

§ External HF Starter Required

Δ Tandem Controller Required

* Range is limited by power source rating, module rating, or feeder configuration

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 - 15	kW
GMAW	0.8 mm	GMAW CV	CV	CO ₂	93	Pinch	75 - 1200	ipm (1.91 - 30.48 m/min)
			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)
			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)
	Precision Pulse™	Argon Mix	411	100 - 600	ipm (2.54 - 15.24 m/min)			
	1.0 mm	GMAW CV	CV	CO ₂	10	Pinch	50 - 1200	ipm (1.27 - 30.48 m/min)
			Argon Mix	11	50 - 800		ipm (1.27 - 20.32 m/min)	
		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)
			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)
	Precision Pulse™	Argon Mix	413	75 - 600	ipm (1.91 - 15.24 m/min)			
	1.4 mm	GMAW CV	CV	CO ₂	24	Pinch	50 - 395	ipm (1.27 - 10.03 m/min)
Argon Mix			25	50 - 370	ipm (1.27 - 9.4 m/min)			
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)	
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)
			Ar He CO ₂	63	100 - 1200		ipm (2.54 - 30.48 m/min)	
		GMAW Pulse	Pulse	Ar He CO ₂	64	UltimArc®	100 - 1200	ipm (2.54 - 30.48 m/min)
			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)
			Argon Mix	30	60 - 1200		ipm (1.52 - 30.48 m/min)	
		GMAW Pulse	Precision Pulse™	Argon Mix	421	UltimArc®	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)
			Ar He CO ₂	33	75 - 935		ipm (1.91 - 23.75 m/min)	
		GMAW Pulse	Pulse	Ar He CO ₂	34	UltimArc®	60 - 1200	ipm (1.52 - 30.48 m/min)
			Argon Mix	36	60 - 1200		ipm (1.52 - 30.48 m/min)	
	Precision Pulse™	Argon Mix	422	UltimArc®	60 - 600	ipm (1.52 - 15.24 m/min)		
	1.2 mm	GMAW CV	CV	Argon Mix	41	Pinch	75 - 565	ipm (1.91 - 14.35 m/min)
			Ar He CO ₂	43	75 - 565		ipm (1.91 - 14.35 m/min)	
		GMAW Pulse	Pulse	Ar He CO ₂	44	UltimArc®	50 - 560	ipm (1.27 - 14.22 m/min)
			Argon Mix	46	50 - 800		ipm (1.27 - 20.32 m/min)	
Precision Pulse™	Argon Mix	423	UltimArc®	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 *	
								ipm	(m/min)
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)
				CC Pulse	Argon	150		125 - 800	ipm (3.18 - 20.32 m/min)
		GMAW Pulse on Pulse	Pulse on Pulse	Argon	98	Frequency	100 - 500	ipm (2.54 - 12.7 m/min)	
		1.2 mm	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)
				CC Pulse	Argon	69		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)	
		1.6 mm	GMAW CV	CV	Argon	73	Pinch	75 - 375	ipm (1.91 - 9.53 m/min)
	GMAW Pulse		Pulse	Argon	74	UltimArc®	75 - 350	ipm (1.91 - 8.89 m/min)	
			CC Pulse	Argon	79		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)		
	Aluminum (AlMg)	1.0 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)
				CC Pulse	Argon	153		125 - 700	ipm (3.18 - 17.78 m/min)
			GMAW Pulse on Pulse	Pulse on Pulse	Argon	101	Frequency	140 - 800	ipm (3.56 - 20.32 m/min)
		1.2 mm	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)
				CC Pulse	Argon	70		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)	
		1.6 mm	GMAW CV	CV	Argon	77	Pinch	125 - 500	ipm (3.18 - 12.7 m/min)
			GMAW Pulse	Pulse	Argon	78	UltimArc®	100 - 500	ipm (2.54 - 12.7 m/min)
				CC Pulse	Argon	80		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 *	
								ipm	(m/min)
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)
					Argon Mix	91		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)
					Argon Mix	188		150 - 500	ipm (3.81 - 12.7 m/min)
					CO ₂	189		125 - 400	ipm (3.18 - 10.16 m/min)
1.6 mm	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	1	Arc Force, Hot Start	15 - 415
		SMAW Crisp		NA	2	Arc Force, Hot Start	15 - 415	A
		SMAW Pipe		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	3	Hot Start	5 - 415	A
				Touch Start TIG Pulse	Ar / He	8	Frequency, Background, Hot Start	5 - 415	A
				HF TIG§	Ar / He	375	Hot Start	5 - 415	A
HF TIG Pulse§				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	9		60 - 415

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