WELDING PARAMETERS

Applicable Standard: ASTM F 2620 / U.S.A.

TURBO 8-18 LP - LOW PRESSURE				
Welding ranges:	8” 10” 12” 14” 16” 18” IPS			**1 Mpa= 145 PSI = 10 Bar = 1 N/mm²**
Max. Pressure:	**1160.0** PSI	8 Mpa	80 Bar	**1mm=0.1cm=0.03937In=0.001217In²**
Cylinder Area:	**5.84** In²	37.7 cm²	TEPA	**1mm² = 0.01 cm² = 0.00155 In²**
IFP:	75 PSI	0.517 Mpa	5.17 Bar	
Material:	PE			

Note: Add the (DRAG) 30 PSI = 0.20 Mpa = 0.20 N/mm² = 20.68 N/cm²

Drag pressure is the pressure to overcome the friction during machine carriage movement. It should be added to the total fusion pressure.

This machine has a **max pressure of 1160 PSI** and a **cylinder area of 5.84 In²** if the pipe to weld exceed the max pressure, you need to use the next size Machine, which has more force due to a larger cylinder area or pressure.

The lower the SDR pipe number, the thicker the wall of the pipe will be. Which requires more time and pressure to complete a proper weld.

IMPORTANT

Pipe and fitting manufacturers have established qualified fusion procedure which should be followed precisely. You should obtain a copy of the pipe manufacturer's fusion procedures or appropriate joining standard for the pipe being fused. Follow the procedure carefully and adhere to all specified parameters.

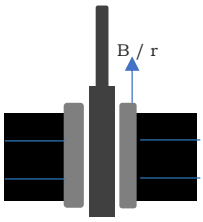
Butt fusion Terminology

Welding terminology

T = Time

P = Pressure

B = Bead size



Pipe terminology

ND = Nominal **D**iameter

DIN = Internal Diameter

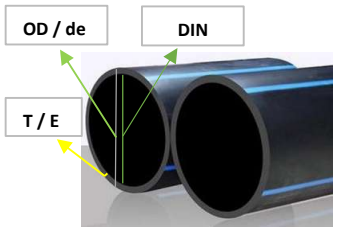
OD = Outside **D**iameter

T = Thickness

PN = Nominal **P**ressure

SDR = Standard **D**imensional **R**atio

Relation between the Outside diameter and Thickness of the wall



Temperature terminology

Celsius to Fahrenheit

1°C = 33.8 °F **1°F =** -17.22 °C

¿°F? = (›**¿°C? =** (X°F – 32 * 5/9) = °C

Pressure terminology

PSI= Pound square inches

MPa= Mega Pascal

1 MPa= 10 Bar = 145 PSI = 1 N/mm² = 100 N/cm²

1 In² = 6.4516 cm²

1 cm² = 100 mm² = 0.155 In²

1 mm²= 0.01 cm² = 0.00155 In² = 0.00001076 Ft²

1 mm = 0.1 cm = 0.03937 In = 0.7854 mm² = 0.001217 In²

+ 30 PSI	

					P1		P2	T2	T3	T4	P5	T5
Pipe Size	OD	Wall Thickness	SDR	Heater Temp	Bead Up Force	(+30PSI Drag)	Heat Soak Force	Heat Soak time	Remove Heating tool	Start Fusion	Fuse/Cool Force	Cooling time
Inch	Inch	mm	SDR	°F	PSI	PSI	PSI	S	S	S	PSI	Min
18	18	2.57	7	450	1599	1629	30	27	4	4	1599	1.1
18	18	2.00	9	450	1290	1320	30	21	4	4	1290	0.9
18	18	1.64	11	450	1079	1109	30	17	4	4	1079	0.7
18	18	1.33	13.5	450	896	926	30	14	4	4	896	0.6
18	18	1.06	17	450	723	753	30	11	4	4	723	0.5
18	18	0.86	21	450	592	622	30	9	4	4	592	0.4
18	18	0.69	26	450	483	513	30	7	4	4	483	0.3
18	18	0.55	32.5	450	389	419	30	6	4	4	389	0.2

+ 30 PSI	

					P1		P2	T2	T3	T4	P5	T5
Pipe Size	OD	Wall Thickness	SDR	Heater Temp	Bead Up Force	(+30PSI Drag)	Heat Soak Force	Heat Soak time	Remove Heating tool	Start Fusion	Fuse/Cool Force	Cooling time
Inch	Inch	mm	SDR	°F	PSI	PSI	PSI	S	S	S	PSI	Min
16	16	2.29	7	450	1263	1293	30	24	4	4	1263	1.0
16	16	1.78	9	450	1019	1049	30	19	4	4	1019	0.8
16	16	1.45	11	450	853	883	30	15	4	4	853	0.6
16	16	1.19	13.5	450	708	738	30	13	4	4	708	0.5
16	16	0.94	17	450	571	601	30	10	4	4	571	0.4
16	16	0.76	21	450	468	498	30	8	4	4	468	0.3
16	16	0.62	26	450	382	412	30	7	4	4	382	0.3
16	16	0.49	32.5	450	308	338	30	5	4	4	308	0.2

