

HDPE Welding Mission Statement

• **Butt Welding:**

Butt Fusion Welding uses a heating plate on the ends of the HDPE pipes or fittings to weld them together.

Welding Steps:

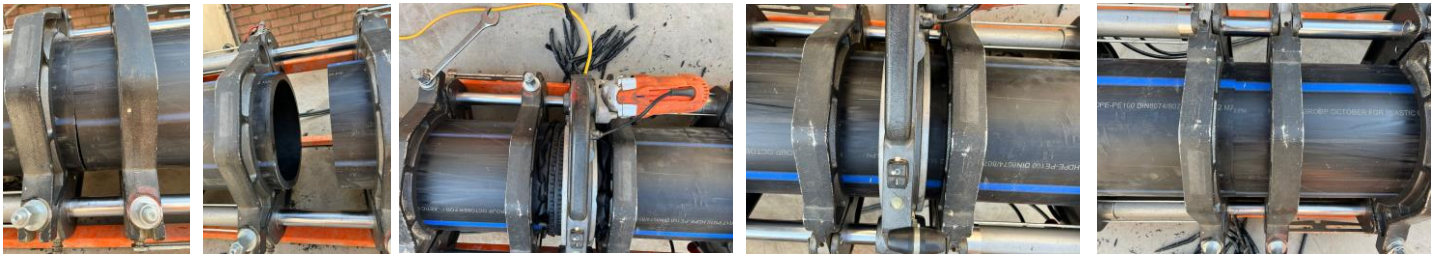
1	Align pipes by tightening the clamps while the two pipes are spaced -10-20cm.
2	Chamfer & clean of pipe's ends using the Chamfering machine.
3	Put the heater plate and press using the bead-up pressure button with guidance of equipment curves.
4	Pressure continues until circular bead shows up with required minimum thickness.
5	After circular bead appearance decreasing of pressure gradually 0+ (i.e., 0-1 bar) to insure the contact between pipe's end and heater.
6	Elapsed time should take place as per the table of welding machine.
7	Clamps shall be opened to remove the heater then close the clamps back taking in consideration changeover time stated in the table.
8	Restore the required welding pressure according to the mentioned time as shown in the table (Ritmo catalogue).
9	The pressure will be maintained during cooling time completion as per the table of welding machine.

Welding Steps Images:

- (1) The pipe is loaded on the welding machine using clamps:



- (2) Create smooth clean surface by chamfering the pipes edges:



- (3) Heating plate are heated up and places between the two pipes to heat the edges as per (machine welding tables):



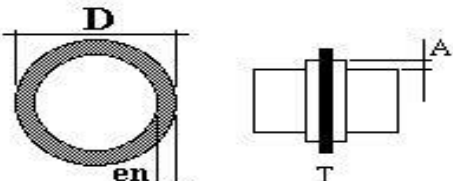
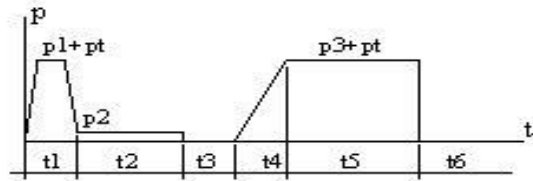
- (4) Heating plate is removed & pressure is applied to bond the pipes together:



***Welding carried out according to DVS standards**

Example for the welding machines table for Polyethene welding

BASIC 315(V0,V1)-TEPA=6.68cm² 1.04in² PE-DVS2207-1 (08-15) bar-C-mm-EN300°C.pdf
SET and GO PRO V.1.4.5 2022.06.27 - 15:01:20 EET

BASIC 315(V0,V1) Piston area = 6.68 cm ² (1.04 in ²) DVS2207/1 (08/15) pi = 0.15MPa PE	Room temp. = 30.0°C  
---	---

The selected machine can weld pipes only when (p1+pt) pressure stays within the range stated by the datasheet of its operator manual.

