

HydroVAR

DRAIN SYSTEMS

HDPE PIPE & FITTING

Soil, Waste, & Vent Application



High Density Polyethylene

The Hydrovar Drain Systems Pipes and Fittings can be used for Soil, Waste and Vent manufactured from a high density polyethylene material. Hydrovar Drain Systems are jointed by welding, making the joints resistant to tension. The welding methods are (1)butt fusion jointing and (2)electro fusion jointing.

Advantages of the HDPE Same-Floor Drain System

1. Corrosion Resistance:

- The HDPE system can withstand chemical agents and electrochemical corrosion, making it durable for long-term use in various environments.

2. No Exposure for Fusion Joint Parts:

- The system uses fusion joints instead of traditional connectors, ensuring a seamless connection throughout the pipe.
- This improves structural integrity and prevents leaks.

3. High Flexibility and Resistance to Ground Movements:

- HDPE pipes can elongate up to 350% before breaking.
- They also withstand ground settlement and uneven load distribution, reducing the risk of damage over time.

4. Resistance to Crack Propagation:

- The material is also highly resistant to rapid crack formation, ensuring structural stability even under stress.

5. Long Service Life:

- Under normal conditions, the system can also last for at least 50 years, making it a cost-effective choice.

6. Lightweight and Easy to Install:

- The light weight of HDPE pipes makes them easier to transport and install.

7. Recyclability and Sustainability:

- HDPE pipes can be recycled and reclaimed, making them an eco-friendly drainage solution.



Production





Dimension

HDPE Pipe

50*3.0	110*4.2	250*9.6
63*3.0	125*4.8	315*12.1
75*3.0	160*6.2	
90*3.5	200*7.7	



Access Elbow/Bend 45°

50	110
75	160



90° Elbow/Bend

50	110	250
63	125	315
75	160	
90	200	



90° Access Elbow/Bend

50	110
63	125
75	160
90	200



45° Elbow/Bend

50	90	200
56	110	250
63	125	315
75	160	



P-Trap

50	50
75	75
110	110



S-Trap

50	50
75	75
110	110

Dimension

Tee/Branch 45°



50*50*50	125*75*125	250*90*250
56*56*56	125*90*125	250*110*250
63*50*63	125*110*125	250*125*250
63*63*63	125*125*125	250*160*250
75*50*75	160*75*160	250*200*250
75*63*75	160*90*160	250*250*250
75*75*75	160*110*160	315*110*315
90*50*90	160*125*160	315*125*315
90*63*90	160*160*160	315*160*315
90*75*90	200*75*200	315*200*315
90*90*90	200*90*200	315*250*315
110*50*110	200*110*200	315*315*315
110*63*110	200*125*200	
110*75*110	200*160*200	
110*90*110	200*200*200	
110*110*110		



Double WYE 45°

110*110
160*110
160*160

Eccentric Reducer



63*50	110*56	200*90
63*56	110*63	200*110
75*50	110*75	200*125
75*56	110*90	200*160
75*63	125*75	250*110
90*50	125*90	250*125
90*56	125*110	250*160
90*63	160*75	250*200
90*75	160*90	315*160
110*50	160*110	315*200
	160*125	315*250

Tee/Branch 89.5°



50*50	50	160*160
75*50	75	200*110
75*75	110	200*160
90*50	125*125	200*200
90*90	160*75	
110*50	160*110	



Dimension

Expansion Joint

50	125
75	160
90	200
110	



Vent Cap

50
75
110
180



Expansion Joint

75	160
90	200
110	250
125	315



Sovent

110



Cap

50	110
75	160



Clearout

50	125
75	160
90	200
110	

Dimension

Access Tee



75	125	110
90	160	250
110	200	315

Multi Exit Cross



90° 110
180° 110

Branch Clearout 90°



50	110
63	125
75	160
90	200

Floor Drain (Two Path)



50
50

Floor Drain (Single Path)



