

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 - 40 kW	
GMAW	Steel	0.030	GMAW CV	CV	CO ₂	93	Pinch	75 - 1200 ipm
					Argon Mix	94		75 - 1200 ipm
			GMAW Pulse	Pulse	Argon Mix	95	UltimArc®	65 - 1200 ipm
		0.035	GMAW CV	CV	CO ₂	10	Pinch	50 - 1200 ipm
					Argon Mix	11		50 - 1200 ipm
			GMAW Pulse	Pulse	Argon Mix	12	UltimArc®	60 - 1200 ipm
		RapidArc®	Argon Mix	13	60 - 1200 ipm			
		Precision Pulse™	Argon Mix	411	100 - 600 ipm			
	0.040	GMAW CV	CV	CO ₂	138	Pinch	50 - 1200 ipm	
				Argon Mix	139		50 - 1200 ipm	
		GMAW Pulse	Pulse	Argon Mix	140	UltimArc®	60 - 1200 ipm	
		RapidArc®	Argon Mix	141	60 - 1200 ipm			
		Precision Pulse™	Argon Mix	412	75 - 600 ipm			
	0.045	GMAW CV	CV	CO ₂	20	Pinch	50 - 800 ipm	
				Argon Mix	21		50 - 800 ipm	
		GMAW Pulse	Pulse	Argon Mix	22	UltimArc®	50 - 800 ipm	
		RapidArc®	Argon Mix	18	75 - 800 ipm			
		Precision Pulse™	Argon Mix	413	75 - 600 ipm			
	0.052	GMAW CV	CV	CO ₂	24	Pinch	50 - 750 ipm	
				Argon Mix	25		50 - 700 ipm	
		GMAW Pulse	Pulse	Argon Mix	26	UltimArc®	50 - 700 ipm	
		RapidArc®	Argon Mix	27	60 - 750 ipm			
		Precision Pulse™	Argon Mix	414	75 - 500 ipm			
	1/16	GMAW CV	CV	Argon Mix	107	Pinch	50 - 450 ipm	
GMAW Pulse		Pulse	Argon Mix	108	UltimArc®	50 - 500 ipm		
Stainless	0.030	GMAW CV	CV	Argon Mix	61	Pinch	100 - 1200 ipm	
				He Ar CO ₂	63		100 - 1200 ipm	
		GMAW Pulse	Pulse	He Ar CO ₂	64	UltimArc®	90 - 1200 ipm	
				Argon Mix	66		80 - 1200 ipm	
	0.035	GMAW CV	CV	Argon Mix	31	Pinch	75 - 1200 ipm	
				He Ar CO ₂	33		75 - 1200 ipm	
		GMAW Pulse	Pulse	He Ar CO ₂	34	UltimArc®	75 - 1200 ipm	
				Argon Mix	36		60 - 1200 ipm	
	0.045	GMAW Pulse	Precision Pulse™	Argon Mix	421	UltimArc®	100 - 600 ipm	
				He Ar CO ₂	431		100 - 700 ipm	
	1/16	GMAW CV	CV	Argon Mix	41	Pinch	75 - 800 ipm	
				He Ar CO ₂	43		75 - 800 ipm	
		GMAW Pulse	Pulse	He Ar CO ₂	44	UltimArc®	75 - 800 ipm	
				Argon Mix	46		50 - 800 ipm	
	1/16	GMAW Pulse	Precision Pulse™	Argon Mix	423	UltimArc®	50 - 400 ipm	
				He Ar CO ₂	433		60 - 400 ipm	

