

Classifications

EN ISO 14171-A	AWS A5.17 / SFA-5.17
S 50 4 AR T3 H4	F7A5-ECG-H4

Characteristics and typical fields of application

diamondspark S 55 HP - UV 306 is a wire-flux combination for submerged arc welding of unalloyed structural steels and fine-grained structural steels up to MSYS = 500 MPa. The weld metal demonstrates relative good toughness properties at low temperatures and can be used in a very wide range of applications. The aluminate-rutile flux has a relative low basicity index and is selected for its excellent welding properties and is suitable for high welding speed. Also a very good welding behavior in PC position and for 2-run technology this combination shows an improved welding behavior (nicer bead appearance and higher welding speed) compared to a solid wire. This combination gives the fabricator the possibility to weld with high productivity: e.g. single wire 3,2 mm, 800 Amps (~17 kg/hour) with a good bead appearance, nice fusion and good slag detachability. The combination can be used for joining applications in unlimited thickness, with DC+ or AC current, which allows Tandem process (~ 30 kg/hour) with 2 wires (3,2 or 4,0 mm). The wire is a coppered seamless basic flux cored wire with a good resistance to deformation (wire feed rollers) and is very easy to straighten to ensure the best current transfer with a low contact tip consumption. The wire is not sensitive to moisture pick up. Low level of diffusible hydrogen content.

Base materials

S235JR-S355JR, S235JO-S355JO, S235J2-S355J2, S275N-S460N, S275M-S460M, S275NL-S460NL, S275ML-S460ML, P235GH-P460GH, P275NL1-P460NL1, P215NL, P265NL, P355N, P285NH-P355NH, P195TR1-P265TR1, P195TR2-P265TR2, P195GH-P265GH, L245NB-L445NB, L245MB-L445MB, GE200-GE240

Ship building steels: A, B, D, E, A 32-E 36

ASTM A 106 Gr. A, B, C; A 181 Gr. 60, 70; A 283 Gr. A, C; A 285 Gr. A, B, C; A 350 Gr. LF1, LF2; A 414 Gr. A, B, C, D, E, F, G; A 501 Gr. B; A 513 Gr. 1018; A 516 Gr. 55, 60, 65, 70; A 573 Gr. 58, 65, 70; A 588 Gr. A; A 633 Gr. A, C, D; A 662 Gr. A, B, C; A 707 Gr. L1, L3; A 711 Gr. 1013; A 841 Gr. A, B, C; API 5 L Gr. B, X42, X52, X56, X60, X65

Typical analysis


wt.-%	C	Si	Mn
all-weld metal	0.04	0.7	1.75

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2} MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %	Impact energy ISO-V KV J		
				-46°C	-40°C	-20°C
u, DC+	560 (≥ 500)	645 (600-660)	24 (≥ 20)	40 (≥ 27)	55 (≥ 47)	90 (≥ 47)
a, DC+	560	645	25		35	70

u untreated, as welded ; a annealed 90 minutes 590°C

Operating data

	Polarity	DC+ ; AC	Dimension mm
			2.4
			3.2
			4.0

Mechanical properties depend of the applied welding procedure; e.g. possible reduction in ISO-V toughness to 40J @-20°C in as welded condition when welded with heat input 3,5 kJ/mm.

Approvals

TÜV (19473); DB (51.052.01/01)