

BERCOWELD[®] S2 (COMAS)

Cu-alloy wire electrode for MIG- and TIG-welding

Standard designation ISO 24373 : Cu 6511 CuSi2Mn1

Composition (weight %)

Cu	: balance
Si	: 1,70-1,90
P	: 0,008-0,012
Mn	: 0,90-1,10
Sn	: 0,17-0,25

Physical standard data

Density	kg/dm ³	: 8,7
Melting range	° C	: 1030-1050
Thermal conductivity	W/m· K	: 40
Coefficient of linear mean expansion (20°C-300°C)	1/ K	: 18,1·10 ⁻⁶
Electric conductivity	m/Ω·mm ²	: 4,7-5,3
Resistivity	Ω·mm ² /m	: 0,188-0,213

Mechanical properties of the weld joint, standard data

Heat treatment		non treated
Tensile strenght	N/mm ²	: 285
Elongation	%	: 45
Brinell hardness	HB 2,5/62,5	: 62
Notched bar impact test	A _v (J)	: 75

Range of application

This welding filler metal is particularly recommended for the use of coated sheets for the car industry. Good flowing properties of weld pool, no tendency to porosity and spatter. Suitable for welding of Cu and Cu-alloys as well as low and unalloyed steels and cast iron.

Recommendation

Applicable inert gas Argon 4.8/ 5.0/ 5.3/ 5.6/ 6.0
 MIG – pulsed-arc welding is recommended.
 WIG – for sheets thicker than 3,00 mm preheating to approx. 250-300 °C is recommended.

Make up

Diameter: 0,80 - 1,00 - 1,20 - 1,60 - and 2,40 mm.
 Spools: D 300, H 370 and wire basket spools (acc. to DIN 8559).
 Rods: 2,00 - 6,00 mm Ø x 1000 mm.
 Further make ups on request.

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Special points:

With this wire electrode tests have been made with the University of Technology in Berlin, Prof. Dr. Ing. Dorn and in the Centre for Application Technique of the Linde AG, works group Industrial Gases, Munich, on coated sheets such as

- hot galvanized
- electrolytic galvanized
- aluminized

with different gases and the following results have been achieved:

Welding parameters – preset (standard data):

		MIG	MAG	MAG
Voltage	Volt	12-14	13,5-16,1	12,5-15,8
Welding current	Ampere	75-85	78-95	75-90
Wire feed	m/min	4,1-4,4	4,8-5,5	4,5-5,3
Welding speed	cm/min	49-55	58-65	42-65
Gas consumption	l/min	12	13,5	14
Gas type		Ar 4.6	Ar97,5%, Co ₂ 2,5%,	Ar 91%, Co ₂ 5% O ₂ 4%
Distance of contact nozzle	mm	15	15	15

Results:

- low zinc evaporation
- low tendency to spatter
- low tendency to porosity
- no weld seam cracks
- good wettability
- covers grooves
- seam is not corrosive

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