Diameter	D	en	SDR	T min inhom. max	p1	A	p2	t2	t3max	t4	p3	t5
mm	mm	mm	=D/en	°C	bar	mm	bar	s	s	s	bar	(30.0°C)
90	90	2.2	41	210/220/230	1	0.5	0	22	5	5	1	6 min 30 s
90	90	2.73	33	210/220/230	2	0.5	0	27	5	5	2	6 min 30 s
90	90	2.77	32.5	210/220/230	2	0.5	0	28	5	5	2	6 min 30 s
90	90	3.5#	26	210/220/230	2	0.5	0	35	5	5	2	6 min 30 s
90	90	4.3#	21	210/220/230	3	0.5	0	43	5	5	3	6 min 30 s
90	90	4.74	19	210/220/230	3	1	0	47	5	5	3	6 min 47 s
90	90	5.11	17.6	210/220/230	3	1	0	51	5	5	3	7 min 14 s
90	90	5.4#	17	210/220/230	3	1	0	54	5	5	3	7 min 35 s
90	90	5.81	15.5	210/220/230	3	1	0	58	6	6	3	8 min 4 s
90	90	6.7#	13.6	210/220/230	4	1	0	67	6	6	4	9 min 8 s
90	90	6.67	13.5	210/220/230	4	1	0	67	6	6	4	9 min 6 s
90	90	7.83	11.5	210/220/230	5	1.5	0	78	6	6	5	10 min 29 s
90	90	8.2#	11	210/220/230	5	1.5	0	82	6	6	5	10 min 56 s
90	90	9.68	9.3	210/220/230	5	1.5	0	97	7	7	5	12 min 43 s
90	90	10.1#	9	210/220/230	6	1.5	0	101	7	7	6	13 min 13 s
90	90	12.3#	7.4	210/220/230	7	2	0	123	8	8	7	15 min 32 s
90	90	12.33	7.3	210/220/230	7	2	0	123	8	8	7	15 min 54 s
90	90	12.86	7	210/220/230	7	2	0	129	8	8	7	16 min 32 s
90	90	15#	6	210/220/230	8	2	1	130	9	9	8	19 min 9 s
110	110	2.68	41	210/220/230	2	0.5	0	27	5	5	2	6 min 30 s
110	110	3.33	33	210/220/230	3	0.5	0	33	5	5	3	6 min 30 s
110	110	3.38	32.5	210/220/230	3	0.5	0	34	5	5	3	6 min 30 s
110	110	4.2#	26	210/220/230	3	0.5	0	42	5	5	3	6 min 30 s
110	110	5.3#	21	210/220/230	4	1	0	53	5	5	4	7 min 28 s
110	110	5.79	19	210/220/230	4	1	0	58	6	6	4	8 min 3 s
110	110	6.25	17.6	210/220/230	5	1	0	62	6	6	5	8 min 36 s
110	110	6.6#	17	210/220/230	5	1	0	66	6	6	5	9 min 1 s
110	110	7.1	15.5	210/220/230	5	1.5	0	71	6	6	5	9 min 37 s
110	110	8.1#	13.6	210/220/230	6	1.5	0	81	6	6	6	10 min 49 s
110	110	8.15	13.5	210/220/230	6	1.5	0	81	6	6	6	10 min 55 s
110	110	9.57	11.5	210/220/230	7	1.5	0	96	7	7	7	12 min 35 s
110	110	10#	11	210/220/230	7	1.5	0	100	7	7	7	13 min 6 s
110	110	11.83	9.3	210/220/230	8	1.5	1	118	8	8	8	15 min 18 s
110	110	12.3#	9	210/220/230	8	2	1	123	8	8	8	15 min 52 s
110	110	15.1#	7.4	210/220/230	10	2	1	151	9	9	10	19 min 16 s
110	110	15.07	7.3	210/220/230	10	2	1	151	9	9	10	19 min 14 s
110	110	15.71	7	210/220/230	10	2	1	157	9	10	10	20 min 1 s
110	110	18.3#	6	210/220/230	12	2	1	183	10	11	12	25 min 9 s
125	125	3.05	41	210/220/230	3	0.5	0	30	5	5	3	6 min 30 s
125	125	3.79	33	210/220/230	3	0.5	0	38	5	5	3	6 min 30 s
125	125	3.85	32.5	210/220/230	3	0.5	0	38	5	5	3	6 min 30 s
125	125	4.8#	26	210/220/230	4	1	0	48	5	5	4	6 min 52 s
125	125	6#	21	210/220/230	5	1	0	60	6	6	5	8 min 18 s
125	125	6.58	19	210/220/230	5	1	0	66	6	6	5	9 min
125	125	7.1	17.6	210/220/230	6	1.5	0	71	6	6	6	9 min 37 s
125	125	7.4#	17	210/220/230	6	1.5	0	74	6	6	6	9 min 59 s
125	125	8.06	15.5	210/220/230	7	1.5	0	81	6	6	7	10 min 47 s
125	125	9.2#	13.6	210/220/230	8	1.5	1	92	7	7	8	12 min 8 s
125	125	9.26	13.5	210/220/230	8	1.5	1	93	7	7	8	12 min 15 s
125	125	10.87	11.5	210/220/230	9	1.5	1	109	8	8	9	14 min 9 s
125	125	11.4#	11	210/220/230	9	1.5	1	114	8	8	9	14 min 47 s
125	125	13.44	9.3	210/220/230	11	2	1	134	8	9	11	17 min 15 s
125	125	14#	9	210/220/230	11	2	1	140	9	9	11	17 min 56 s
125	125	17.1#	7.4	210/220/230	13	2	1	171	9	10	13	21 min 42 s

