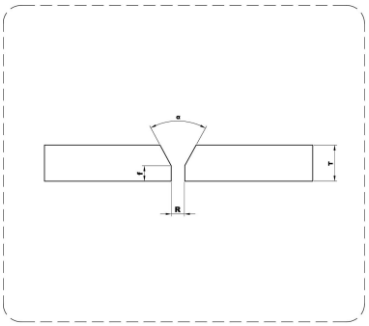
WELDING PROCEDURE SPECIFICATION (WPS)
Guild Moore & Hilder cc - Dynamic Options

GMHcc Pressurized Systems Reg. No. CK99 22907/23

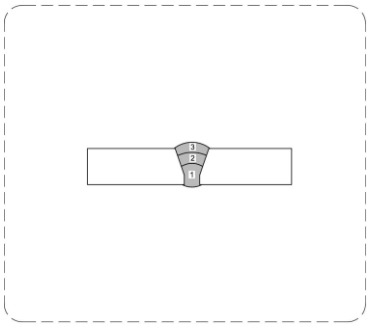
Designation WPS ASME BPVC Sec. IX - 2023; Metric; Groove; Pipe; GTAW; P8 - P8; T 1.5 - 15.24 mm; Without PWHT; Without impacts

WPS Number	***WPS-SA304L***	Rev/ Ver	***0***	Date	***06/10/2023***
PQR Number	***PQR-SA304L***	Rev/ Ver	***0***	Date	***19/02/2024***
Code/Standard	***WPS ASME BPVC Sec. IX - 2023***	Constr. Code	***ASME IX***	Specification	

JOINT DESIGN (QW-402)



Joint Diagram



Pass Diagram

Joint Type	***Groove***
Joint Design	***Single V groove***
Surface Preparation Method	***Chemical Cleaning***
Groove Angle°	***60 - 70***
Root Face (mm)	***1 - 2***
Root Gap (mm)	***1 - 2***
Groove Radius	
Max. misalignment (mm)	***0.5***
Back Gouging	***No***
Backing	***Without***
Backing	
Type	***Machining & Grinding***
Edge Prep.	

Notes-

BASE METALS (QW-403)

Base Metals	Product Form	Specification	P#	Group #	UNS #
Steel & steel alloy	***Pipe***	***A/SA-312-TP304L, S30403***	***8***	***1***	***S30403***
Steel & steel alloy	***Pipe***	***A/SA-312-TP304L, S30403***	***8***	***1***	***S30402***
SCOPE	Without PWHT	Without Impact Tests	Without Hardness Tests		

APPROVAL RANGE

Thickness, T (mm)	1.5 - 15.24
Outside Diameter (mm)	No limit
Weld Metal Deposit, t (mm)	*15.24 maximum (GTAW), Maximum pass thickness less than 13 mm (1/2 in) for GTAW*
Base Metal P-Number	8 - 8
Filler Metal	Between filler metals within the same SFA specification
Base Metal Product Form	Any
Positions	Any. The welding process and electrodes must be suitable for use in the positions
Joint Type	Groove

WELDING DATA (QW-400)

PROCESS	***GTAW***
Type	***Manual***

FILLER METALS (QW-404)

PASS	***Pass 1***	***Pass 2***	***Pass 3***
Spec. No. (SFA)	***SFA-5.9***		
AWS No. (Class)	***A5.9***		
F-Number	***6***		
A-Number	8		
Size (mm)	***2.4***	***2.4***	***2.4***
Product Form	***Solid***		
Trade Name	***Er308L***		
Nominal Composition	***CrNi***		
Weld Metal Thk., t (mm)	***2.5***	***2.5***	***2.62***
Maximum Pass Thk. (mm)	***2.8***		
Conformance Cert./CMTR			
Consumable Insert	***Without***		

PREHEAT (QW-406)

Preheat Temp. Min (°C)	***16***
	220

Interpass Temp. Max (°C)	
Preheat Notes	

GAS (QW-408)			
PASS	*Pass 1*	*Pass 2*	*Pass 3*
Shielding Gas	*99%Ar, 1%CO2*	*99%Ar, 1%CO2*	*99%Ar, 1%CO2*
SG Flow Rate (l/min)	*12*	*12*	*12*
Trailing Gas	-	-	-
TG Flow Rate (l/min)	*0*	*0*	*0*
Backing Gas	*99%Ar, 1%CO2*	-	-
BG Flow Rate (l/min)	*12*	*0*	*0*

ELECTRICAL (QW-409)			
PASS	*Pass 1*	*Pass 2*	*Pass 3*
Waveform Control	*No*	*No*	*No*
Energy range, (J)	- - -	- - -	- - -
Power range, (J/s)	- - -	- - -	- - -
Arc time range, (s)	- - -	- - -	- - -
Bead length, (mm)	- - -	- - -	- - -
Amps range, A	*120 - 160*	*120-160*	*120-160*
Volts range, V	*14 - 17*	*14 - 17*	*14 - 17*
Travel speed, (mm/min)	*25 - 40*	*25 - 40*	*25 - 40*
Max. Heat input, (kJ/mm)	*3.6 - 4.368*	*3.6 - 4.368*	*3.6 - 4.368*
Current Type & Polarity	*DCEN*	*DCEN*	*DCEN*
Current pulsing DC	*No*	*No*	*No*
Tungsten size, (mm)	*2.4*	*2.4*	*2.4*
Electrical notes	-		

TECHNIQUE (QW-410)	
Bead Type	*Stringer*
Cup/Nozzle size (mm)	*10*
Initial/Interpass Cleaning	*Wire brush*
Pass Per Side	*Multi pass*
Peening	*No*

APPROVAL

R.Hilder IPE 042/CP PV 410 PR TECH ENG 201170327	Digital signature Prepared by - Rodger Hilder 25- February-2024 Guild Moore & Hilder cc			Digital signature Approved by - Tristan Northing 19-February-2024 Guild Moore & Hilder cc	

APPROVED
By Renier at 9:45 am, Feb 29, 2024