

Bar material for the production of High Pressure Tubes and High Pressure Bends

(max. Diameter: 220 mm, max. Length: 21 m)

Alloy Composition [%]	ASME SA 723 Gr.3 1.6952 mod. (BEG V 129 SA - ESR) HTHW 250-360 Cond.1 (2)	ASME SA 723 Gr.3 1.6952 mod. (BEG V 129 SA - ESR) HTHW 250-360/1	ASME SA 723 Gr.3 Cl.2 1.6959 mod. (DEW 35NiCrMoV12-5 Sonder) HTHW 250-360/21	30CrNiMo8 1.6580 mod. (BEG V 145) HTHW 250-360/10	AISI 4333 M4 --- (BEG V 159 SA) HTHW 250-360/6	AISI 4333 M6 --- (BEG V 159 SA) HTHW 250-360/2
C	0.24 – 0.27	0.24 – 0.27	0.33 – 0.39	0.26 – 0.34	0.30 – 0.38	0.30 – 0.38
Si	0.15 – 0.25	0.15 – 0.25	0.05 – 0.30	≤ 0.40	0.15 – 0.35	0.15 – 0.35
Mn	0.30 – 0.40	0.30 – 0.40	0.30 – 0.85	0.30 – 0.60	0.70 – 1.00	0.70 – 1.00
P	max. 0.004	max. 0.004	max. 0.010	max. 0.015	max. 0.015	max. 0.015
S	max. 0.002	max. 0.002	max. 0.005	max. 0.005	max. 0.010	max. 0.010
Cr	1.20 – 1.40	1.20 – 1.40	1.10 – 1.40	1.80 – 2.20	0.70 – 0.90	0.80 – 1.20
Mo	0.40 – 0.50	0.40 – 0.50	0.40 – 0.60	0.30 – 0.50	0.35 – 0.45	0.50 – 0.65
Ni	3.40 – 3.60	3.40 – 3.60	3.00 – 3.50	1.80 – 2.50	1.65 – 2.00	1.65 – 2.50
V	0.08 – 0.12	0.08 – 0.12	0.08 – 0.20	---	---	---
Cu	max. 0.10	max. 0.10	---	---	---	---
As	max. 0.006	max. 0.006	---	---	---	---
Sb	max. 0.003	max. 0.003	---	---	---	---
Sn	max. 0.006	max. 0.006	---	---	max. 0.020	max. 0.020
Inclusion Level	ASTM E45–A (0– 1.5)	ASTM E45–A (0– 1.5)	ASTM E45–A (0– 2.5) DIN 50602 (K2 < 12)	ASTM E45–A (0– 2.5) DIN 50602 (K2 < 12)	ASTM E45 –A 0 – 1.5	ASTM E45 –A 0 – 1.5
Mechanical Properties	ASME SA 723 Gr.3 1.6952 mod. (BEG V 129 SA - ESR) HTHW 250-360 Cond.1(2)	ASME SA 723 Gr.3 1.6952 mod. (BEG V 129 SA - ESR) HTHW 250-360/1	ASME SA 723 Gr.3 Cl.2 1.6959 mod. (DEW 35NiCrMoV12-5 Sonder) HTHW 250-360/21 Cond.1	30CrNiMo8 1.6580 mod. (BEG V 145) HTHW 250-360/10	AISI 4333 M4 --- (BEG V 159 SA) HTHW 250-360/6	AISI 4333 M6 --- (BEG V 159 SA) HTHW 250-360/2
R _m [N/mm ²] RT	980 – 1130 (1100-1250)	min. 1140 (min. 930)	min. 1140	960 - 1160	930 - 1068	1034 - 1171
R _{p0.2} [N/mm ²] RT	min. 835 (min. 920)	min. 1000 (min. 861)	min. 1000	min. 840	min. 861	min. 964
R _m [N/mm ²]	---	min. 1090 (320°C)	min. 1100 (130°C)	---	min. 792 (320°C)	min. 861 (320°C)
R _{p0.2} [N/mm ²]	min. 637 (min. 700)	min. 880 (320°C)	min. 980 (130°C)	min. 690 (300°C)	min. 689 (320°C)	min. 723 (320°C)
A [%]	min. 16 lg., 14 tr. (A5)	min. 16 lg., 14 tr.(A4)	min. 16 lg., 14 tr. (A4)	> 16 lg., > 14 tr. (A5)	min. 16 lg. (A4)	min. 16 lg. (A4)
Z [%]	min. 55 lg., 45 tr.	min. 50 lg., 40 tr.	min. 50 lg., 40 tr.	---	min. 50 lg.	min. 50 lg.
AV [J] RT	min. 80 lg., 60 tr.	min. 74 lg., 65 tr.	min. 70 lg., min. 50 tr.	min. 80 lg., 60 tr.	min. 54 lg., 29 tr.	min. 39 lg., 29 tr.
AV [J] - 40°C	min. 50 lg., 40 tr.	min. 50 lg., 40 tr.	---	min. 50 lg., 40 tr.	---	---
Hardness [HB]	295 – 340 max.15 ¹⁾	max.15 ¹⁾	340 – 390 max.15 ¹⁾	290 – 335 max.15 ¹⁾	302 – 363 max.15 ¹⁾	302 – 363 max.15 ¹⁾

¹⁾ The difference in between the lowest- and highest hardness value of each bar.