110



Dimension

EF WYE/Branch

50* 50	110*75
75*50	110*110
75*75	160
110*50	160*110



EF Elbow/Bend

50	125
75	160
90	200
110	



EF Access Elbow/Bend

75
110
160



EF Elbow/Bend

50	125
75	160
90	200
110	



EF 90° Clearout

75
110
160
200



Dimension

EF Electric Reducer

75*50	110*75
110*50	160*110



Tee/Branch 88.5°

50* 50	110*110	110*75
75*50	160*110	
75*75	160	
110*50	200*100	



EF Tee/Branch (45°)

50* 50	110*75
75*50	110*110
75*75	160
110*50	160*110



EF Coupling

50	125
56	160
63	200
75	250
90	315
110	

Product specifications**Basic material**

Hydrovar waste-water pipes and fittings are manufactured from PE - HD material.

Colour

Black

Properties

Melt flow index:	0.3 – 0.89 g/10 min
Coefficient of expansion:	0.2 mm/m °C
UV resistance:	given by carbon content of 2 – 2.5 %

Fire behavior

DIN 4102, B2

Butt-welding Procedure

Butt-welding is a very economical jointing technique. Correctly made butt-welds reach the strength of the pipe. Well-trained personnel are recommended for making butt-welds.

In butt welding, two pipe ends, two fitting ends or a pipe end and a fitting end are bonded by melting the circular pipe faces simultaneously and pressing these together. Butt-welding can only be performed using a butt-welding machine.

The butt-welding procedure

incorporates the following 15 steps:

1. Check environmental conditions.

When the outside temperature is below 5 °C and/or during rainy and windy conditions, special precautionary measures have to be taken to ensure dry and sufficiently warm welding conditions.

2. Check welding machine is in good functional order.

At least the following issues should be checked: temperature, alignment, play of the moving parts, smooth movement of the moving parts, electrical connections, cutting machining plane (sharpness).

Figure 1.

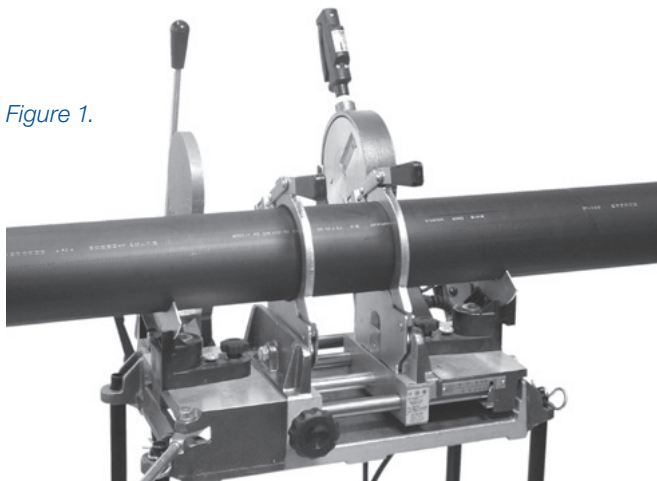
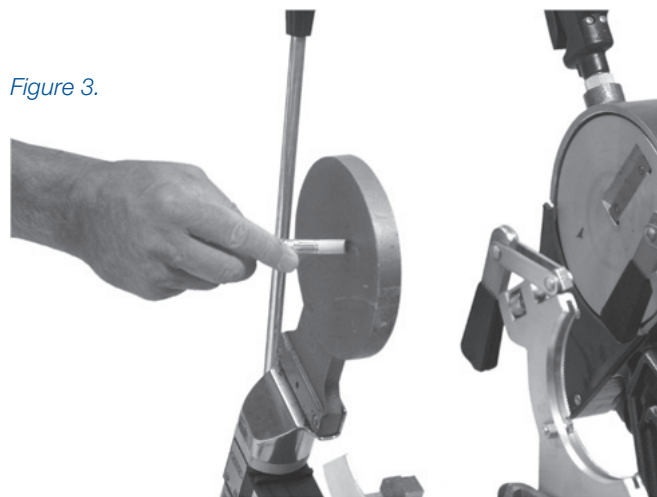
**3. Clean heater plate with PE cleaner and a soft cloth**
Prevent any damage of the Teflon coating.

