

§ Advanced Module Required

⊗ External HF Starter Required

Δ Tandem Controller Required

□ Availability of mode determined by output rating of equipment setup

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

▣ STT® Module Required

~ Three Phase Input Required

‡ STT® or Advanced Module Required

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 — 23 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)
			Rapid X®(‡)	Argon Mix	272		75 — 1200 ipm (1.91 — 30.48 m/min)
		GMAW STT®	Synergic STT®(‡)	CO ₂	324	UltimArc®, Hot Start	100 — 225 ipm (2.54 — 5.72 m/min)
				Argon Mix	325		100 — 225 ipm (2.54 — 5.72 m/min)
			NonSynergic STT®(‡)	CO ₂	304	Peak, Background, Tailout, Hot Start	100 — 300 ipm (2.54 — 7.62 m/min)
			Argon Mix	305		100 — 300 ipm (2.54 — 7.62 m/min)	
	GMAW AC STT®	Synergic AC STT®(\$)	CO ₂	380	Balance, UltimArc®	50 — 200 ipm (1.27 — 5.08 m/min)	
			Argon Mix	381		50 — 200 ipm (1.27 — 5.08 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	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)
			Rapid X®(‡)	Argon Mix	273		75 — 800 ipm (1.91 — 20.32 m/min)
			Rapid X® LS C10(‡)	90Ar/10CO ₂	592		100 — 800 ipm (2.54 — 20.32 m/min)
			Rapid X® LS C20(‡)	80Ar/20CO ₂	593		100 — 600 ipm (2.54 — 15.24 m/min)
		GMAW STT®	Synergic STT®(‡)	CO ₂	326	UltimArc®, Hot Start	90 — 225 ipm (2.29 — 5.72 m/min)
				Argon Mix	327		90 — 225 ipm (2.29 — 5.72 m/min)
			NonSynergic STT®(‡)	CO ₂	306	Peak, Background, Tailout, Hot Start	90 — 225 ipm (2.29 — 5.72 m/min)
				Argon Mix	307		90 — 225 ipm (2.29 — 5.72 m/min)
		GMAW AC STT®	Synergic AC STT®(\$)	CO ₂	382	Balance, UltimArc®	45 — 185 ipm (1.14 — 4.7 m/min)
				Argon Mix	383		45 — 185 ipm (1.14 — 4.7 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	Argon Mix	22	UltimArc®	60 — 800 ipm (1.52 — 20.32 m/min)
			RapidArc®	Argon Mix	18		60 — 800 ipm (1.52 — 20.32 m/min)
			Precision Pulse™	Argon Mix	413		75 — 600 ipm (1.91 — 15.24 m/min)
			Rapid X®(‡)	Argon Mix	274		100 — 800 ipm (2.54 — 20.32 m/min)
Rapid X® LS C10(‡)			90Ar/10CO ₂	594	100 — 600 ipm (2.54 — 15.24 m/min)		
Rapid X® LS C20(‡)			80Ar/20CO ₂	595	100 — 500 ipm (2.54 — 12.7 m/min)		
GMAW STT®		Synergic STT®(‡)	CO ₂	328	UltimArc®, Hot Start	90 — 200 ipm (2.29 — 5.08 m/min)	
			Argon Mix	329		90 — 200 ipm (2.29 — 5.08 m/min)	
		NonSynergic STT®(‡)	CO ₂	308	Peak, Background, Tailout, Hot Start	90 — 225 ipm (2.29 — 5.72 m/min)	
			Argon Mix	309		90 — 225 ipm (2.29 — 5.72 m/min)	
GMAW AC STT®	Synergic AC STT®(\$)	CO ₂	384	Balance, UltimArc®	40 — 170 ipm (1.02 — 4.32 m/min)		
		Argon Mix	385		40 — 170 ipm (1.02 — 4.32 m/min)		
1.32 mm	GMAW CV	CV (□)	Argon Mix	540	Pinch	50 — 550 ipm (1.27 — 13.97 m/min)	
	GMAW Pulse	RapidArc® (□)	Argon Mix	541	UltimArc®	60 — 905 ipm (1.52 — 22.99 m/min)	
		Low Fume Pulse™(‡,□)	Argon Mix	544		50 — 600 ipm (1.27 — 15.24 m/min)	
1.4 mm	GMAW CV	CV (□)	CO ₂	24	Pinch	50 — 640 ipm (1.27 — 16.26 m/min)	
			Argon Mix	25		50 — 550 ipm (1.27 — 13.97 m/min)	
	GMAW Pulse	Pulse (□)	Argon Mix	26	UltimArc®	50 — 580 ipm (1.27 — 14.73 m/min)	
		RapidArc® (□)	Argon Mix	27		60 — 735 ipm (1.52 — 18.67 m/min)	
		Rapid X®(‡,□)	Argon Mix	275		75 — 600 ipm (1.91 — 15.24 m/min)	
		Low Fume Pulse™(‡,□)	Argon Mix	553		50 — 600 ipm (1.27 — 15.24 m/min)	
1.6 mm	GMAW CV	CV (□)	Argon Mix	107	Pinch	50 — 350 ipm (1.27 — 8.89 m/min)	
	GMAW Pulse	Pulse (□)	Argon Mix	108	UltimArc®	50 — 400 ipm (1.27 — 10.16 m/min)	

