

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	Steel	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	Precision Pulse™	Argon Mix	95	UltimArc®	65 - 1200	ipm (1.65 - 30.48 m/min)				
					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	RapidArc®	Argon Mix	140	UltimArc®	60 - 1200	ipm (1.52 - 30.48 m/min)				
					Argon Mix	141		75 - 1200	ipm (1.91 - 30.48 m/min)				
					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 - 1200			ipm (1.27 - 30.48 m/min)						
		GMAW Pulse	Pulse	RapidArc®	Argon Mix	12	UltimArc®	75 - 1200	ipm (1.91 - 30.48 m/min)				
					Argon Mix	13		60 - 1200	ipm (1.52 - 30.48 m/min)				
					Argon Mix	412		75 - 600	ipm (1.91 - 15.24 m/min)				
					1.2 mm	GMAW CV		CV	CO ₂	20	Pinch	50 - 800	ipm (1.27 - 20.32 m/min)
		Argon Mix	21	50 - 800			ipm (1.27 - 20.32 m/min)						
		GMAW Pulse	Pulse	RapidArc®	Argon Mix	22	UltimArc®	60 - 800	ipm (1.52 - 20.32 m/min)				
					Argon Mix	18		60 - 800	ipm (1.52 - 20.32 m/min)				
					Argon Mix	413		75 - 600	ipm (1.91 - 15.24 m/min)				
					1.4 mm	GMAW CV		CV	CO ₂	24	Pinch	50 - 650	ipm (1.27 - 16.51 m/min)
Argon Mix	25	50 - 550	ipm (1.27 - 13.97 m/min)										
GMAW Pulse	Pulse	RapidArc®	Argon Mix	26	UltimArc®	50 - 600	ipm (1.27 - 15.24 m/min)						
			Argon Mix	27		60 - 650	ipm (1.52 - 16.51 m/min)						
			1.6 mm	GMAW CV		CV	Argon Mix	107	Pinch	50 - 350	ipm (1.27 - 8.89 m/min)		
							Argon Mix	108		50 - 400	ipm (1.27 - 10.16 m/min)		
GMAW	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	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 - 1000	ipm (1.91 - 25.4 m/min)
					GMAW Pulse	Pulse		Precision 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)						
		Argon Mix	422	60 - 600			ipm (1.52 - 15.24 m/min)						
		1.2 mm	GMAW CV	CV			Argon Mix		41	Pinch		75 - 700	ipm (1.91 - 17.78 m/min)
					Ar He CO ₂	43	75 - 700	ipm (1.91 - 17.78 m/min)					
		GMAW Pulse	Pulse	Precision Pulse™	Ar He CO ₂	44	UltimArc®	50 - 700	ipm (1.27 - 17.78 m/min)				
					Argon Mix	46		50 - 800	ipm (1.27 - 20.32 m/min)				
					Argon Mix	423		50 - 400	ipm (1.27 - 10.16 m/min)				
					1.6 mm	GMAW CV		CV	Argon Mix	51	Pinch	50 - 600	ipm (1.27 - 15.24 m/min)
		Argon Mix	56	50 - 700			ipm (1.27 - 17.78 m/min)						
		GMAW	Metal Core	1.2 mm	GMAW CV	CV	Argon Mix	81	Pinch	50 - 700	ipm (1.27 - 17.78 m/min)		
Argon Mix	82						50 - 700	ipm (1.27 - 17.78 m/min)					
1.4 mm	GMAW Pulse			Pulse	Argon Mix	84	UltimArc®	50 - 600	ipm (1.27 - 15.24 m/min)				
					Argon Mix	85		50 - 450	ipm (1.27 - 11.43 m/min)				
1.6 mm	GMAW CV			CV	Argon Mix	85	Pinch	50 - 450	ipm (1.27 - 11.43 m/min)				
					Argon Mix	86		50 - 450	ipm (1.27 - 11.43 m/min)				

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GMAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)		
	Aluminum (AISI)	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			Pulse on Pulse	Argon	150		125 - 800	ipm (3.18 - 20.32 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)	
		GMAW Pulse on Pulse		Pulse on Pulse	Argon	69		85 - 600	ipm (2.16 - 15.24 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)	
		GMAW Pulse on Pulse		Pulse on 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 (AIMg)		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)
	GMAW Pulse on Pulse		Pulse on Pulse	Argon	153	125 - 700	ipm (3.18 - 17.78 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)	
		GMAW Pulse on Pulse		Pulse on Pulse	Argon	70		85 - 700	ipm (2.16 - 17.78 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)	
		GMAW Pulse on Pulse		Pulse on 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)
	SiBr	1.0mm	GMAW Pulse	Pulse	Argon	192	UltimArc®	80 - 1000	ipm (2.03 - 25.4 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)		

FCAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)	
	Flux Core	All	FCAW-S		Self Shield CV	NA	6	Pinch	10 - 45
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)
1.6 mm	FCAW-G		CV	CO ₂	189	Pinch	125 - 400	ipm (3.18 - 10.16 m/min)	
				Argon Mix	190		125 - 400	ipm (3.18 - 10.16 m/min)	

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 - 900
			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		Touch Start TIG	Ar / He	3	Hot Start	5 - 900
			Touch Start TIG Pulse	Ar / He	8	Frequency, Background, Hot Start	5 - 800	A	

CAG	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)	
	NA	NA	CAG		Arc Gouge	Compressed Air	9		60 - 900

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GMAW-Tandem	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)	
	Steel	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 - 800 ipm	(1.91 - 20.32 m/min)		
1.4 mm		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	406	UltimArc®, Phase Angle	100 - 600 ipm	(2.54 - 15.24 m/min)	
			Sync Pulse Trail	Argon Mix	407	UltimArc®	100 - 600 ipm	(2.54 - 15.24 m/min)	
			HotWire Pulse Trail	Argon Mix	463	50 - 800 ipm	(1.27 - 20.32 m/min)		
1.6 mm		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	408	UltimArc®, Phase Angle	100 - 500 ipm	(2.54 - 12.7 m/min)	
			Sync Pulse Trail	Argon Mix	409	UltimArc®	100 - 500 ipm	(2.54 - 12.7 m/min)	
			HotWire Pulse Trail	Argon Mix	464	50 - 500 ipm	(1.27 - 12.7 m/min)		