventional steels of the ASTM 316L type, see figure 1.

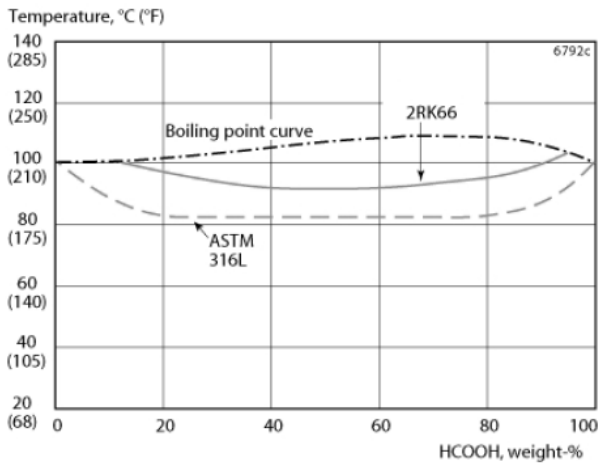


Figure 1. Isocorrosion diagram 0.1 mm/year (4mpy) for 2RK66 and ASTM 316L in formic acid.

Stress corrosion cracking

Ordinary austenitic steels of the ASTM 304 and 316 types are susceptible to stress corrosion cracking in chloride-bearing solutions at temperatures above about 60 °C (140 F°). At high temperatures, above about 100 °C, chloride contents as low as in the ppm-range (10 %) are sufficient to cause stress corrosion cracking in these steels. A nickel content of 25 % is sufficient to provide very good resistance under practical conditions.

Pitting

The high chromium and molybdenum contents of this steel make it very resistant to pitting. This has been verified by extensive practical experience of service involving chloride-bearing process solutions and seawater cooling. See Figure 2.

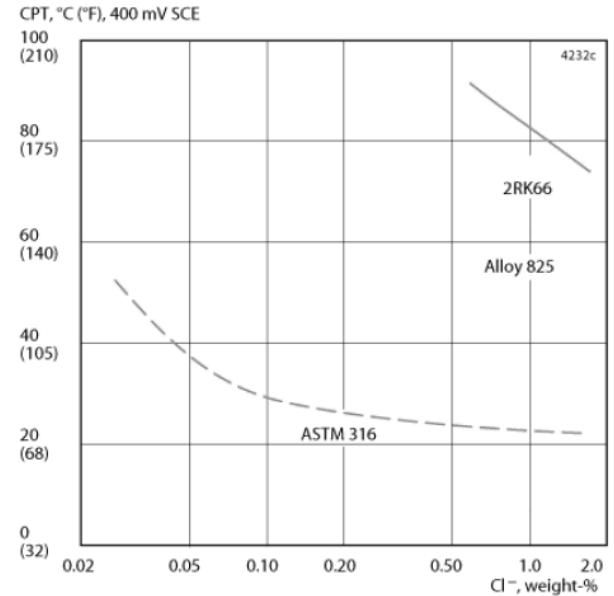


Figure 2. Mean values of critical pitting temperature (CPT) at 400 mV SCE and different Cl⁻ concentrations (NaCl solutions), pH ~ 6 (1.8 % Cl corresponds to the chloride content of seawater).

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Last revision: December 2019