

TEMP: 225 ± 10C			PHASE 1				PHASE 2				PHASE 3	PHASE 4			PHASE 5	PHASE 6		
Pipe Details (e _n = Wall Thickness)			Bead Up Pressure (BAR)			Minimum Bead up Size	Heat Soak See Note <i>b</i>			Maximum Heater Removal Time	Maximum Pressure Up Time	Weld Pressure (BAR)			Minimim Cool Time Under Pressure (See Note c)	Additional Cool Time out of Machine (See Note d)	Finished Weld Bead	
			ADD DRAG (see note <i>a</i>)				0 - DRAG ONLY					ADD DRAG					Min	
			P1			t1	P2	t2			t3	t4	P3			t5 / P3		
D _n	SDR	e _n	Min	Tgt	Max	mm	BAR	Min	Tgt	Max			Min	Tgt	Max			mm
90	41	2.2	1	1	1	1	0 - DRAG ONLY	0m 26s	0m 30s	0m 33s	5s	5.7s	1	1	1	0h 5m	<i>d</i>	4
	33	2.7	1	1	1	1		0m 33s	0m 37s	0m 41s	5s	5.7s	1	1	1	0h 6m	<i>d</i>	4
	26	3.5	1	1	1	1		0m 42s	0m 47s	0m 52s	5s	5.7s	1	1	1	0h 6m	<i>d</i>	5
	21	4.3	1	2	2	1		0m 51s	0m 58s	1m 4s	5s	5.7s	1	2	2	0h 7m	<i>d</i>	5
	17	5.3	2	2	2	2		1m 4s	1m 11s	1m 19s	6s	5.7s	2	2	2	0h 8m	<i>d</i>	6
	13.6	6.6	2	2	3	2		1m 19s	1m 29s	1m 39s	6s	5.7s	2	2	3	0h 10m	<i>d</i>	6
	11	8.2	3	3	3	2		1m 38s	1m 50s	2m 3s	8s	5.7s	3	3	3	0h 11m	<i>d</i>	7
	9	10.0	3	3	4	2		2m 0s	2m 15s	2m 30s	8s	5.7s	3	3	4	0h 13m	<i>d</i>	8
	7.4	12.2	4	4	4	2		2m 26s	2m 44s	3m 2s	10s	5.7s	4	4	4	0h 15m	<i>d</i>	9
110	41	2.7	1	1	1	1	0 - DRAG ONLY	0m 32s	0m 36s	0m 40s	5s	6.3s	1	1	1	0h 6m	<i>d</i>	4
	33	3.3	1	2	2	1		0m 40s	0m 45s	0m 50s	5s	6.3s	1	2	2	0h 6m	<i>d</i>	5
	26	4.2	2	2	2	1		0m 51s	0m 57s	1m 3s	5s	6.3s	2	2	2	0h 7m	<i>d</i>	5
	21	5.2	2	2	3	2		1m 3s	1m 11s	1m 19s	6s	6.3s	2	2	3	0h 8m	<i>d</i>	6
	17	6.5	3	3	3	2		1m 18s	1m 27s	1m 37s	6s	6.3s	3	3	3	0h 9m	<i>d</i>	6
	13.6	8.1	3	4	4	2		1m 37s	1m 49s	2m 1s	8s	6.3s	3	4	4	0h 11m	<i>d</i>	7
	11	10.0	4	4	5	2		2m 0s	2m 15s	2m 30s	8s	6.3s	4	4	5	0h 13m	<i>d</i>	8
	9	12.2	4	5	6	2		2m 27s	2m 45s	3m 3s	10s	6.3s	4	5	6	0h 15m	<i>d</i>	9
	7.4	14.9	5	6	7	2		2m 58s	3m 21s	3m 43s	10s	6.3s	5	6	7	0h 18m	<i>d</i>	10
125	41	3.0	1	2	2	1	0 - DRAG ONLY	0m 37s	0m 41s	0m 46s	5s	6.8s	1	2	2	0h 6m	<i>d</i>	5
	33	3.8	2	2	2	1		0m 45s	0m 51s	0m 57s	5s	6.8s	2	2	2	0h 7m	<i>d</i>	5
	26	4.8	2	2	3	1		0m 58s	1m 5s	1m 12s	6s	6.8s	2	2	3	0h 8m	<i>d</i>	5
	21	6.0	3	3	3	2		1m 11s	1m 20s	1m 29s	6s	6.8s	3	3	3	0h 9m	<i>d</i>	6
	17	7.4	3	4	4	2		1m 28s	1m 39s	1m 50s	8s	6.8s	3	4	4	0h 10m	<i>d</i>	7
	13.6	9.2	4	5	5	2		1m 50s	2m 4s	2m 18s	8s	6.8s	4	5	5	0h 12m	<i>d</i>	8
