

Classifications

Type	EN ISO 14171-A	AWS A5.23 / SFA-5.23
Multi-run	(S 46 Z FB S2MoTiB H5)	(F8AZ-EA2TiB-G)
2-run	S 5T 5 FB S2MoTiB H5	F9TA6G-EA2TiB

Characteristics and typical fields of application

Union S 3 MoTiB - UV 419 TT-W is a wire-flux combination for submerged-arc welding of unalloyed and low-alloyed steel grades. This wire-flux combination is not recommended for multi-pass welding ; this wire-flux combination has been designed to achieve very good toughness properties of weld metal produced by two-run or back weld punch through technique (double-joint), with typically

- high dilution rate (e.g. > 50%)
- high heat-input (e.g. > 30 kJ/cm)
- for high CTOD and Charpy toughness requirements at -40°C / -60°C

UV 419 TT-W is an agglomerated fluoride basic flux for submerged arc welding of unalloyed and low alloyed steel grades. It has a high basicity with neutral metallurgical behaviour and a low level of diffusible hydrogen : H5 verified acc. ISO 3690 with DCEP. More detailed information is available in the separate datasheet of the flux.

Base materials

Fine grained structural and line pipe steel grades like API X 60, X 65, X70, X80 and EN 10208-2: L415 MB, L450 MB, L485 MB, L555 MB.

Typical analysis

wt.-%	C	Si	Mn	Mo	B	Ti
wire	0.07	0.30	1.2	0.55	0.013	0.14
all-weld metal	0.05	0.35	1.3	0.50	0.003	0.02

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

Condition	Yield strength R_e	Tensile strength R_m	Elongation A ($L_0=5d_0$)	Impact energy ISO-V KV J		
	MPa	MPa	%	-20 °C	0 °C	20 °C
u, DC+	≥ 500	(570 - 720)	≥ 20	≥ 50	≥ 100	≥ 150

u untreated, as-welded

Operating data

	Polarity	DC / AC	Dimension mm	
				3.0
				4.0
				4.8

The mechanical properties of weld metal by two-run technique are strongly influenced by:

- the high dilution rate (60 up to 70%)
- chemical composition of the base metal
- relative long cooling time $t_{8/5}$ of the weld cycle, depending on
 - welding parameters (heat input)
 - wall thickness (2 - resp. 3 dimensional cooling)
 - preheat / interpass temperature

Approvals

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