

**Weld Set Reference: Z163322**  
**Power Wave® S350/i400/S500**

§ Advanced Module Required  
 ‡ STT® or Advanced Module 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 - 23 kW		
GMAW	0.8 mm	GMAW CV	CV	CO <sub>2</sub>	93	Pinch	75 - 1200 ipm		
			Argon Mix	94	75 - 1200 ipm				
		GMAW Pulse	Pulse	Argon Mix	95	UltimArc®	65 - 1200 ipm		
			Precision Pulse™	Argon Mix	410		100 - 600 ipm		
			GMAW CV	CV	CO <sub>2</sub>		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	411		100 - 600 ipm			
		Rapid X™(‡)	Argon Mix	272		75 - 800 ipm			
	GMAW STT®	Synergic STT®(‡)	CO <sub>2</sub>	324	UltimArc®, Hot Start	100 - 225 ipm			
			Argon Mix	325		100 - 225 ipm			
		NonSynergic STT®(‡)	CO <sub>2</sub>	304	Peak, Background, Tailout, Hot Start	100 - 300 ipm			
			Argon Mix	305		100 - 300 ipm			
	1.0 mm	GMAW CV	CV	CO <sub>2</sub>	10	Pinch	50 - 1200 ipm		
			Argon Mix	11	50 - 1200 ipm				
		GMAW Pulse	Pulse	Argon Mix	12	UltimArc®	75 - 1200 ipm		
			RapidArc®	Argon Mix	13		60 - 1200 ipm		
			Precision Pulse™	Argon Mix	412		75 - 600 ipm		
			Rapid X™(‡)	Argon Mix	273		75 - 800 ipm		
		GMAW STT®	Synergic STT®(‡)	CO <sub>2</sub>	326	UltimArc®, Hot Start	90 - 225 ipm		
				Argon Mix	327		90 - 225 ipm		
			NonSynergic STT®(‡)	CO <sub>2</sub>	306	Peak, Background, Tailout, Hot Start	90 - 225 ipm		
				Argon Mix	307		90 - 225 ipm		
		1.2 mm	GMAW CV	CV	CO <sub>2</sub>	20	Pinch	50 - 800 ipm	
				Argon Mix	21	50 - 800 ipm			
	GMAW Pulse		Pulse	Argon Mix	22	UltimArc®	60 - 800 ipm		
			RapidArc®	Argon Mix	18		60 - 800 ipm		
			Precision Pulse™	Argon Mix	413		75 - 600 ipm		
			Rapid X™(‡)	Argon Mix	274		100 - 680 ipm		
	GMAW STT®		Synergic STT®(‡)	CO <sub>2</sub>	328	UltimArc®, Hot Start	90 - 200 ipm		
				Argon Mix	329		90 - 200 ipm		
		NonSynergic STT®(‡)	CO <sub>2</sub>	308	Peak, Background, Tailout, Hot Start	90 - 225 ipm			
			Argon Mix	309		90 - 225 ipm			
	1.4 mm	GMAW CV	CV	CO <sub>2</sub>	24	Pinch	50 - 640 ipm		
			Argon Mix	25	50 - 55 ipm				
GMAW Pulse		Pulse	Argon Mix	26	UltimArc®	50 - 580 ipm			
		RapidArc®	Argon Mix	27		60 - 615 ipm			
		Rapid X™(‡)	Argon Mix	275		75 - 600 ipm			
1.6 mm	GMAW CV	CV	Argon Mix	107	Pinch	50 - 350 ipm			
	GMAW Pulse	Pulse	Argon Mix	108	UltimArc®	50 - 400 ipm			