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Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*	
Metal Core	0.9mm	GMAW AC Pulse	Rapid Z® (§)	Argon Mix	472	UltimArc®	75 — 900 ipm (1.91 — 22.86 m/min)	
	1.0mm	GMAW AC Pulse	Rapid Z® (§)	Argon Mix	473	UltimArc®	70 — 700 ipm (1.78 — 17.78 m/min)	
	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 CV	Rapid X® (§)	Argon Mix	294	UltimArc®	75 — 700 ipm (1.91 — 17.78 m/min)	
			CV (□)	CO2	252	Pinch	100 — 960 ipm (2.54 — 24.38 m/min)	
		GMAW Pulse	Pulse (□)	Argon Mix	84	Pinch	50 — 1120 ipm (1.27 — 28.45 m/min)	
	1.6 mm	GMAW Pulse	Rapid X® (§, □)	Argon Mix	84	UltimArc®	50 — 600 ipm (1.27 — 15.24 m/min)	
		GMAW CV	CV (□)	Argon Mix	295	UltimArc®	60 — 650 ipm (1.52 — 16.51 m/min)	
	GMAW Pulse	Pulse (□)	Argon Mix	85	Pinch	50 — 450 ipm (1.27 — 11.43 m/min)		
GMAW Pulse	Rapid X® (§, □)	Argon Mix	86	UltimArc®	50 — 450 ipm (1.27 — 11.43 m/min)			
GMAW Pulse	Rapid X® (§, □)	Argon Mix	296	UltimArc®	75 — 450 ipm (1.91 — 11.43 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	Pinch	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	UltimArc®	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)	
			Pulse	Argon Mix	30	UltimArc®	60 — 1200 ipm (1.52 — 30.48 m/min)	
		GMAW STT®	Precision Pulse™	Argon Mix	421	UltimArc®	100 — 600 ipm (2.54 — 15.24 m/min)	
			Synergic STT® (§)	Argon Mix	364	UltimArc®, Hot Start	100 — 300 ipm (2.54 — 7.62 m/min)	
			Ar He CO ₂	365	UltimArc®, Hot Start	100 — 250 ipm (2.54 — 6.35 m/min)		
			NonSynergic STT® (§)	Argon Mix	344	Peak, Background, Tailout, Hot Start	100 — 300 ipm (2.54 — 7.62 m/min)	
	Ar He CO ₂	345	Peak, Background, Tailout, Hot Start	100 — 300 ipm (2.54 — 7.62 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	Pinch	75 — 1000 ipm (1.91 — 25.4 m/min)		
			GMAW Pulse	Pulse	Ar He CO ₂	34	UltimArc®	60 — 1200 ipm (1.52 — 30.48 m/min)
				Argon Mix	36	UltimArc®	60 — 1200 ipm (1.52 — 30.48 m/min)	
		GMAW STT®	Precision Pulse™	Argon Mix	422	UltimArc®	60 — 600 ipm (1.52 — 15.24 m/min)	
			Rapid X® (§)	Argon Mix	283	UltimArc®	100 — 800 ipm (2.54 — 20.32 m/min)	
			Synergic STT® (§)	Argon Mix	366	UltimArc®, Hot Start	100 — 300 ipm (2.54 — 7.62 m/min)	
			Ar He CO ₂	367	UltimArc®, Hot Start	100 — 250 ipm (2.54 — 6.35 m/min)		
			NonSynergic STT® (§)	Argon Mix	346	Peak, Background, Tailout, Hot Start	100 — 300 ipm (2.54 — 7.62 m/min)	
			Ar He CO ₂	347	Peak, Background, Tailout, Hot Start	100 — 300 ipm (2.54 — 7.62 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	Pinch	75 — 700 ipm (1.91 — 17.78 m/min)		
		GMAW Pulse	Pulse	Ar He CO ₂	44	UltimArc®	50 — 700 ipm (1.27 — 17.78 m/min)	
			Argon Mix	46	UltimArc®	50 — 800 ipm (1.27 — 20.32 m/min)		
			Precision Pulse™	Argon Mix	423	UltimArc®	50 — 400 ipm (1.27 — 10.16 m/min)	
			Rapid X® (§)	Argon Mix	284	UltimArc®	100 — 800 ipm (2.54 — 20.32 m/min)	
		GMAW STT®	Synergic STT® (§)	Argon Mix	368	UltimArc®, Hot Start	90 — 200 ipm (2.29 — 5.08 m/min)	
			Ar He CO ₂	369	UltimArc®, Hot Start	90 — 200 ipm (2.29 — 5.08 m/min)		
	NonSynergic STT® (§)	Argon Mix	348	Peak, Background, Tailout, Hot Start	90 — 225 ipm (2.29 — 5.72 m/min)			
Ar He CO ₂		349	Peak, Background, Tailout, Hot Start	90 — 225 ipm (2.29 — 5.72 m/min)				
1.6 mm	GMAW CV	CV (□)	Argon Mix	51	Pinch	50 — 480 ipm (1.27 — 12.19 m/min)		
	GMAW Pulse	Pulse (□)	Argon Mix	56	UltimArc®	50 — 505 ipm (1.27 — 12.83 m/min)		
Stainless Metal Core EC4XX	1.2 mm	GMAW Pulse	Rapid X® (§)	Argon Mix	290	UltimArc®	75 — 800 ipm (1.91 — 20.32 m/min)	
SiBr	1.0mm	GMAW Pulse	Pulse	Argon	192	UltimArc®	80 — 1000 ipm (2.03 — 25.4 m/min)	
		GMAW STT®	Synergic STT® (§)	Argon	336	UltimArc®	120 — 350 ipm (3.05 — 8.89 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 He	502	UltimArc®	75 — 800 ipm (1.91 — 20.32 m/min)	
	1.2mm	GMAW Pulse	Pulse	Ar He	504	UltimArc®	75 — 600 ipm (1.91 — 15.24 m/min)	