	11	11.4	5	5	6	2		2m 16s	2m 33s	2m 50s	8s	6.8s	5	5	6	0h 14m	<i>d</i>	9
	9	13.9	6	7	7	2		2m 47s	3m 8s	3m 28s	10s	6.8s	6	7	7	0h 17m	<i>d</i>	10
	7.4	16.9	7	8	9	3		3m 23s	3m 48s	4m 13s	10s	6.8s	7	8	9	0h 20m	<i>d</i>	11
140	41	3.4	2	2	2	1	0 - DRAG ONLY	0m 41s	0m 46s	0m 51s	5s	7.2s	2	2	2	0h 6m	<i>d</i>	5
	33	4.2	2	2	3	1		0m 51s	0m 57s	1m 4s	5s	7.2s	2	2	3	0h 7m	<i>d</i>	5
	26	5.4	3	3	3	2		1m 5s	1m 13s	1m 21s	6s	7.2s	3	3	3	0h 8m	<i>d</i>	6
	21	6.7	3	4	4	2		1m 20s	1m 30s	1m 40s	6s	7.2s	3	4	4	0h 10m	<i>d</i>	6
	17	8.2	4	5	5	2		1m 39s	1m 51s	2m 4s	8s	7.2s	4	5	5	0h 11m	<i>d</i>	7
	13.6	10.3	5	6	6	2		2m 4s	2m 19s	2m 34s	8s	7.2s	5	6	6	0h 13m	<i>d</i>	8
	11	12.7	6	7	8	2		2m 33s	2m 52s	3m 11s	10s	7.2s	6	7	8	0h 16m	<i>d</i>	9
	9	15.6	7	8	9	3		3m 7s	3m 30s	3m 53s	10s	7.2s	7	8	9	0h 19m	<i>d</i>	11
	7.4	18.9	9	10	11	3		3m 47s	4m 15s	4m 44s	10s	7.2s	9	10	11	0h 16m	<i>d</i>	12

TEMP: 225 ± 10C			PHASE 1				PHASE 2				PHASE 3	PHASE 4			PHASE 5	PHASE 6		
Pipe Details (e _n = Wall Thickness)			Bead Up Pressure (BAR)			Minimum Bead up Size	Heat Soak See Note <i>b</i>			Maximum Heater Removal Time	Maximum Pressure Up Time	Weld Pressure (BAR)			Minimim Cool Time Under Pressure (See Note c)	Additional Cool Time out of Machine (See Note <i>d</i>)	Finished Weld Bead	
			ADD DRAG (see note <i>a</i>)				0 - DRAG ONLY					ADD DRAG					Min	
			P1			t1	P2	t2			t3	t4	P3			t5 / P3		
D _n	SDR	e _n	Min	Tgt	Max	mm	BAR	Min	Tgt	Max			Min	Tgt	Max			mm
160	41	3.9	2	3	3	1	0 - DRAG ONLY	0m 47s	0m 53s	0m 59s	5s	7.8s	2	3	3	0h 7m	<i>d</i>	5
	33	4.8	3	3	4	1		0m 58s	1m 5s	1m 13s	6s	7.8s	3	3	4	0h 8m	<i>d</i>	5
	26	6.2	4	4	4	2		1m 14s	1m 23s	1m 32s	6s	7.8s	4	4	4	0h 9m	<i>d</i>	6
	21	7.6	4	5	6	2		1m 31s	1m 43s	1m 54s	8s	7.8s	4	5	6	0h 11m	<i>d</i>	7
	17	9.4	5	6	7	2		1m 53s	2m 7s	2m 21s	8s	7.8s	5	6	7	0h 12m	<i>d</i>	8
	13.6	11.8	7	7	8	2		2m 21s	2m 39s	2m 56s	8s	7.8s	7	7	8	0h 15m	<i>d</i>	9
	11	14.5	8	9	10	2		2m 55s	3m 16s	3m 38s	10s	7.8s	8	9	10	0h 18m	<i>d</i>	10
	9	17.8	9	11	12	3		3m 33s	4m 0s	4m 27s	10s	7.8s	9	11	12	0h 21m	<i>d</i>	12
	7.4	21.6	11	13	14	3		4m 19s	4m 52s	5m 24s	12s	7.8s	11	13	14	0h 17m	<i>d</i>	14
180	41	4.4	3	3	4	1	0 - DRAG ONLY	0m 53s	0m 59s	1m 6s	5s	8.4s	3	3	4	0h 7m	<i>d</i>	5
	33	5.5	4	4	5	2		1m 5s	1m 14s	1m 22s	6s	8.4s	4	4	5	0h 8m	<i>d</i>	6