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		Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*	
<b>GMAW</b>	<b>Stainless</b>	0.8 mm	GMAW CV	CV		Argon Mix	<b>61</b>	Pinch	100 - 1200 ipm	
						He Ar CO <sub>2</sub>	<b>63</b>		100 - 1200 ipm	
			GMAW Pulse	Pulse		He Ar CO <sub>2</sub>	<b>64</b>	UltimArc®	100 - 1200 ipm	
						Argon Mix	<b>66</b>		100 - 1200 ipm	
			0.9 mm	GMAW CV	CV		Argon Mix	<b>29</b>	Pinch	75 - 1200 ipm
							He Ar CO <sub>2</sub>	<b>30</b>		60 - 1200 ipm
		GMAW Pulse		Pulse		Argon Mix	<b>30</b>	UltimArc®	60 - 1200 ipm	
						Argon Mix	<b>421</b>		100 - 600 ipm	
		GMAW STT®		Synergic STT®(‡)		Argon Mix	<b>364</b>	UltimArc®, Hot Start	100 - 300 ipm	
						He Ar CO <sub>2</sub>	<b>365</b>		100 - 250 ipm	
		GMAW STT®	NonSynergic STT®(‡)		Argon Mix	<b>344</b>	Peak, Background, Tailout, Hot Start	100 - 300 ipm		
					He Ar CO <sub>2</sub>	<b>345</b>		100 - 300 ipm		
		1.0 mm	GMAW CV	CV		Argon Mix	<b>31</b>	Pinch	75 - 1200 ipm	
						He Ar CO <sub>2</sub>	<b>33</b>		75 - 1000 ipm	
				GMAW Pulse	Pulse		He Ar CO <sub>2</sub>	<b>34</b>	UltimArc®	60 - 1200 ipm
							Argon Mix	<b>36</b>		60 - 1200 ipm
			GMAW Pulse	Precision Pulse™		Argon Mix	<b>422</b>	UltimArc®	60 - 600 ipm	
						Argon Mix	<b>283</b>		100 - 800 ipm	
	GMAW STT®		Synergic STT®(‡)		Argon Mix	<b>366</b>	UltimArc®, Hot Start	100 - 300 ipm		
					He Ar CO <sub>2</sub>	<b>367</b>		100 - 250 ipm		
	GMAW STT®		NonSynergic STT®(‡)		Argon Mix	<b>346</b>	Peak, Background, Tailout, Hot Start	100 - 300 ipm		
					He Ar CO <sub>2</sub>	<b>347</b>		100 - 300 ipm		
	1.2 mm		GMAW CV	CV		Argon Mix	<b>41</b>	Pinch	75 - 700 ipm	
						He Ar CO <sub>2</sub>	<b>43</b>		75 - 700 ipm	
		GMAW Pulse		Pulse		He Ar CO <sub>2</sub>	<b>44</b>	UltimArc®	50 - 700 ipm	
						Argon Mix	<b>46</b>		50 - 800 ipm	
		GMAW Pulse	Precision Pulse™		Argon Mix	<b>423</b>	UltimArc®	50 - 400 ipm		
					Argon Mix	<b>284</b>		100 - 725 ipm		
GMAW STT®		Synergic STT®(‡)		Argon Mix	<b>368</b>	UltimArc®, Hot Start	90 - 200 ipm			
				He Ar CO <sub>2</sub>	<b>369</b>		90 - 200 ipm			
GMAW STT®		NonSynergic STT®(‡)		Argon Mix	<b>348</b>	Peak, Background, Tailout, Hot Start	90 - 225 ipm			
				He Ar CO <sub>2</sub>	<b>349</b>		90 - 225 ipm			
1.6 mm	GMAW CV	CV		Argon Mix	<b>51</b>	Pinch	50 - 480 ipm			
	GMAW Pulse	Pulse		Argon Mix	<b>56</b>	UltimArc®	50 - 505 ipm			
<b>Metal Core</b>	0.9mm	GMAW Rapid Z™	Rapid Z™(§)		Argon Mix	<b>472</b>	UltimArc®	75 - 900 ipm		
	1.0mm	GMAW Rapid Z™	Rapid Z™(§)		Argon Mix	<b>473</b>	UltimArc®	70 - 700 ipm		
	1.2 mm	GMAW CV	CV		Argon Mix	<b>81</b>	Pinch	50 - 700 ipm		
		GMAW Pulse	Pulse		Argon Mix	<b>82</b>	UltimArc®	50 - 700 ipm		
			Rapid X™(‡)		Argon Mix	<b>294</b>		75 - 800 ipm		
	1.4 mm	GMAW Pulse	Pulse		Argon Mix	<b>84</b>	UltimArc®	50 - 600 ipm		
			Rapid X™(‡)		Argon Mix	<b>295</b>		60 - 495 ipm		
	1.6 mm	GMAW CV	CV		Argon Mix	<b>85</b>	Pinch	50 - 450 ipm		
		GMAW Pulse	Pulse		Argon Mix	<b>86</b>	UltimArc®	50 - 450 ipm		
	Rapid X™(‡)			Argon Mix	<b>296</b>	75 - 285 ipm				

