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# Sanicro 72HP

## (Welding wire)

Sanicro 72HP is filler material for joining NiCrFe alloys, 9% Ni steels used at cryogenic temperatures, stainless steels to carbon steels, high service temperature NiCu alloys to carbon steels and NiCu alloys to nickel alloys. Sanicro 72HP can be used in air up to 1175°C (2145°F) and in sulphur dioxide atmospheres up to 800°C (1470°F).

Sanicro 72HP is suitable for MIG, TIG, PAW and SAW and available as wire and rods.

### STANDARDS

- ISO NiCr20Mn3Nb / Ni 6082
- AWS ERNiCr-3/UNS N06082

### Product standards

- EN ISO 18274
- ASME/AWS SFA5.14

### Approvals

CE, TÜV.

### CHEMICAL COMPOSITION - FILLER METAL

C	Si	Mn	P	S	Cr	Ni	Mo	Co	Cu	N	Ti	Nb	Fe
≤0.03	0.1	3.0	≤0.010	≤0.010	20.0	72.5	≤0.2	≤0.10	≤0.05	≤0.05	0.4	2.6	≤1.0

### CHEMICAL COMPOSITION - ALL-WELD METAL

The following data is typical for non heat treated all-weld metal made by MIG welding with argon shielding gas.

### CHEMICAL COMPOSITION, WT%

C	Si	Mn	P	S	Cr	Ni	Ti	Fe	Nb
≤0.03	0.1	3	≤0.010	≤0.010	20.5	72	0.2	0.5	2.5

### MICROSTRUCTURE - ALL-WELD METAL

Fully austenitic

### MECHANICAL PROPERTIES- ALL-WELD METAL

Temperature	°C	20	400	600	700	800	-196
Yield strength, $R_{p0.2}$	MPa	390	240	-	-	-	-
Tensile strength, $R_m$	MPa	660	540	-	-	-	-
Elongation, A	%	45	-	-	-	-	-
Reduction in area, Z	%	50	-	-	-	-	-
Impact strength, Charpy V	J	245	-	-	-	-	150
Hardness, Vickers	HV	180	-	-	-	-	-
Creep rupture strength $5 \times 10^5$ h	MPa	-	-	180	53	20	-

### PHYSICAL PROPERTIES - ALL-WELD METAL

Temperature, °C	20	100	300	500	700
Thermal conductivity, W/m	15	16	18	22	25.5

Thermal expansion per °C, from 20°C (68°F) to 400°C (750°F)  $12 \times 10^{-6}$   
Density, g/cm<sup>3</sup>, at 20°C (68°F) 8.3.

## CORROSION RESISTANCE - ALL-WELD METAL

Sanicro 72HP has very good resistance to general corrosion, stress corrosion cracking, and due to its low carbon and high chromium contents, good resistance to intergranular corrosion.

## RECOMMENDED WELDING DATA

### MIG/MAG welding

Electrode positive is used to give good penetration in all types of welded joints. The following table shows common conditions for MIG welding.

Wire diameter, mm	Wire feed, m/min	Current, A	Voltage, V	Gas, l/min
<b>Short-arc welding</b>				
0.8	5-9	50-140	16-25	15
1.0	5-9	70-160	16-25	15
<b>Spray-arc welding</b>				
1.0	6-12	150-230	22-27	18
1.2	5-9	170-280	23-28	18
1.6	3-5	230-370	24-30	18
<b>Pulsed-arc welding<sup>1)</sup></b>				
1.2	3-10	150-250	23-31	18

<sup>1)</sup> Pulse parameters: Peak current 300 - 400 A

Background current 50 - 150 A

Frequency 80 - 120 Hz

Sandvik can provide [recommendations for shielding gases](#).

Short-arc welding is used with thin gauge material of less than about 3 mm, in depositing root runs, and in welding out-of-flat positions.

The higher the inductance in short-arc welding, the higher the fluidity of the molten pool.

Spray-arc welding is normally used for heavier gauge material.

### TIG welding

The parameters for TIG welding depend largely upon the base metal thickness and the welding application.

Electrode negative and a [shielding gas](#) of argon or helium should be used to prevent oxidation of the weld metal.

### Submerged-arc welding

Electrode positive is suggested for joint welding to give good penetration.

Wire diameter, mm	Current, A	Voltage, V
2.0	200-300	28-32
2.4	250-400	28-32
3.2	300-450	29-34

Recommended welding flux is [Sandvik 50SW](#).

#### DISCLAIMER:

Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Sandvik materials.