

Table 331.1.3 Exemptions to Mandatory Postweld Heat Treatment

P-No. and Group No. (ASME BPVC, Section IX, QW/QB-420) [Note (1)]	Control Thickness, mm (in.) [Note (2)]	Type of Weld	Additional Limitations Required for Exemption From PWHT [Notes (3)–(5)]
P-No. 1, all Group Nos.	All	All	A preheat of 95°C (200°F) is applied prior to welding on any nominal material thickness >25 mm (1 in.) Multiple layer welds are used when the nominal material thickness >5 mm ($\frac{3}{16}$ in.) [Note (6)]
P-No. 3, Group Nos. 1 and 2	≤16 mm ($\frac{5}{8}$ in.)	All	A preheat of 95°C (200°F) is applied prior to welding on any nominal material thickness >13 mm ($\frac{1}{2}$ in.) A specified carbon content of the base materials ≤0.25% Multiple layer welds are used when the nominal material thickness >5 mm ($\frac{3}{16}$ in.) [Note (6)]
P-No. 4, Group No. 1	≤16 mm ($\frac{5}{8}$ in.)	Groove	Mandatory preheat has been applied Specified carbon content of the base materials ≤0.15% Multiple layer welds are used when the nominal material thickness >5 mm ($\frac{3}{16}$ in.) [Note (6)]
	≤16 mm ($\frac{5}{8}$ in.) except the thickness of a socket weld fitting or flange need not be considered	Socket and fillet welds	Mandatory preheat has been applied Throat thickness of the fillet weld or the socket weld ≤13 mm ($\frac{1}{2}$ in.) Specified carbon content of the pipe material ≤0.15% Nominal material thickness of the pipe ≤16 mm ($\frac{5}{8}$ in.) Multiple layer welds are used when the nominal material thickness >5 mm ($\frac{3}{16}$ in.) [Note (6)]
	≤16 mm ($\frac{5}{8}$ in.)	Seal welds and non-load-carrying attachments [Note (7)]	Mandatory preheat has been applied Multiple layer welds are used when the nominal material thickness >5 mm ($\frac{3}{16}$ in.) [Note (6)]
P-No. 5A, Group No. 1	≤16 mm ($\frac{5}{8}$ in.)	Groove	Mandatory preheat has been applied Specified carbon content of the base materials ≤0.15% Multiple layer welds are used when the nominal material thickness >5 mm ($\frac{3}{16}$ in.) [Note (6)]
	≤16 mm ($\frac{5}{8}$ in.) except the thickness of a socket weld fitting or flange need not be considered	Socket and fillet welds	Mandatory preheat has been applied Throat thickness of the fillet weld or the socket weld ≤13 mm ($\frac{1}{2}$ in.) Specified carbon content of the pipe material ≤0.15% Nominal thickness of the pipe ≤5 mm ($\frac{3}{16}$ in.) Multiple layer welds are used when the nominal material thickness >5 mm ($\frac{3}{16}$ in.) [Note (6)]
	≤16 mm ($\frac{5}{8}$ in.)	Seal welds and non-load-carrying attachments [Note (7)]	Mandatory preheat has been applied Multiple layer welds are used when the nominal material thickness >5 mm ($\frac{3}{16}$ in.) [Note (6)]
P-No. 5B, Group No. 1	...	...	No exemptions from PWHT
P-No. 6, Group Nos. 1–3	All	All	Specified carbon content of the base materials ≤0.08% Nominal material thickness ≤10 mm ($\frac{3}{8}$ in.) Weld filler metal is A-No. 8, A-No. 9, or F-No. 43 composition [Note (8)]

Table 331.1.3 Exemptions to Mandatory Postweld Heat Treatment (Cont'd)

P-No. and Group No. (ASME BPVC, Section IX, QW/QB-420) [Note (1)]	Control Thickness, mm (in.) [Note (2)]	Type of Weld	Additional Limitations Required for Exemption From PWHT [Notes (3)–(5)]
P-No. 7, Group No. 1	All	All	Specified carbon content of the base materials $\leq 0.08\%$ Nominal material thickness ≤ 10 mm ($\frac{3}{8}$ in.) Weld filler metal is A-No. 8, A-No. 9, or F-No. 43 composition [Note (8)]
P-No. 7, Group No. 2	...	...	No exemptions from PWHT
P-No. 8, all Group Nos.	All	All	PWHT neither required nor prohibited
P-No. 9A, Group No. 1	All	All	Specified carbon content of the pipe material $\leq 0.15\%$ Nominal material thickness ≤ 13 mm ($\frac{1}{2}$ in.) Mandatory preheat has been applied
P-No. 9B, Group No. 1	All	All	Nominal material thickness ≤ 16 mm ($\frac{5}{8}$ in.) and the WPS has been qualified using a material of equal or greater thickness than used in the production weld
P-No. 10H, Group No. 1	All	All	PWHT neither required nor prohibited
P-No. 10I, Group No. 1	All	All	PWHT neither required nor prohibited for nominal material thickness ≤ 13 mm ($\frac{1}{2}$ in.)
P-No. 11A	≤ 50 mm (2 in.)	All	...
P-No. 15E	...	...	No exemptions from PWHT
P-No. 62	...	...	No exemptions from PWHT

NOTES:

- (1) If differences with the P-No. listed in [Appendix A](#) are found, the P-No. listed in ASME BPVC, Section IX, Table QW/QB-422 applies.
- (2) The control thickness is defined in [para. 331.1.3](#).
- (3) The nominal material thickness is defined in [para. 331.1.3\(c\)](#).
- (4) No exemptions are permitted for PWHTs required by the designer or the WPS.
- (5) Additional exemptions for welds made in accordance with [para. 328.7](#) may be taken for the materials addressed.
- (6) Single-layer or single-pass welds may be exempted from PWHT, provided the WPS has been qualified using single-pass welds with $\pm 10\%$ heat input and that all other conditions for exemption are met.
- (7) Non-load-carrying attachments are defined as items where no pressure loads or significant mechanical loads are transmitted through the attachment to the pipe or pressure-containing material.
- (8) The A-Nos. and the F-Nos. are found in ASME BPVC, Section IX, Tables QW-442 and QW-432, respectively.