

Classifications

EN ISO 3580-A	EN ISO 3580-B	AWS A5.5 / SFA-5.5	AWS A5.5M
E CrMo2 B 4 2 H5	E 6215-2C1M	E9015-B3 H4	E6215-B3

Characteristics and typical fields of application

Phoenix SH Chromo 2 KS is a core wire alloyed covered electrode with basic coating for shielded metal arc welding. The 2,25Cr-1Mo type weld metal exhibits a bainitic microstructure with favorable mechanical properties in tempered and quenched and tempered condition. Under certain conditions applications in the as welded condition is possible. The range of application covers joint welding of similar alloyed creep resistant steel and steel casting in thermal power and chemical industry. Phoenix SH Chromo 2 KS is approved for application under creep condition at design temperatures up to 600 °C. Due to the low content of residual and tramp elements the weld metal offers a Bruscato factor < 15 ppm. Thus, being resistant to temper embrittlement and complies with the requirements on step-cooling testing. The basic coating guarantees low level of diffusible hydrogen in the weld metal.

Base materials

Similar alloyed creep resistant steels and alloyed cast steels like

1.7380 10CrMo9-10, 1.7375 12CrMo9-10, 1.7276 10CrMo11, 1.7281 16CrMo9-3, 1.7383 11CrMo9-10, 1.7745 15CrMoV5-10, 1.7379 G17CrMo9-10, 1.7382 G19CrMo9-10

ASTM A 182 Gr. F22; A 213 Gr. T22; A217 Gr. WC9, A 234 Gr. WP22; 335 Gr. P22; A 336 Gr. F22; A 426 Gr. CP22

Typical analysis

	C	Si	Mn	Cr	Mo	S	P	Sb	Sn	As
wt.-%	0.07	0.22	0.75	2.2	0.9	≤ 0.010	≤0.012	≤0.005	≤0.005	≤0.010

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		
				20 °C	-30 °C	-40 °C
T 1	540 (≥ 530)	660 (≥ 620)	21 (≥ 18)	180 (≥ 47)	140	125
T 2	490 (≥ 310)	600 (515-690)	22 (≥ 20)	190 (≥ 54)	140 (≥ 54)	125
T3	435 (> 310)	560 (515-690)	23 (≥ 20)	180 (≥ 54)	110 (≥ 54)	90
T4	435 (> 310)	560 (515-690)	23 (≥ 20)	200 (≥ 54)	145 (≥ 54)	130


T 1: tempered (690 °C / 1h)

T 2: tempered (690 °C / 6 h)

T 3: tempered (690 °C / 6 h) + Step Cooling

T 4: tempered (690 °C / 32 h)

Operating data

	Polarity	DC +	Dimension mm	Current A
	Redrying	300 – 350 °C / 2h		
			2.5 × 250	70 - 100
			3.2 × 350	100 - 145
			3.2 × 450	100 - 145
			4.0 × 350	140 - 190
			4.0 × 450	140 - 190
			5.0 × 450	160 - 240

Preheating, interpass temperature, and post-weld heat treatment as required by the base metal. Preheating and interpass temperature can normally be recommended being in a range of 150 to 350°C depending on the wall thickness. Common post weld heat treatments are carried out between 650 to 750°C

Approvals

TÜV (01823), CE