



Techalloy 420

Description

Techalloy 420 is used to weld stainless steels of similar chemical composition. It has higher carbon and chromium content which leads to higher hardness levels than with Techalloy 410. The higher hardness imparts greater wear resistance. A 600°F preheat is required prior to welding, 350°F inter-pass temperature and PWHT in accordance with final strength and hardness requirements.

Specifications & Approvals:

AWS A5.9/ASME SFA:ER420 UNS S42080 ANSI/ISO Q9001-2001

Typical Chemical Composition

C	Mn	Si	S	P	Cr	Ni	Mo	Cu
.30	.22	.40	.01	.015	13.50	.30	.04	.03

Typical Mechanical Properties

Tensile Strength *	Yield Strength *	Elongation, 4d *	Hardness, HRC *
255,000 PSI	180,000 PSI	30%	63.0
1758 Mpa	1241 Mpa		

Welding Parameters

*Properties from Heat Treatment @ 900°

Process	Diameter	Voltage	Amperage	Shielding Gas	Gas Flow, CFH	Welding Speed, IPM
TIG	.045" (1.2mm) X 36" (914mm)	13-16	80-110	100% Argon	30-50	
	1/16" (1.6mm) X 36" (914mm)	14-18	90-130	100% Argon		
	3/32" (2.4mm) X 36" (914mm)	15-20	120-175	100% Argon		
	1/8" (3.2mm) X 36" (914mm)	15-20	150-220	100% Argon		
MIG DCEP	.030" (0.8mm)	24-28	140-180	98% Argon + 2% Oxygen or 97% Argon + 3% CO ₂	30-50	23-30
	.035" (0.9mm)	26-29	160-180			
	.045" (1.2mm)	28-32	180-220			
	1/16" (1.6mm)	29-33	210-250			
SAW DCEP	3/32" (2.4mm)	28-30	300-350	Suitable Flux may be used	N/A	20-30
	1/8" (3.2mm)	29-32	400-550			
	5/32" (4.0mm)	30-33	500-650			

Standard Packages:

MIG Wire– 33# Wire Basket, 30# Plastic Spools, or 60# Fiber Spools	TIG Wire– 10# Tube/30# Master Carton	SAW– 60# Random Wound, Banded Coil, or 55# wire basket
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