

## Classifications

<b>EN ISO 24598-A</b>	<b>AWS A5.23 / SFA-5.23</b>
S S CrMo2 FB	F9P2-EB3R-B3R-H8

## Characteristics and typical fields of application

**Union S 1 CrMo 2 – UV 420 TTR-W** is a wire-flux combination for submerged-arc welding of creep resistant steel grades with 2,25% Cr – 1% Mo. To prevent long term temper-embrittlement the weld metal is characterized by a high degree of purity, and meets the most stringent toughness requirements at low/subzero temperatures, also after step-cool heat treatment. The very good welding behavior on AC and DC+ make it possible to weld with single wire (DC+ or AC) and tandem (DC+/AC or AC/AC) in narrow gap joint configurations without limitation in thickness. Highest toughness and strength levels are achieved using AC current.

After a PWHT of 5 hrs at 690°C : TT(54)+2,5ΔTT(54)sc < +10°C (typical < -10°C).

**UV 420 TTR-W** is an agglomerated fluoride-basic welding flux with high basicity; optimised for welding on AC polarity. Low level of diffusible hydrogen with DCEP polarity (max 5ml/100gr). For information regarding this welding flux see our detailed data sheet.

## Base materials

1.7380 10CrMo9-10, 11CrMo9-10, 12CrMo9-10  
A335 Gr. P22, A387 Gr.22, A542BCI4 and other similar steel grades.

## Typical analysis

wt.-%	C	Si	Mn	Cr	Mo	X
wire	0.12	0.08	0.55	2.5	1.0	< 10
DC+	0.08	0.20	0.75	2.3	1.0	< 12
AC	0.10	0.15	0.75	2.3	1.0	< 12

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

Condition	Yield strength R <sub>e</sub>	Tensile strength R <sub>m</sub>	Elongation A (L <sub>0</sub> =5d <sub>0</sub> )	Impact energy ISO-V KV J		
	MPa	MPa	%	-40°C	-30°C	-20°C
a1, DC+	560 (≥ 540)	670 (≥ 620)	22 (≥ 18)	≥ 27	≥ 54	≥ 80
a1, AC	595 (≥ 540)	695 (≥ 620)	22 (≥ 18)	≥ 27	≥ 54	≥ 80
a2, DC+	550 (≥ 525)	660 (≥ 680)	22 (≥ 18)	≥ 27	≥ 54	≥ 80
a2, AC	575 (≥ 525)	680 (≥ 680)	22 (≥ 18)	≥ 27	≥ 54	≥ 80
a3, DC+	495 (≥ 475)	605 (≥ 550)	24 (≥ 20)	≥ 54	≥ 100	≥ 120
a3, AC	525 (≥ 475)	630 (≥ 550)	24 (≥ 20)	≥ 80	≥ 120	≥ 140
a4, DC+	460 (≥ 430)	565 (≥ 540)	26 (≥ 21)	≥ 80	≥ 120	≥ 140
a4, AC	485 (≥ 430)	590 (≥ 540)	26 (≥ 21)	≥ 100	≥ 140	≥ 150

a1 = 1 hour 690 °C ; a2 = 10 hours 650 °C ; a3 = 8 hours 690 °C ; a4 = 32 hours 690 °C

## Operating data

	Polarity	AC / DC	Dimension mm
			2.5
			3.0
			4.0

Welding recommendations: Preheat and Interpass temperature: 200 – 250°C Single wire (HI max 22 kJ/cm).

For 3.0/3.2 mm e.g.: 450-520 A; 29-32 V; 45-55 cm/min. And for 4.0 mm: 500-580 A; 29-32 V; 50-55 cm/min.

Tandem: HI max 26 kJ/cm; welding speed 70-80 cm/min. Lead wire 4.0 mm: DC+ (or AC); 500-550 A; 28-30 V; Trail wire 4.0 mm: AC; 500-550 A; 30-33 V

It is strongly recommended to keep the weld at preheating temperature, unless it is possible to carry out ISR or DHT (350°C/ min 4hrs) immediately after welding, in order to avoid cold cracking.

## Approvals

TÜV (06541), CE