

⊖ External HF Starter Required

Δ Tandem Controller Required

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Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range *			
All	All	GMAW CV	STD CV		5	Pinch	10 — 45	V		
		GMAW Power	Power Mode®		40	Pinch	0.1 — 40	kW		
GMAW	0.8 mm	GMAW CV	CV	CO ₂	93	Pinch	75 — 1200	ipm (1.91 — 30.48 m/min)		
			CV	Argon Mix	94		75 — 1200	ipm (1.91 — 30.48 m/min)		
		GMAW Pulse	Pulse	Argon Mix	95	UltimArc®	65 — 1200	ipm (1.65 — 30.48 m/min)		
			Precision Pulse™	Argon Mix	410		100 — 600	ipm (2.54 — 15.24 m/min)		
	0.9 mm	GMAW CV	CV	CO ₂	138	Pinch	50 — 1200	ipm (1.27 — 30.48 m/min)		
			CV	Argon Mix	139		50 — 1200	ipm (1.27 — 30.48 m/min)		
		GMAW Pulse	Pulse	Argon Mix	140	UltimArc®	60 — 1200	ipm (1.52 — 30.48 m/min)		
			RapidArc®	Argon Mix	141		75 — 1200	ipm (1.91 — 30.48 m/min)		
	1.0 mm	GMAW Pulse	Precision Pulse™	Argon Mix	411	UltimArc®	100 — 600	ipm (2.54 — 15.24 m/min)		
			CV	CO ₂	10		Pinch	50 — 1200	ipm (1.27 — 30.48 m/min)	
			CV	Argon Mix	11			50 — 800	ipm (1.27 — 20.32 m/min)	
	1.0 mm	GMAW Pulse	Pulse	Argon Mix	12	UltimArc®	75 — 1200	ipm (1.91 — 30.48 m/min)		
			RapidArc®	Argon Mix	13		60 — 1200	ipm (1.52 — 30.48 m/min)		
			Precision Pulse™	Argon Mix	412		75 — 600	ipm (1.91 — 15.24 m/min)		
	1.2 mm	GMAW CV	CV	CO ₂	20	Pinch	50 — 670	ipm (1.27 — 17.02 m/min)		
			CV	Argon Mix	21		50 — 585	ipm (1.27 — 14.86 m/min)		
		GMAW Pulse	Pulse	Argon Mix	22	UltimArc®	60 — 600	ipm (1.52 — 15.24 m/min)		
			RapidArc®	Argon Mix	18		60 — 715	ipm (1.52 — 18.16 m/min)		
	1.2 mm	GMAW Pulse	Precision Pulse™	Argon Mix	413	UltimArc®	75 — 600	ipm (1.91 — 15.24 m/min)		
			GMAW CV	CV	CO ₂		24	Pinch	50 — 395	ipm (1.27 — 10.03 m/min)
CV				Argon Mix	25		50 — 370		ipm (1.27 — 9.4 m/min)	
1.4 mm	GMAW Pulse	Pulse	Argon Mix	26	UltimArc®	50 — 375	ipm (1.27 — 9.53 m/min)			
		RapidArc®	Argon Mix	27		60 — 425	ipm (1.52 — 10.8 m/min)			
		Precision Pulse™	Argon Mix	414		75 — 600	ipm (1.91 — 15.24 m/min)			
1.6 mm	GMAW CV	CV	Argon Mix	107	Pinch	50 — 290	ipm (1.27 — 7.37 m/min)			
	GMAW Pulse	Pulse	Argon Mix	108	UltimArc®	50 — 315	ipm (1.27 — 8 m/min)			
Stainless	0.8 mm	GMAW CV	CV	Argon Mix	61	Pinch	100 — 1200	ipm (2.54 — 30.48 m/min)		
			CV	Ar He CO ₂	63		100 — 1200	ipm (2.54 — 30.48 m/min)		
		GMAW Pulse	Pulse	Argon Mix	64	UltimArc®	100 — 1200	ipm (2.54 — 30.48 m/min)		
			Pulse	Argon Mix	66		100 — 1200	ipm (2.54 — 30.48 m/min)		
	0.9 mm	GMAW CV	CV	Argon Mix	29	Pinch	75 — 1200	ipm (1.91 — 30.48 m/min)		
		GMAW Pulse	Pulse	Argon Mix	30	UltimArc®	60 — 1200	ipm (1.52 — 30.48 m/min)		
			Precision Pulse™	Argon Mix	421		100 — 600	ipm (2.54 — 15.24 m/min)		
	1.0 mm	GMAW CV	CV	Argon Mix	31	Pinch	75 — 1200	ipm (1.91 — 30.48 m/min)		
			CV	Ar He CO ₂	33		75 — 935	ipm (1.91 — 23.75 m/min)		
		GMAW Pulse	Pulse	Argon Mix	34	UltimArc®	60 — 1200	ipm (1.52 — 30.48 m/min)		
			Pulse	Argon Mix	36		60 — 1200	ipm (1.52 — 30.48 m/min)		
	1.0 mm	GMAW Pulse	Precision Pulse™	Argon Mix	422	UltimArc®	60 — 600	ipm (1.52 — 15.24 m/min)		
			GMAW CV	CV	Argon Mix		41	Pinch	75 — 565	ipm (1.91 — 14.35 m/min)
				CV	Ar He CO ₂		43		75 — 565	ipm (1.91 — 14.35 m/min)
	1.2 mm	GMAW Pulse	Pulse	Argon Mix	44	UltimArc®	50 — 560	ipm (1.27 — 14.22 m/min)		
			Pulse	Argon Mix	46		50 — 800	ipm (1.27 — 20.32 m/min)		
Precision Pulse™			Argon Mix	423	50 — 400		ipm (1.27 — 10.16 m/min)			
1.6 mm	GMAW CV	CV	Argon Mix	51	Pinch	50 — 285	ipm (1.27 — 7.24 m/min)			
	GMAW Pulse	Pulse	Argon Mix	56	UltimArc®	50 — 305	ipm (1.27 — 7.75 m/min)			