+ 30 PSI	

					P1		P2	T2	T3	T4	P5	T5
Pipe Size	OD	Wall Thickness	SDR	Heater Temp	Bead Up Force	(+30PSI Drag)	Heat Soak Force	Heat Soak time	Remove Heating tool	Start Fusion	Fuse/Cool Force	Cooling time
Inch	Inch	mm	SDR	°F	PSI	PSI	PSI	S	S	S	PSI	Min
14	14	2.00	7	450	967	997	30	21	4	4	967	0.9
14	14	1.56	9	450	780	810	30	17	4	4	780	0.7
14	14	1.27	11	450	653	683	30	14	4	4	653	0.6
14	14	1.04	13.5	450	542	572	30	11	4	4	542	0.4
14	14	0.82	17	450	437	467	30	9	4	4	437	0.4
14	14	0.67	21	450	358	388	30	7	4	4	358	0.3
14	14	0.54	26	450	292	322	30	6	4	4	292	0.2
14	14	0.43	32.5	450	236	266	30	5	4	4	236	0.2

+ 30 PSI	

					P1		P2	T2	T3	T4	P5	T5
Pipe Size	OD	Wall Thickness	SDR	Heater Temp	Bead Up Force	(+30PSI Drag)	Heat Soak Force	Heat Soak time	Remove Heating tool	Start Fusion	Fuse/Cool Force	Cooling time
Inch	Inch	mm	SDR	°F	PSI	PSI	PSI	S	S	S	PSI	Min
12	12.8	1.82	7	450	802	832	30	19	4	4	802	0.8
12	12.8	1.42	9	450	647	677	30	15	4	4	647	0.6
12	12.8	1.16	11	450	541	571	30	12	4	4	541	0.5
12	12.8	0.94	13.5	450	449	479	30	10	4	4	449	0.4
12	12.8	0.75	17	450	363	393	30	8	4	4	363	0.3
12	12.8	0.61	21	450	297	327	30	6	4	4	297	0.3
12	12.8	0.49	26	450	242	272	30	5	4	4	242	0.2
12	12.8	0.39	32.5	450	195	225	30	4	4	4	195	0.2

+ 30 PSI	

					P1		P2	T2	T3	T4	P5	T5
Pipe Size	OD	Wall Thickness	SDR	Heater Temp	Bead Up Force	(+30PSI Drag)	Heat Soak Force	Heat Soak time	Remove Heating tool	Start Fusion	Fuse/Cool Force	Cooling time
Inch	Inch	mm	SDR	°F	PSI	PSI	PSI	S	S	S	PSI	Min
10	10.8	1.54	7	450	570	600	30	16	4	4	570	0.7
10	10.8	1.19	9	450	460	490	30	13	4	4	460	0.5
10	10.8	0.98	11	450	385	415	30	10	4	4	385	0.4
10	10.8	0.80	13.5	450	319	349	30	8	4	4	319	0.3
10	10.8	0.63	17	450	258	288	30	7	4	4	258	0.3
10	10.8	0.51	21	450	211	241	30	5	4	4	211	0.2
10	10.8	0.41	26	450	172	202	30	4	4	4	172	0.2
10	10.8	0.33	32.5	450	139	169	30	4	4	4	139	0.1

+ 30 PSI	

					P1		P2	T2	T3	T4	P5	T5
Pipe Size	OD	Wall Thickness	SDR	Heater Temp	Bead Up Force	(+30PSI Drag)	Heat Soak Force	Heat Soak time	Remove Heating tool	Start Fusion	Fuse/Cool Force	Cooling time
Inch	Inch	mm	SDR	°F	PSI	PSI	PSI	S	S	S	PSI	Min
8	8.63	1.23	7	450	368	398	30	13	4	4	368	0.5
8	8.63	0.96	9	450	296	326	30	10	4	4	296	0.4
8	8.63	0.78	11	450	248	278	30	8	4	4	248	0.3
8	8.63	0.64	13.5	450	206	236	30	7	4	4	206	0.3
8	8.63	0.51	17	450	166	196	30	5	4	4	166	0.2
8	8.63	0.41	21	450	136	166	30	4	4	4	136	0.2
8	8.63	0.33	26	450	111	141	30	4	4	4	111	0.1
8	8.63	0.27	32.5	450	90	120	30	3	4	4	90	0.1