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	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*	
	GMAW	Aluminum (AlSi)	1.0 mm	GMAW CV	CV	Argon	148	Pinch	125 — 800
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)
				Precision Pulse™	Argon	566		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)	
GMAW AC Pulse			AC Precision Pulse™(§)	Argon	576	UltimArc®	150 — 700	ipm (3.81 — 17.78 m/min)	
			AC Pulse (§)	Argon	392		125 — 700	ipm (3.18 — 17.78 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)
				Precision Pulse™	Argon	567		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 AC Pulse		AC Precision Pulse™(§)	Argon	577	UltimArc®	125 — 500	ipm (3.18 — 12.7 m/min)		
		AC Pulse (§)	Argon	393		100 — 500	ipm (2.54 — 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)	
			Precision Pulse™ (□)	Argon	568		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)		
GMAW AC Pulse		AC Precision Pulse™(§,□)	Argon	578	UltimArc®	100 — 350	ipm (2.54 — 8.89 m/min)		
		AC Pulse (§,□)	Argon	394		100 — 400	ipm (2.54 — 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)
	Precision Pulse™			Argon	571	150 — 800		ipm (3.81 — 20.32 m/min)	
	GMAW Pulse-on-Pulse®		Pulse-on-Pulse®	Argon	101	Frequency	140 — 800	ipm (3.56 — 20.32 m/min)	
	GMAW AC Pulse		AC Precision Pulse™(§)	Argon	581	UltimArc®	125 — 700	ipm (3.18 — 17.78 m/min)	
		AC Pulse (§)	Argon	397	125 — 800		ipm (3.18 — 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)	
			Precision Pulse™	Argon	572		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 AC Pulse	AC Precision Pulse™(§)	Argon	582	UltimArc®	100 — 700	ipm (2.54 — 17.78 m/min)	
	AC Pulse (§)		Argon	398	85 — 600		ipm (2.16 — 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)	
			Precision Pulse™ (□)	Argon	573		100 — 500	ipm (2.54 — 12.7 m/min)	
GMAW Pulse-on-Pulse®		Pulse-on-Pulse® (□)	Argon	103	Frequency	75 — 350	ipm (1.91 — 8.89 m/min)		
GMAW AC Pulse		AC Precision Pulse™(§,□)	Argon	583	UltimArc®	100 — 400	ipm (2.54 — 10.16 m/min)		
	AC Pulse (§,□)	Argon	399	100 — 400		ipm (2.54 — 10.16 m/min)			
FCAW	Flux Core	All	FCAW-S	Self Shield CV (~)	NA	6	Pinch	10 — 45	V
			FCAW-G	Gas Shield CV (~)	NA	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)		
SMAW	NA	NA	DCEP SMAW	Soft	NA	1	Arc Force, Hot Start	15 — 555	A
				Crisp	NA	2	Arc Force, Hot Start	15 — 555	A
				Pipe	NA	4	Arc Force	50 — 250	A
			DCEN SMAW	SMAW DC- (§)	NA	379	Arc Force, Hot Start	15 — 350	A
			AC SMAW	AC SMAW (§)	NA	374	Arc Force, Hot Start,	15 — 350	A
							Frequency		