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		Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range *
GMAW	Aluminum (AlSi)	1.0 mm	GMAW CV	CV	Argon	148	Pinch	125 — 800 ipm	(3.18 — 20.32 m/min)
			GMAW Pulse	Pulse	Argon	149	UltimArc®	125 — 800 ipm	(3.18 — 20.32 m/min)
			GMAW Pulse on Pulse	CC Pulse	Argon	150	UltimArc®	125 — 800 ipm	(3.18 — 20.32 m/min)
		1.2 mm	GMAW Pulse on Pulse	Pulse on Pulse	Argon	98	Frequency	100 — 500 ipm	(2.54 — 12.7 m/min)
			GMAW CV	CV	Argon	71	Pinch	125 — 700 ipm	(3.18 — 17.78 m/min)
			GMAW Pulse	Pulse	Argon	72	UltimArc®	85 — 600 ipm	(2.16 — 15.24 m/min)
		1.6 mm	GMAW Pulse	CC Pulse	Argon	69	UltimArc®	85 — 600 ipm	(2.16 — 15.24 m/min)
			GMAW Pulse on Pulse	Pulse on Pulse	Argon	99	Frequency	85 — 500 ipm	(2.16 — 12.7 m/min)
			GMAW CV	CV	Argon	73	Pinch	75 — 375 ipm	(1.91 — 9.53 m/min)
	Aluminum (AlMg)	1.0 mm	GMAW Pulse	Pulse	Argon	74	UltimArc®	75 — 350 ipm	(1.91 — 8.89 m/min)
			GMAW Pulse	CC Pulse	Argon	79	UltimArc®	75 — 350 ipm	(1.91 — 8.89 m/min)
			GMAW Pulse on Pulse	Pulse on Pulse	Argon	100	Frequency	80 — 400 ipm	(2.03 — 10.16 m/min)
		1.2 mm	GMAW CV	CV	Argon	151	Pinch	175 — 750 ipm	(4.45 — 19.05 m/min)
			GMAW Pulse	Pulse	Argon	152	UltimArc®	125 — 700 ipm	(3.18 — 17.78 m/min)
			GMAW Pulse	CC Pulse	Argon	153	UltimArc®	125 — 700 ipm	(3.18 — 17.78 m/min)
		1.6 mm	GMAW Pulse on Pulse	Pulse on Pulse	Argon	101	Frequency	140 — 800 ipm	(3.56 — 20.32 m/min)
			GMAW CV	CV	Argon	75	Pinch	125 — 750 ipm	(3.18 — 19.05 m/min)
			GMAW Pulse	Pulse	Argon	76	UltimArc®	85 — 700 ipm	(2.16 — 17.78 m/min)
	1.2 mm	GMAW Pulse	CC Pulse	Argon	70	UltimArc®	85 — 700 ipm	(2.16 — 17.78 m/min)	
		GMAW Pulse on Pulse	Pulse on Pulse	Argon	102	Frequency	100 — 600 ipm	(2.54 — 15.24 m/min)	
		GMAW CV	CV	Argon	77	Pinch	125 — 500 ipm	(3.18 — 12.7 m/min)	
	1.6 mm	GMAW Pulse	Pulse	Argon	78	UltimArc®	100 — 500 ipm	(2.54 — 12.7 m/min)	
		GMAW Pulse	CC Pulse	Argon	80	UltimArc®	100 — 450 ipm	(2.54 — 11.43 m/min)	
		GMAW Pulse on Pulse	Pulse on Pulse	Argon	103	Frequency	75 — 350 ipm	(1.91 — 8.89 m/min)	
Metal Core	1.2 mm	GMAW CV	CV	Argon Mix	81	Pinch	50 — 700 ipm	(1.27 — 17.78 m/min)	
		GMAW Pulse	Pulse	Argon Mix	82	UltimArc®	50 — 700 ipm	(1.27 — 17.78 m/min)	
	1.4 mm	GMAW Pulse	Pulse	Argon Mix	84	UltimArc®	50 — 405 ipm	(1.27 — 10.29 m/min)	
	1.6 mm	GMAW CV	CV	Argon Mix	85	Pinch	50 — 405 ipm	(1.27 — 10.29 m/min)	
		GMAW Pulse	Pulse	Argon Mix	86	UltimArc®	50 — 450 ipm	(1.27 — 11.43 m/min)	
SiBr	1.0mm	GMAW Pulse	Pulse	Argon	192	UltimArc®	80 — 985 ipm	(2.03 — 25.02 m/min)	
	1.2mm	GMAW Pulse	Pulse	Argon	191	UltimArc®	50 — 600 ipm	(1.27 — 15.24 m/min)	
Cu	1.0mm	GMAW Pulse	Pulse	Argon Helium	198	UltimArc®	75 — 500 ipm	(1.91 — 12.7 m/min)	
	1.2mm	GMAW Pulse	Pulse	Argon Helium	196	UltimArc®	75 — 500 ipm	(1.91 — 12.7 m/min)	
NiCr	1.0mm	GMAW Pulse	Pulse	Ar/ Ar He	502	UltimArc®	75 — 800 ipm	(1.91 — 20.32 m/min)	
	1.2mm	GMAW Pulse	Pulse	Ar/ Ar He	504	UltimArc®	75 — 600 ipm	(1.91 — 15.24 m/min)	

		Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range *
FCAW	Flux Core	All	FCAW-S	Self Shield CV	NA	6	Pinch	10 — 45 V	
			FCAW-G	Gas Shield CV		7	Pinch	10 — 45 V	
	Cored Wire	1.2 mm	FCAW-G	CV	CO ₂	90	Pinch	175 — 600 ipm	(4.45 — 15.24 m/min)
			FCAW-G	CV	Argon Mix	91	Pinch	175 — 600 ipm	(4.45 — 15.24 m/min)
		1.4 mm	FCAW-G	CV	CO ₂	187	Pinch	150 — 500 ipm	(3.81 — 12.7 m/min)
			FCAW-G	CV	Argon Mix	188	Pinch	150 — 500 ipm	(3.81 — 12.7 m/min)
		1.6 mm	FCAW-G	CV	CO ₂	189	Pinch	125 — 400 ipm	(3.18 — 10.16 m/min)
FCAW-G	CV	Argon Mix	190	Pinch	125 — 400 ipm	(3.18 — 10.16 m/min)			

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SMAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range *
	NA	NA	DCEP SMAW	SMAW Soft	NA	NA	1	Arc Force, Hot Start
		SMAW Crisp		NA	NA	2	Arc Force, Hot Start	15 — 415 A
		SMAW Pipe		NA	NA	4	Arc Force	50 — 250 A

GTAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range *	
	NA	NA	DCEN GTAW	Touch Start TIG	Ar / He	Ar / He	3	Hot Start	5 — 415 A
				Touch Start TIG Pulse	Ar / He	Ar / He	8	Frequency, Background, Hot Start	5 — 415 A
				HF TIG (⊖)	Ar / He	Ar / He	375	Hot Start	5 — 415 A
HF TIG Pulse (⊖)				Ar / He	Ar / He	376	Frequency, Background, Hot Start	5 — 415 A	

CAG	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range *
	NA	NA	CAG	Arc Gouge	Compressed Air	Compressed Air	9	

GMAW-Tandem	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range *
	1.0 mm	GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	Argon Mix	402	UltimArc®, Phase Angle	150 — 800 ipm (3.81 — 20.32 m/min)
			Sync Pulse Trail	Argon Mix	Argon Mix	403	UltimArc®	150 — 800 ipm (3.81 — 20.32 m/min)
			HotWire Pulse Trail	Argon Mix	Argon Mix	461		80 — 800 ipm (2.03 — 20.32 m/min)
	1.2 mm	GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	Argon Mix	404	UltimArc®, Phase Angle	100 — 700 ipm (2.54 — 17.78 m/min)
			Sync Pulse Trail	Argon Mix	Argon Mix	405	UltimArc®	100 — 700 ipm (2.54 — 17.78 m/min)
			HotWire Pulse Trail	Argon Mix	Argon Mix	462		75 — 780 ipm (1.91 — 19.81 m/min)
	1.4 mm	GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	Argon Mix	406	UltimArc®, Phase Angle	100 — 585 ipm (2.54 — 14.86 m/min)
			Sync Pulse Trail	Argon Mix	Argon Mix	407	UltimArc®	100 — 585 ipm (2.54 — 14.86 m/min)
			HotWire Pulse Trail	Argon Mix	Argon Mix	463		50 — 575 ipm (1.27 — 14.61 m/min)