Figure 2.

**4. Check temperature heater plate on 210 °C.**

Figure 3.

**5. Cut pipe to required length.**

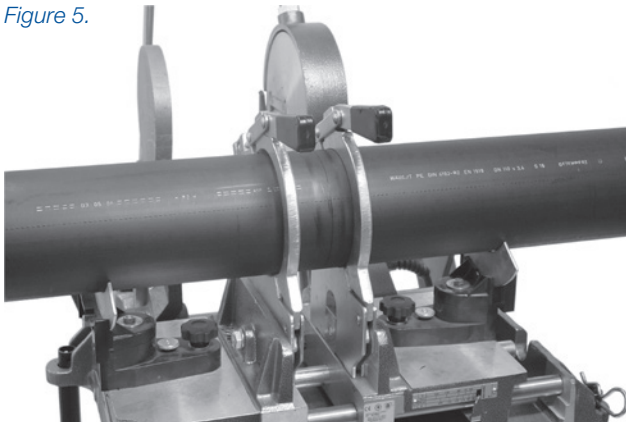
Note: take into account that in the welding process a few millimetres pipe will be consumed. Best practice is to use a rotary pipe cutter. The pipe ends are then square and free from burrs. If a saw is used, it is advised to use a spare clamp as a sawing guide. Such cut pipe ends must be de-burred before placing in the welding machine.

Figure 4.



- 6. Clamp both pipe-ends in the welding machine and ensure correct alignment.**
Eliminate any bending forces if present.

Figure 5.



- 7. Trim both pipe-ends using the planer.**
Keep planer running while slowly reducing pressure.
Do not stop planer when still in contact with pipe ends in order to prevent uneven surfaces.

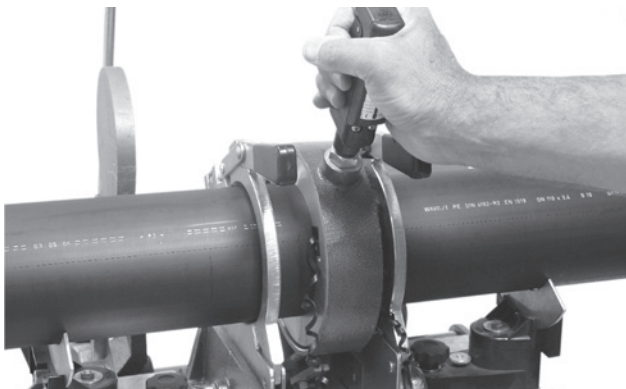
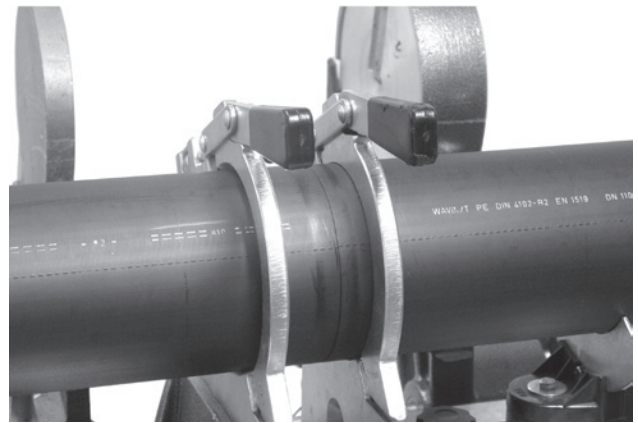


Figure 6.

- 8. Check that pipe ends are matching.**

If not correct either re-clamp pipes (alignment) and/or repeat trimming. After re-clamping it is necessary to trim the pipe-end again with a planer.

Figure 7.



