

Welding Precautions at a Glance for Various Materials

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In the table below, precautions to take while welding different materials are listed.

Material/Specification	Electrode Specification	Minimum Preheat °C	Minimum Interpass °C	Postheat °C	PWHT Soaking Temperature °C
Carbon Steel SA285/515/516/ IS 2062/2002	E 7018	Upto 25 mm-NIL * >25mm upto 50mm - 50 * >50mm upto 75 mm- 75 * >75mm upto 100mm-100	250	NIL	610
Carbon-Moly Steel SA204	E 7018 A1	Upto 25mm -100 * >25mm upto 50mm -125 * >50mm upto 75mm-150 * >75mm upto 100mm-` 175	250	200 for 1 hour	610
1.25 Chrom-Moly Steel SA 387 Gr11	E8018B2	Upto 25mm-125 * >25mm upto 50mm-150 * >50 upto 75mm- 175 * >75mm upto 100mm-200	250	200 for 1 hour	610
2.25/5 Chrom-Moly Steel SA 387 Gr 22/5	E9018B3/ 502	Upto 25mm-250 * >25mm upto 50mm-275 * >50mm upto 75mm-300 * >75mm upto 100mm-325	350	300-350 for 1 hour	710
2.5/3.5 Ni Steel SA203 Gr A/D	E 8016 C1/C2	100 for all thicknesses	150	200 for 1 hour for >50mm thickness	620
Martensitic SS SA240 Type 410	E 410	100 for all thicknesses	175	NIL	NIL
Ferritic SS SA240 Type 430	E430	100 for all thicknesses	175	NIL	NIL
Austenitic SS SA240 Type 304/316/347 etc.	E308/316/ 347 etc.	NIL	175	NIL	NIL
Cast Iron	E NiFeCl/ NiCl	300-350	350	NIL	NIL

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Material/Specification	Electrode Specification	Minimum Preheat °C	Minimum Interpass °C	Postheat °C	PWHT Soaking Temperature °C
Aluminium	ER1100/ 4009/5183 #	100 for >10mm thickness	175	NIL	NIL
Copper	ER Cu #	200 for all thicknesses	300	NIL	NIL
Cupronickel SB171	E CuNi	NIL	150	NIL	NIL
Monel SB127	E NiCu	NIL	150	NIL	NIL
Inconel SB168	E NiCrFe3	NIL	150	NIL	NIL

NOTES :

- 1) Though E6013 is used in certain cases for welding of Carbon Steel, but E7018 is recommended for better quality and lesser total welding cost
- 2) PWHT soaking time is 1 hour/inch of thickness
- 3) # Indicates welding wire.
- 4) Current range can be found on the packet of electrode.

The above table shows precautions to be taken pertaining to material, electrode, preheat, interpass, postheat and PWHT and may be useful for welders and welding engineers as a quick reference.