* Remember to add to this value the drag pressure pt previously measured.
Thickness according to std. EN 12201-2:2011+A1:2013

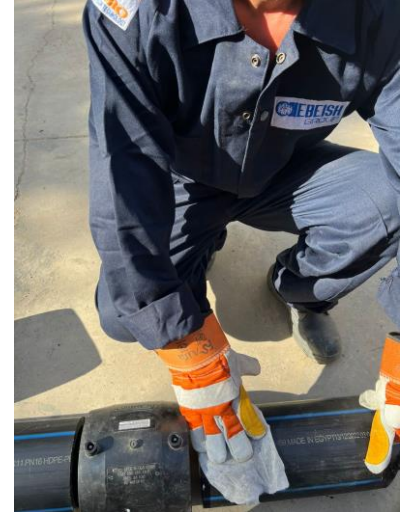
*** This is Only an Example not to be used as a reference.**

- **Electrofusion:**

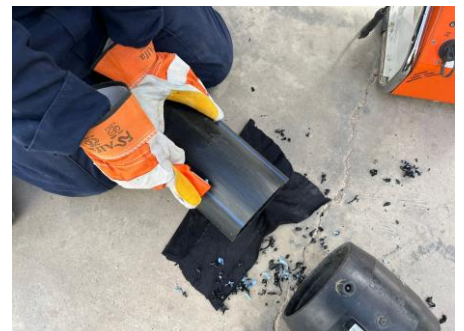
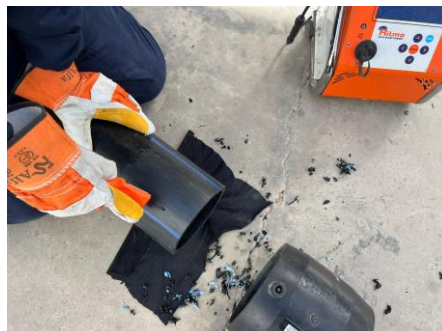
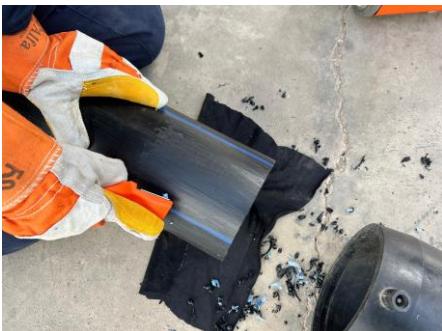
Electrofusion – joins pipes and fittings using special fittings that have a resistive wire built in, and that wire fuses the join. Voltage is applied with an electrofusion processor, which heats the wire, heating and melting the inside of the fitting and outside of the pipe wall.

Welding Steps Images:

(1) Create smooth clean surface by chamfering the pipes edges:



(2) Scraping the pipes edges using the scraping tool:



(3) Aligning the tow pipes on the same line horizontally:



(4) Connect the output leads to the fitting terminals until the weld finished:



Other Type for Connection

- Mechanical joints with stub flanges:

STUB FLANGE

- 1) Place the flange ring on the PE pipe.
- 2) Butt-fuse the stub flange to the pipe's end.
- 3) Locate the flange gasket.
- 4) Bolt the flange, using a torque wrench as outlined in the instructions.