- 9. Insert heater plate and press both pipe ends during a few seconds with a higher force on the plate for ensuring full contact.**

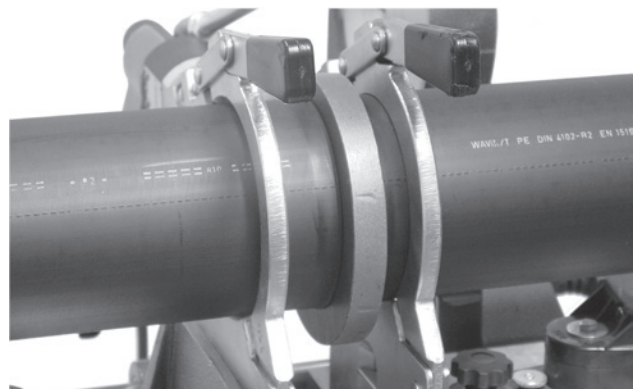


Figure 8.

10. Reduce force until nearly zero, assuring contact with heater plate so that heat is soaked into both pipe ends.

11. Maintain heat soaking till a bead is formed of approximate 1 mm for diameters 40 up to 200 and 1.5 mm for diameters 250 and 315 mm.

Use the figures mentioned in table 2 as guidance for the heat soaking duration.

12. After heating time is elapsed, quickly open the welding machine, remove the heater plate and close immediately.

This part of the welding operation must be kept as short as possible in order not to loose too much heat!

Figure 9.

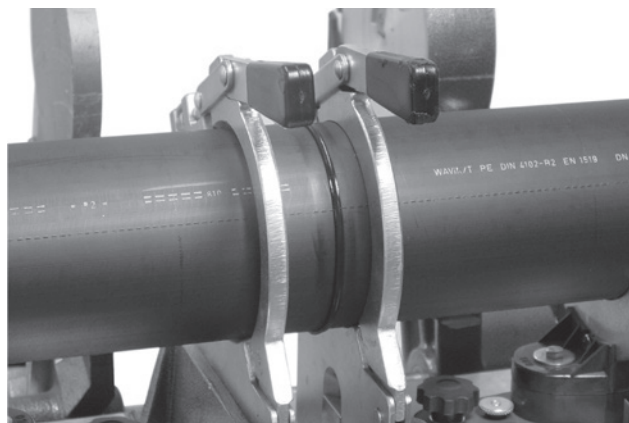


Table 2. Guidance of the heat soaking duration (in seconds) for butt-welding.

Diameter	40	50-110	125	160	200	250	315
Time [s]	30	40	60	80	100	140	170

Diameter	40-75	90	110	125	160	200	250	315
Time [s]	60	70	80	100	120	200	280	340

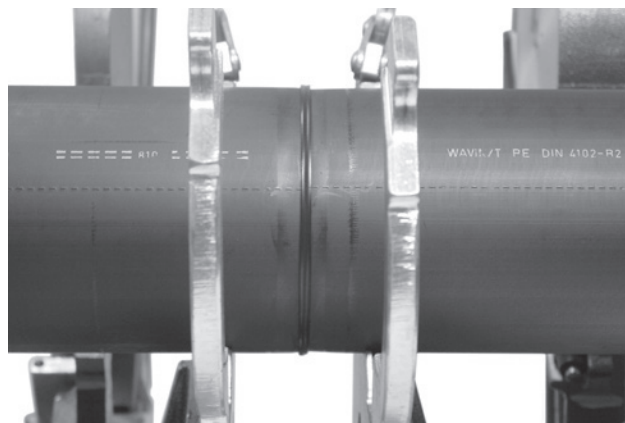
Table 2a. Guidance of the minimum cooling time (in seconds) for butt-welding at 20° C.

13. Slowly apply welding force and maintain for required cooling time according to table 2a.

14. Inspect weld bead for evenness.

Uneven weld beads indicate incorrect alignment or out of roundness. Large weld beads could be caused by either too high a heater temperature and/or too high a welding force. A small weld bead could be caused by a too low a heater temperature and/or too low a welding force. In both cases the weld should be rejected due to reduced strength.

