BÖHLER CN 22/9 PW-FD

Flux-cored wire, high-alloyed, duplex stainless

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22
T 22 9 3 N L P M21/C1 1	TS 2209-F M21/C1 1	E2209T1-4/1

Characteristics and typical fields of application

Rutile duplex stainless steel flux-cored wire of 22 9 3 N L P / E2209T1 type for welding of 22Cr steel grades such as EN 1.4462 / UNS S31803 and similar. It can also be used for dissimilar joints and weld cladding. Designed to fulfil the high demands set in offshore, shipyards, chemical tankers, chemical/petrochemical, pulp & paper, etc. Very good resistance to pitting, intergranular corrosion and stress corrosion cracking in chloride containing environments i.e. seawater. Meets the corrosion test requirements per ASTM G48 Methods A, B and E (25°C). Over-alloyed in nickel to promote austenite formation. The fast freezing slag offers excellent weldability and slag control in all positions. The easy handling and high deposition rate result in high productivity with excellent welding performance and very low spatter formation. Increased travel speeds as well as easy slag removal with little demand for cleaning and pickling provide considerable savings in time and money. The wide arc ensures even penetration and side-wall fusion to prevent lack of fusion. Suitable for service temperatures from –46°C to 250°C. For flat and horizontal welding positions (1G, 1F and 2F) BÖHLER CN 22/9 N-FD may be preferred.

Base materials

Same and similar alloyed duplex steels, as well as dissimilar joints or weld claddings. EN 1.4462 X2CrNiMoN22-5-3, EN 1.4362 X2CrNiN23-4, EN 1.4162 X2CrNiMoN21-5-1 UNS S32205, S31803, S32304, S32101; Outokumpu 2205, 2304, LDX 2101®, SAF 2205, SAF 2304; 1.4462 X2CrNiMoN22-5-3 with 1.4583 X6CrNiMoNb17-13-3, 1.4462 X2CrNiMoN22-5-3 with P235GH/ P265GH, S255N, P295GH, S460N, etc.

Typical analysis of all-weld metal

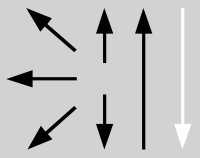
	C	Si	Mn	Cr	Ni	Mo	N	PRE_N	Ferrite WRC-92 FN
wt.-%	0.029	0.7	1.0	23.0	9.1	3.2	0.13	≥ 35	45 – 65

Mechanical properties of all-weld metal – typical values (minimum values)

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A (L_0=5d_0)	Impact work ISO-V KV J			
	MPa	MPa	%	20°C	–20°C	–40°C	–46°C
u	**600** (≥ 450)	**800** (≥ 690)	**27** (≥ 20)	**58**	**52**	**49**	**45** (≥ 32)

u untreated, as-welded – shielding gas Ar + 18 % CO_2

Operating data



Ø (mm)	Wire feed m/min	Arc length mm	Current A	Voltage V
1.2	5.5 – 11.5	~ 3	130 – 230	23 – 30

Welding with standard GMAW power source with DC+ polarity. No pulsing needed. Backhand (drag) technique preferred with a work angle of appr. 80°. Ar + 15 – 25 % CO_2 as shielding gas offers the best weldability. 100 % CO_2 can be also used, but the voltage should be increased by 2 V and the weld metal austenite content increases somewhat. The gas flow should be 15 – 18 l/min. The heat input should be 0.5 – 2.5 kJ/mm, interpass temperature max. 150°C and wire stick-out 15 – 20 mm. The scaling temperature is approx. 850°C in air. Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1100 – 1150°C followed by water quenching. Ferrite measured with Fischer Feritescope 35 – 41 FN.

Approvals

TÜV (07666.), ABS, CWB, DNV GL, LR, RINA (M21), BV (C1+Ø1.2), CE

All information provided is based upon careful investigation and intensive research.
However, we do not assume any liability for correctness and information is subject to change without notice.