	26	6.9	4	5	6	2		1m 23s	1m 33s	1m 44s	6s	8.4s	4	5	6	0h 10m	<i>d</i>	6
	21	8.6	6	6	7	2		1m 43s	1m 56s	2m 9s	8s	8.4s	6	6	7	0h 12m	<i>d</i>	7
	17	10.6	7	8	9	2		2m 7s	2m 23s	2m 39s	8s	8.4s	7	8	9	0h 14m	<i>d</i>	8
	13.6	13.2	8	9	10	2		2m 39s	2m 59s	3m 19s	10s	8.4s	8	9	10	0h 16m	<i>d</i>	10
	11	16.4	10	11	13	3		3m 16s	3m 41s	4m 5s	10s	8.4s	10	11	13	0h 19m	<i>d</i>	11
	9	20.0	12	14	15	3		4m 0s	4m 30s	5m 0s	12s	8.4s	12	14	15	0h 17m	<i>d</i>	13
	7.4	24.3	14	16	18	3		4m 52s	5m 28s	6m 5s	12s	8.4s	14	16	18	0h 17m	<i>d</i>	15
200	41	4.9	4	4	5	1	0 - DRAG ONLY	0m 59s	1m 6s	1m 13s	6s	9s	4	4	5	0h 8m	<i>d</i>	5
	33	6.1	4	5	6	2		1m 13s	1m 22s	1m 31s	6s	9s	4	5	6	0h 9m	<i>d</i>	6
	26	7.7	6	6	7	2		1m 32s	1m 44s	1m 55s	8s	9s	6	6	7	0h 11m	<i>d</i>	7
	21	9.5	7	8	9	2		1m 54s	2m 9s	2m 23s	8s	9s	7	8	9	0h 13m	<i>d</i>	8
	17	11.8	8	9	11	2		2m 21s	2m 39s	2m 56s	8s	9s	8	9	11	0h 15m	<i>d</i>	9
	13.6	14.7	10	12	13	2		2m 56s	3m 19s	3m 41s	10s	9s	10	12	13	0h 18m	<i>d</i>	10
	11	18.2	12	14	16	3		3m 38s	4m 5s	4m 33s	10s	9s	12	14	16	0h 16m	<i>d</i>	12
	9	22.2	15	17	19	3		4m 27s	5m 0s	5m 33s	12s	9s	15	17	19	0h 17m	<i>d</i>	14
	7.4	27.0	18	20	22	4		5m 24s	6m 5s	6m 45s	16s	9s	18	20	22	0h 18m	<i>d</i>	17
225	41	5.5	5	5	6	2	0 - DRAG ONLY	1m 6s	1m 14s	1m 22s	6s	9.8s	5	5	6	0h 8m	<i>d</i>	6
	33	6.8	6	6	7	2		1m 22s	1m 32s	1m 42s	6s	9.8s	6	6	7	0h 10m	<i>d</i>	6
	26	8.7	7	8	9	2		1m 44s	1m 57s	2m 10s	8s	9.8s	7	8	9	0h 12m	<i>d</i>	7
	21	10.7	9	10	11	2		2m 9s	2m 25s	2m 41s	8s	9.8s	9	10	11	0h 14m	<i>d</i>	8
	17	13.2	11	12	13	2		2m 39s	2m 59s	3m 19s	10s	9.8s	11	12	13	0h 16m	<i>d</i>	10
	13.6	16.5	13	15	16	3		3m 19s	3m 43s	4m 8s	10s	9.8s	13	15	16	0h 20m	<i>d</i>	11
	11	20.5	16	18	20	3		4m 5s	4m 36s	5m 7s	12s	9.8s	16	18	20	0h 17m	<i>d</i>	13
	9	25.0	19	21	24	3		5m 0s	5m 38s	6m 15s	12s	9.8s	19	21	24	0h 18m	<i>d</i>	16
	7.4	30.4	22	25	28	4		6m 5s	6m 50s	7m 36s	16s	9.8s	22	25	28	0h 20m	<i>d</i>	18

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Pipe Details (e _n = Wall Thickness)			Bead Up Pressure (BAR)			Minimum Bead up Size	Heat Soak See Note <i>b</i>			Maximum Heater Removal Time	Maximum Pressure Up Time	Weld Pressure (BAR)			Minimim Cool Time Under Pressure (See Note c)	Additional Cool Time out of Machine (See Note <i>d</i>)	Finished Weld Bead	
			ADD DRAG (see note <i>a</i>)				0 - DRAG ONLY					ADD DRAG					Min	