Figure 10.



15. Remove welded joint from the welding machine after cooling time is elapsed.

The joint need to be kept free from any loads within 5 minutes after the cooling time is elapsed.

If the above steps are followed correctly, the above mentioned four basic requirements should be fully met.

Installation: Required tools:

- ④ Pipe cutter
- ④ Circumferential measuring tape
- ④ Rotary peeler or hand scraper
- ④ PE cleaner
- ④ Lint-free, colorless and clean cloth
- ④ Measuring stick
- ④ Permanent marker
- ④ 230VAC power supply
- ④ Pipe clamp if appropriate

Electro fusion couplers, weld time (approx.)

Note: the data given in the following table is approximated, since weld times are dependent on ambient temperature and are a function of the welding equipment used. The data given in the table is relevant to ambient temperatures of 23 °C and 230 V supply.

WaviDuo electro fusion coupler

Dimension	Weldingtime (ca.)
mm	s
40 – 160	82
200 - 315	370

Installation: Required tools:

- Pipe cutter
- Circumferential measuring tape
- Rotary peeler or hand scraper
- PE cleaner
- Lint-free, colorless and clean cloth
- Measuring stick
- Permanent marker
- 230VAC power supply
- Pipe clamp if appropriate

Electro fusion jointing procedure

- 1) Clean pipe roughly in the circumferential direction, cut precisely square with pipe cutter and deburr edges. Cut off obvious reversed pipe ends.
- 2) Check fusion ends with a circumferential measuring tape before and after peeling operation. Adhere to standards and specifications (EN 12666-1). (See Table 3).
- 3) Measure the length of the coupler with a measuring stick to calculate the peeling length. Formula for peeling length: $(\text{coupler length} / 2) + 10\text{mm}$. In case of use as a sliding coupler or repair coupler the peeling length is equal to the length of the coupler. Remove center stop with a knife.
- 4) Measure area which must be peeled with a measuring stick on the pipe and mark with a permanent marker.
- 5) Peel pipe with a rotary peeler or hand scraper past the marking. Do not use sand paper. Ensure that the complete surface of the peeling area is peeled sufficiently. Minimum peeling thickness of 0.2 mm. (See Table 3).
- 6) Clean the peeled area of the pipe with PE cleaner using a clean, lint-free, colorless cloth in circumferential direction and let the cleaner evaporate.
- 7) Always mark the insertion depth with a permanent marker on the pipe. Formula for insertion depth: $(\text{coupler length} / 2)$. See NOTICE Faulty pipe connection (page 12)!
- 8) Clean the inside of the electro fusion coupler with PE cleaner using a clean, lint-free, colorless cloth in circumferential direction and let the cleaner evaporate until coupler is free of residues.
- 9) Proper marking allows complete control over fully inserting the pipe and movements of pipe and fittings during the welding process. See NOTICE Faulty pipe connection (page 12)!
- 10) Ensure a low stress installation. Secure pipe and electro fusion coupler against movements. If appropriate, use pipe clamps to hold the system in place.
- 11) Follow the instructions on the display of the welding machine. Control and supervise fusion process. Do not touch the electro fusion coupler during the fusion process and the cooling time. Risk to be burned!



Step 3.

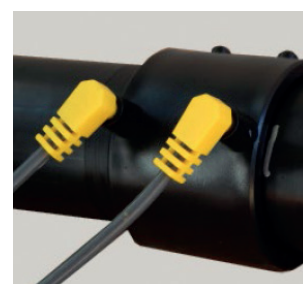


Step 4.

- 5) Peel pipe with a rotary peeler or hand scraper past the marking. Do not use sand paper. Ensure that the complete surface of the peeling area is peeled sufficiently. Minimum peeling thickness of 0.2 mm. (See Table 3).
- 6) Clean the peeled area of the pipe with PE cleaner using a clean, lint-free, colorless cloth in circumferential direction and let the cleaner evaporate.

