

Table 4.1
WPS Qualification—Production Welding Positions Qualified by Plate, Pipe, and Box Tube Tests (see 4.3)

Qualification Test		Production Plate Welding Qualified				Production Pipe Welding Qualified					Production Box Tube Welding Qualified				
Weld Type	Positions	Groove CJP	Groove PJP	Fillet ⁹	Butt-Groove		T-, Y-, K-Groove		Fillet ⁹	Butt-Groove		T-, Y-, K-Groove		Fillet ⁹	
					CJP	PJP	CJP	PJP		CJP	PJP	CJP	PJP		
P L A T E	CJP Groove ¹	1G ²	F	F	F	F	F			F	F	F		F	
		2G ²	F, H	F, H	F, H	F, H	F, H			F, H	F, H	F, H		F, H	
		3G ²	V	V	V	V	V			V	V	V		V	
		4G ²	OH	OH	OH	OH	OH			OH	OH	OH		OH	
	Fillet ¹	1F			F					F				F	
		2F			F, H					F, H				F, H	
		3F			V					V				V	
		4F			OH					OH				OH	
	Plug/Slot	Qualifies Plug/Slot Welding for Only the Positions Tested													
	T U B U L A R	CJP Groove	1G Rotated	F	F	F	F ³	F		F	F	F ³	F		F
2G			F, H	F, H	F, H	(F, H) ³	F, H		F, H	F, H	(F, H) ³	F, H		F, H	F, H
5G			F, V, OH	F, V, OH	F, V, OH	(F, V, OH) ³	F, V, OH		F, V, OH	F, V, OH	(F, V, OH) ³	F, V, OH		F, V, OH	F, V, OH
(2G + 5G)			All	All	All	All ³	All	All ⁵	All ⁷	All	All ³	All	All ⁶	All ^{7,8}	All
6G			All	All	All	All ³	All	All ⁵	All ⁷	All	All ³	All	All ⁶	All ^{7,8}	All
6GR		All ⁴	All	All	All ⁴	All	All ⁵	All	All	All ⁴	All	All ⁶	All	All	
Fillet		1F Rotated			F					F					F
		2F			F, H					F, H					F, H
		2F Rotated			F, H					F, H					F, H
		4F			F, H, OH					F, H, OH					F, H, OH
	5F			All					All					All	

CJP—Complete Joint Penetration
PJP—Partial Joint Penetration

Notes:

1. Qualifies for a welding axis with an essentially straight line, including welding along a line parallel to the axis of circular pipe.
2. Qualifies for circumferential welds in pipes equal to or greater than 24 in. [600 mm] nominal outer diameter.
3. Production butt joint details without backing or backgouging require qualification testing of the joint detail shown in Figure 4.24.
4. Limited to prequalified joint details (see 3.12 or 3.13).
5. For production joints of CJP T-, Y-, and K-connections that conform to either Figure 3.8, 3.9, or 3.10 and Table 3.6, use Figure 4.27 detail for testing. For other production joints, see 4.12.4.1.
6. For production joints of CJP T-, Y-, and K-connections that conform to Figure 3.6, and Table 3.6, use Figure 4.27 and 4.28 detail for testing, or, alternatively, test the Figure 4.27 joint and cut macroetch specimens from the corner locations shown in Figure 4.28. For other production joints, see 4.12.4.1.
7. For production joints of PJP T-, Y-, and K-connections that conform to Figure 3.5, use either the Figure 4.24 or Figure 4.25 detail for testing.
8. For matched box connections with corner radii less than twice the chord member thickness, see 3.12.4.1.
9. Fillet welds in production T-, Y-, or K-connections shall conform to Figure 3.2. WPS qualification shall conform to 4.11.