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GTAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
	NA	NA	DCEN GTAW	Touch Start GTAW	Ar / He	3	Hot Start	5 — 555 A
Touch Start TIG Pulse				Ar / He	8	Frequency, Background	5 — 555 A	
HF TIG (⊖)				Ar / He	375	Hot Start	5 — 450 A	
HF TIG Pulse (⊖)				Ar / He	376	Frequency, Background	5 — 450 A	
AC GTAW			Touch Start AC TIG(§)	Ar / He	377	AC Frequency, AC Balance, DC Offset, Hot Start	10 — 350 A	
			HF Start AC TIG (§)	Ar / He	378	AC Frequency, AC Balance, DC Offset, Hot Start	10 — 350 A	

CAG	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
	NA	NA	CAG	Arc Gouge (~)	Compressed Air	9		60 — 555 A

GMAW-Tandem	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
	Steel	1.0 mm	GMAW Tandem (Δ,~)	Sync Pulse Lead	Argon Mix	402	UltimArc®, Phase Angle	150 — 800 ipm
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)

HyperFill® ¹	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)
	Steel	0.9 mm	GMAW	HyperFill® (□)	Argon Mix	601	UltimArc®	150 — 650 ipm
HyperFill® STT® (▣)				Argon Mix	651	UltimArc®	100 — 250 ipm	(2.54 — 6.35 m/min)
1.0 mm		GMAW	HyperFill® (□)	Argon Mix	602	UltimArc®	100 — 500 ipm	(2.54 — 12.7 m/min)
			HyperFill® STT® (▣)	Argon Mix	653	UltimArc®	75 — 200 ipm	(1.91 — 5.08 m/min)
Metal Core	1.2 mm	GMAW	HyperFill® (□)	Argon Mix	608	UltimArc®	150 — 415 ipm	(3.81 — 10.54 m/min)
Cored Wire	1.2 mm	FCAW-G	HyperFill® (□)	CO ₂	617		100 — 500 ipm	(2.54 — 12.7 m/min)
			HyperFill® (□)	Argon Mix	618	Pinch	100 — 480 ipm	(2.54 — 12.19 m/min)

GTAW - APEX® ²	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)
	NA	NA	DCEN GTAW	Touch Start TIG	NA	490	Transition Speed	5 — 500 A
HF TIG (⊖)				NA	491	Transition Speed	5 — 500 A	
AC GTAW			Hotwire AC TIG Square Wave(§)	NA	495	Frequency, Balance	0 — 350 A	

GTAW - LincMaster ³	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)
	NA	NA	DCEN GTAW	HF TIG pulse	Ar/He	645	Peak Time, Background Time, and Background	5 — 450 A

PAW - LincMaster ³	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Max. Range (*)
	NA	NA	PAW	Plasma	Ar/He	640		5 — 410 A
Plasma Pulse				Ar/He	641	Peak Time, Background Time, Background	5 — 410 A	

¹HyperFill® & Process HDT™ Waveform Activation Capability with Power Wave® and PIPEFAB™ Systems

Your purchase of a Lincoln Power Wave or PIPEFAB Welding System comes with (i) a license to use Lincoln Electric standard Power Wave / PIPEFAB waveforms, and (ii) HyperFill & Process HDT waveform capability, which requires a separate license. Without the separate license, the HyperFill and Process HDT waveforms are not available for use on these machines, and only the standard Power Wave / PIPEFAB waveforms are usable.

²APEX® System Required

³LincMaster System Required