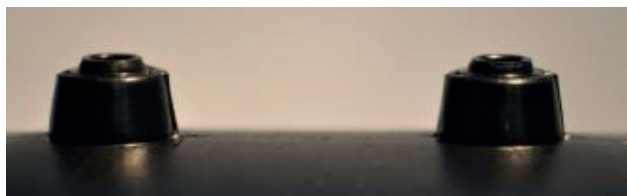


Step 9.

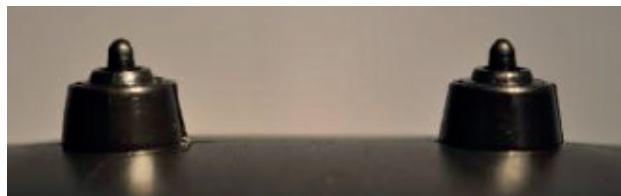


Step 11.

- 12) During and after fusion, check message on display of the fusion unit. When fusion is successful, remove fusion cables. Check fusion indicators on the coupler. Both indicators have to be visible. If not, coupler must be cut out and a new coupler should be installed. Defective connections must not be welded twice! See NOTICE Faulty pipe connection (page 12)!



Step 12. Before.



Step 12. After.

- 13) Make sure you have a low stress installation. Secure the pipe and electro fusion coupler against movements (i.e. using pipe clamps) and keep fixed and still until cooling time has elapsed.

Diameter Ø	d40	d50	d56	d63	d75	d90	d110	d125	d160	d200	d250	d315
Min. pipe Ø [mm]	39.6	49.6	55.6	62.6	74.6	89.6	109.6	124.6	159.6	199.6	249.6	314.6
Cooling Time [min]	10	10	10	10	15	15	15	15	15	20	20	20

Minimum wall reduction by peeling 0.2 mm

Hydrovar PE Sovent fitting

The “Sovent” fitting from Hydrovar is an ideal solution to reduce pressure fluctuations and to prevent installing an additional ventilation stack.

Introduction

In our daily life a lot of soil & waste water is being produced by toilets, bath, showers, dishwashers and washing machines. All this waste water has to be drained from the buildings and transported to the sewage facilities. A single drainage pipe would just be capable of draining the maximum amount of waste water. However, large pressure peaks do appear, blowing out all water traps and giving access for bad odors to enter the home.

To keep the pressure fluctuations low, the system has to be ventilated and an additional ventilation stack can do the work. But this additional ventilation stack is more complicated in construction, costs considerably more and takes up more valuable space in the building shafts.



Figure 30. Sovent fitting.

The Hydrovar PE Sovent fitting prevents all this.

The principle of this system is based on keeping a free path air to leave or to enter the system and thereby keeping the pressure level within acceptable limit.

It interrupts the fall of the waste water on every floor resulting in a reduction of speed. The vent pipe is obsolete and the unique design increases the capacity of the riser.

This fitting will be delivered with closed caps. After removing the caps the required branches can be butt welded on the fitting.

Benefits

- One special fitting offers 6 connections - Gives multiple connections per floor
- Single stack system - No separate ventilation pipes required.
- Space savings - Reduced stack sizes with the same loading capacities as a secondary ventilated system gives extra space for other installations
- Cost savings - Installation time and material saved
- Lower speed - Reduces the hydraulic pressure

Applications

The Hydrovar PE Sovent is an ideal drainage system fitting that can be used for:

- Hotels
- Universities, schools
- High-rise buildings
- Hospitals
- Laboratories
- Industrial plants

THERMOVAR
THE PIPE EXPERTS



Welt Klasse

FIRE PRO KING



**WATERMODULES PHILS.
VENTURES INC.**



28A Victoria Villas Building M. Cuenco Corner
Mayon St., Brgy. Sta. Teresita, Quezon City



(02) 8 741-5889
(02) 8 782-2023



info@thermovar.com