			P1			t1	P2	t2			t3	t4	P3			t5 / P3		
D _n	SDR	e _n	Min	Tgt	Max	mm	BAR	Min	Tgt	Max			Min	Tgt	Max		mm	
250	41	6.1	6	6	7	2	0 - DRAG ONLY	1m 13s	1m 22s	1m 31s	6s	10.5s	6	6	7	0h 9m	<i>d</i>	6
	33	7.6	7	8	9	2		1m 31s	1m 42s	1m 54s	8s	10.5s	7	8	9	0h 11m	<i>d</i>	7
	26	9.6	9	10	11	2		1m 55s	2m 10s	2m 24s	8s	10.5s	9	10	11	0h 13m	<i>d</i>	8
	21	11.9	11	12	13	2		2m 23s	2m 41s	2m 59s	8s	10.5s	11	12	13	0h 15m	<i>d</i>	9
	17	14.7	13	15	16	2		2m 56s	3m 19s	3m 41s	10s	10.5s	13	15	16	0h 18m	<i>d</i>	10
	13.6	18.4	16	18	20	3		3m 41s	4m 8s	4m 36s	10s	10.5s	16	18	20	0h 16m	<i>d</i>	12
	11	22.7	19	22	25	3		4m 33s	5m 7s	5m 41s	12s	10.5s	19	22	25	0h 17m	<i>d</i>	14
	9	27.8	23	26	29	4		5m 33s	6m 15s	6m 57s	16s	10.5s	23	26	29	0h 19m	<i>d</i>	17
	7.4	33.8	27	31	35	4		6m 45s	7m 36s	8m 27s	16s	10.5s	27	31	35	0h 21m	<i>d</i>	20
280	41	6.8	7	8	9	2	0 - DRAG ONLY	1m 22s	1m 32s	1m 42s	6s	11.4s	7	8	9	0h 10m	<i>d</i>	6
	33	8.5	9	10	11	2		1m 42s	1m 55s	2m 7s	8s	11.4s	9	10	11	0h 11m	<i>d</i>	7
	26	10.8	11	12	14	2		2m 9s	2m 25s	2m 42s	8s	11.4s	11	12	14	0h 14m	<i>d</i>	8
	21	13.3	13	15	17	2		2m 40s	3m 0s	3m 20s	10s	11.4s	13	15	17	0h 16m	<i>d</i>	10
	17	16.5	16	18	21	3		3m 18s	3m 42s	4m 7s	10s	11.4s	16	18	21	0h 19m	<i>d</i>	11
	13.6	20.6	20	23	25	3		4m 7s	4m 38s	5m 9s	12s	11.4s	20	23	25	0h 17m	<i>d</i>	13
	11	25.5	24	28	31	4		5m 5s	5m 44s	6m 22s	12s	11.4s	24	28	31	0h 18m	<i>d</i>	16
	9	31.1	29	33	37	4		6m 13s	7m 0s	7m 47s	16s	11.4s	29	33	37	0h 20m	<i>d</i>	19
	7.4	37.8	34	39	44	5		7m 34s	8m 31s	9m 28s	20s	11.4s	34	39	44	0h 24m	<i>d</i>	22
315	41	7.7	9	10	11	2	0 - DRAG ONLY	1m 32s	1m 44s	1m 55s	8s	12.5s	9	10	11	0h 11m	<i>d</i>	7
	33	9.5	11	12	14	2		1m 55s	2m 9s	2m 23s	8s	12.5s	11	12	14	0h 13m	<i>d</i>	8
	26	12.1	14	16	17	2		2m 25s	2m 44s	3m 2s	10s	12.5s	14	16	17	0h 15m	<i>d</i>	9
	21	15.0	17	19	21	2		3m 0s	3m 23s	3m 45s	10s	12.5s	17	19	21	0h 18m	<i>d</i>	11
	17	18.5	21	23	26	3		3m 42s	4m 10s	4m 38s	10s	12.5s	21	23	26	0h 16m	<i>d</i>	12
	13.6	23.2	25	29	32	3		4m 38s	5m 13s	5m 47s	12s	12.5s	25	29	32	0h 17m	<i>d</i>	15
	11	28.6	31	35	39	4		5m 44s	6m 27s	7m 10s	16s	12.5s	31	35	39	0h 19m	<i>d</i>	17
	9	35.0	37	42	47	4		7m 0s	7m 53s	8m 45s	16s	12.5s	37	42	47	0h 22m	<i>d</i>	21
	7.4	42.6	44	49	55	5		8m 31s	9m 35s	10m 39s	20s	12.5s	44	49	55	0h 27m	<i>d</i>	24