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	GMAW	Aluminum 4XXX	0.035	GMAW CV	CV	Argon	148	Pinch
GMAW Pulse				Pulse	Argon	149	UltimArc®	125 - 800 ipm
				CC Pulse	Argon	150		125 - 800 ipm
GMAW Pulse on Pulse®			Pulse on Pulse®	Argon	98	Frequency	125 - 800 ipm	
3/64			GMAW CV	CV	Argon	71	Pinch	125 - 700 ipm
			GMAW Pulse	Pulse	Argon	72	UltimArc®	85 - 600 ipm
				CC Pulse	Argon	69		85 - 600 ipm
GMAW Pulse on Pulse®			Pulse on Pulse®	Argon	99	Frequency	85 - 500 ipm	
1/16			GMAW CV	CV	Argon	73	Pinch	75 - 375 ipm
		GMAW Pulse	Pulse	Argon	74	UltimArc®	75 - 350 ipm	
			CC Pulse	Argon	79		75 - 350 ipm	
GMAW Pulse on Pulse®		Pulse on Pulse®	Argon	100	Frequency	80 - 400 ipm		
Aluminum 5XXX		0.035	GMAW CV	CV	Argon	151	Pinch	175 - 750 ipm
			GMAW Pulse	Pulse	Argon	152	UltimArc®	150 - 800 ipm
				CC Pulse	Argon	153		150 - 800 ipm
		GMAW Pulse on Pulse®	Pulse on Pulse®	Argon	101	Frequency	140 - 800 ipm	
		3/64	GMAW CV	CV	Argon	75	Pinch	125 - 750 ipm
			GMAW Pulse	Pulse	Argon	76	UltimArc®	85 - 700 ipm
				CC Pulse	Argon	70		85 - 700 ipm
		GMAW Pulse on Pulse®	Pulse on Pulse®	Argon	102	Frequency	100 - 600 ipm	
		1/16	GMAW CV	CV	Argon	77	Pinch	125 - 500 ipm
GMAW Pulse			Pulse	Argon	78	UltimArc®	100 - 500 ipm	
			CC Pulse	Argon	80		100 - 450 ipm	
GMAW Pulse on Pulse®		Pulse on Pulse®	Argon	103	Frequency	75 - 350 ipm		
Metal Core		0.045	GMAW CV	CV	Argon Mix	81	Pinch	100 - 700 ipm
			GMAW Pulse	Pulse	Argon Mix	82	UltimArc®	50 - 700 ipm
				RapidArc®	Argon Mix	87		75 - 800 ipm
	0.052	GMAW CV	CV	Argon Mix	83	Pinch	50 - 600 ipm	
		GMAW Pulse	Pulse	Argon Mix	84	UltimArc®	50 - 600 ipm	
			RapidArc®	Argon Mix	88		60 - 800 ipm	
	1/16	GMAW CV	CV	Argon Mix	85	Pinch	50 - 450 ipm	
		GMAW Pulse	Pulse	Argon Mix	86	UltimArc®	50 - 450 ipm	
			RapidArc®	Argon Mix	89		60 - 450 ipm	
SiBr	0.035	GMAW Pulse	Pulse	Argon	192	UltimArc®	80 - 1200 ipm	
	0.045	GMAW Pulse	Pulse	Argon	191	UltimArc®	50 - 600 ipm	
Cu	0.035	GMAW Pulse	Pulse	Argon Helium	198	UltimArc®	100 - 700 ipm	
	0.045	GMAW Pulse	Pulse	Argon Helium	196	UltimArc®	75 - 500 ipm	
NiCr	0.035	GMAW Pulse	Pulse	Ar/ Ar He	501	UltimArc®	75 - 800 ipm	
	0.045	GMAW Pulse	Pulse	Ar/ Ar He	503	UltimArc®	75 - 600 ipm	
NiCu	0.035	GMAW Pulse	Pulse	Ar/ Ar He	507	UltimArc®	75 - 800 ipm	
	0.045	GMAW Pulse	Pulse	Ar/ Ar He	509	UltimArc®	75 - 600 ipm	
NiFe-CI	0.035	GMAW Pulse	Pulse	Ar/ Ar He	513	UltimArc®	75 - 800 ipm	
	0.045	GMAW Pulse	Pulse	Ar/ Ar He	515	UltimArc®	75 - 600 ipm	
Ni-1	0.035	GMAW Pulse	Pulse	Ar/ Ar He	519	UltimArc®	75 - 800 ipm	
	0.045	GMAW Pulse	Pulse	Ar/ Ar He	521	UltimArc®	75 - 600 ipm	
Ni-CI	0.035	GMAW Pulse	Pulse	Ar/ Ar He	525	UltimArc®	75 - 800 ipm	
	0.045	GMAW Pulse	Pulse	Ar/ Ar He	527	UltimArc®	75 - 500 ipm	

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FCAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)
	Flux Core	All		FCAW-S	STD CV	NA	6	Pinch
FCAW-G				STD CV		7	Pinch	10 - 45 V
0.045			FCAW-G	CV	CO ₂	90	Pinch	175 - 600 ipm
					Argon Mix	91		175 - 600 ipm
0.052			FCAW-G	CV	CO ₂	187	Pinch	150 - 500 ipm
				Argon Mix	188	150 - 500 ipm		
1/16		FCAW-G	CV	CO ₂	189	Pinch	125 - 400 ipm	
				Argon Mix	190		125 - 400 ipm	

SMAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)
	NA	NA		DCEP SMAW	SMAW Soft	NA	1	Arc Force, Hot Start
SMAW Crisp					NA	2	Arc Force, Hot Start	15 - 900 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	GTAW Touch Start	Argon	3	Hot Start
GTAW-P					Argon	8	Hot Start, Frequency, Background	5 - 800 A

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

GMAW-Tandem	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)	
	Steel	0.035		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	400	UltimArc®	100 - 1000 ipm
					Sync Pulse Trail	Argon Mix	401		100 - 800 ipm
					HotWire Pulse Trail	Argon Mix	460		80 - 900 ipm
		0.040		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	402	UltimArc®	150 - 800 ipm
					Sync Pulse Trail	Argon Mix	403		150 - 800 ipm
					HotWire Pulse Trail	Argon Mix	461		80 - 800 ipm
		0.045		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	404	UltimArc®	100 - 700 ipm
					Sync Pulse Trail	Argon Mix	405		100 - 700 ipm
					HotWire Pulse Trail	Argon Mix	462		75 - 800 ipm
	0.052		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	406	UltimArc®	100 - 800 ipm	
				Sync Pulse Trail	Argon Mix	407		100 - 800 ipm	
				HotWire Pulse Trail	Argon Mix	463		50 - 800 ipm	
	1/16		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	408	UltimArc®	100 - 500 ipm	
				Sync Pulse Trail	Argon Mix	409		100 - 500 ipm	
				HotWire Pulse Trail	Argon Mix	464		50 - 500 ipm	