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Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
Aluminum 4XXX	1.0 mm	GMAW CV	CV	Argon	<b>148</b>	Pinch	125 - 800 ipm
		GMAW Pulse	Pulse	Argon	<b>149</b>	UltimArc®	125 - 800 ipm
			CC Pulse	Argon	<b>150</b>		125 - 800 ipm
		GMAW Pulse on Pulse <sup>§</sup>	Pulse on Pulse <sup>§</sup>	Argon	<b>98</b>	Frequency	100 - 500 ipm
	GMAW AC Pulse	AC Pulse (§)	Argon	<b>392</b>	UltimArc®	125 - 700 ipm	
	1.2 mm	GMAW CV	CV	Argon	<b>71</b>	Pinch	125 - 700 ipm
		GMAW Pulse	Pulse	Argon	<b>72</b>	UltimArc®	85 - 600 ipm
			CC Pulse	Argon	<b>69</b>		85 - 600 ipm
		GMAW Pulse on Pulse <sup>§</sup>	Pulse on Pulse <sup>§</sup>	Argon	<b>99</b>	Frequency	85 - 500 ipm
	GMAW AC Pulse	AC Pulse (§)	Argon	<b>393</b>	UltimArc®	100 - 500 ipm	
	1.6 mm	GMAW CV	CV	Argon	<b>73</b>	Pinch	75 - 375 ipm
		GMAW Pulse	Pulse	Argon	<b>74</b>	UltimArc®	75 - 350 ipm
			CC Pulse	Argon	<b>79</b>		75 - 350 ipm
		GMAW Pulse on Pulse <sup>§</sup>	Pulse on Pulse <sup>§</sup>	Argon	<b>100</b>	Frequency	80 - 400 ipm
	GMAW AC Pulse	AC Pulse (§)	Argon	<b>394</b>	UltimArc®	100 - 400 ipm	
	Aluminum 5XXX	1.0 mm	GMAW CV	CV	Argon	<b>151</b>	Pinch
GMAW Pulse			Pulse	Argon	<b>152</b>	UltimArc®	125 - 700 ipm
			CC Pulse	Argon	<b>153</b>		125 - 700 ipm
GMAW Pulse on Pulse <sup>§</sup>			Pulse on Pulse <sup>§</sup>	Argon	<b>101</b>	Frequency	140 - 800 ipm
GMAW AC Pulse		AC Pulse (§)	Argon	<b>397</b>	UltimArc®	125 - 800 ipm	
1.2 mm		GMAW CV	CV	Argon	<b>75</b>	Pinch	125 - 750 ipm
		GMAW Pulse	Pulse	Argon	<b>76</b>	UltimArc®	85 - 700 ipm
			CC Pulse	Argon	<b>70</b>		85 - 700 ipm
		GMAW Pulse on Pulse <sup>§</sup>	Pulse on Pulse <sup>§</sup>	Argon	<b>102</b>	Frequency	100 - 600 ipm
GMAW AC Pulse		AC Pulse (§)	Argon	<b>398</b>	UltimArc®	85 - 600 ipm	
1.6 mm		GMAW CV	CV	Argon	<b>77</b>	Pinch	125 - 500 ipm
		GMAW Pulse	Pulse	Argon	<b>78</b>	UltimArc®	100 - 500 ipm
			CC Pulse	Argon	<b>80</b>		100 - 450 ipm
		GMAW Pulse on Pulse <sup>§</sup>	Pulse on Pulse <sup>§</sup>	Argon	<b>103</b>	Frequency	75 - 350 ipm
GMAW AC Pulse		AC Pulse (§)	Argon	<b>399</b>	UltimArc®	100 - 400 ipm	
SiBr		1.0mm	GMAW Pulse	Pulse	Argon	<b>192</b>	UltimArc®
	1.2mm	GMAW Pulse	Pulse	Argon	<b>191</b>	UltimArc®	50 - 600 ipm
Cu	1.0mm	GMAW Pulse	Pulse	Argon Helium	<b>198</b>	UltimArc®	75 - 500 ipm
	1.2mm	GMAW Pulse	Pulse	Argon Helium	<b>196</b>	UltimArc®	75 - 500 ipm
NiCr	1.0mm	GMAW Pulse	Pulse	Ar/ Ar He	<b>502</b>	UltimArc®	75 - 800 ipm
	1.2mm	GMAW Pulse	Pulse	Ar/ Ar He	<b>504</b>	UltimArc®	75 - 600 ipm

**GMAW**

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FCAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
	Flux Core	All		FCAW-S	STD CV	NA	<b>6</b>	Pinch
FCAW-G				STD CV		<b>7</b>	Pinch	10 - 45 V
1.2 mm		FCAW-G	CV		CO <sub>2</sub>	<b>90</b>	Pinch	175 - 600 ipm
					Argon Mix	<b>91</b>		175 - 600 ipm
1.4 mm		FCAW-G	CV		CO <sub>2</sub>	<b>187</b>	Pinch	150 - 500 ipm
	Argon Mix				<b>188</b>	150 - 500 ipm		
1.6 mm	FCAW-G	CV		CO <sub>2</sub>	<b>189</b>	Pinch	125 - 400 ipm	
				Argon Mix	<b>190</b>		125 - 400 ipm	

SMAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
	NA	NA	NA	DCEP SMAW	SMAW Soft	NA	<b>1</b>	Arc Force, Hot Start
SMAW Crisp					NA	<b>2</b>	Arc Force, Hot Start	15 - 555 A
SMAW Pipe					NA	<b>4</b>	Arc Force	50 - 250 A
DCEN SMAW				SMAW DC- (§)	NA	<b>379</b>	Arc Force, Hot Start	15 - 350 A
AC SMAW				AC SMAW (§)	NA	<b>374</b>	Arc Force, Hot Start, Frequency	15 - 350 A

GTAW	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
	NA	NA	NA	DCEN GTAW	GTAW Touch Start	Argon	<b>3</b>	Hot Start
GTAW-P					Argon	<b>8</b>	Hot Start, Frequency, Background	5 - 555 A
GTAW HF (§)					Argon	<b>375</b>	Hot Start	5 - 450 A
AC GTAW				GTAW-P HF (§)	Argon	<b>376</b>	Hot Start, Frequency, Background	5 - 450 A
				Touch Start AC GTAW (§)	Argon	<b>377</b>	Hot Start, Frequency, Balance, Offset	10 - 350 A
				HF Start AC GTAW (§)	Argon	<b>378</b>	Hot Start, Frequency, Balance, Offset	10 - 350 A

CAG	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
	NA	NA	CAG	CAG	Air	<b>9</b>		60 - 555 A

GMAW-Tandem	Type	Size	Procedure	Waveform	Gas Type	Mode #	Arc Control	Range*
		1.0 mm	GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	<b>402</b>	UltimArc®	150 - 800 ipm
Sync Pulse Trail				Argon Mix	<b>403</b>	150 - 800 ipm		
HotWire Pulse Trail				Argon Mix	<b>461</b>	80 - 800 ipm		
1.2 mm		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	<b>404</b>	UltimArc®	100 - 700 ipm	
			Sync Pulse Trail	Argon Mix	<b>405</b>		100 - 700 ipm	
			HotWire Pulse Trail	Argon Mix	<b>462</b>		75 - 800 ipm	
1.4 mm		GMAW Tandem (Δ)	Sync Pulse Lead	Argon Mix	<b>406</b>	UltimArc®	100 - 600 ipm	
			Sync Pulse Trail	Argon Mix	<b>407</b>		100 - 600 ipm	
			HotWire Pulse Trail	Argon Mix	<b>463</b>		50 - 800 ipm	