6 Prefabrication

6.1 Choosing to prefabricate

Prefabrication of pipe systems refers to the manufacturing of standardised and factory-made pipe sections in large quantities, which are then assembled during installation on the building site. The fittings and pipe are butt-welded together during prefabrication, after which the prefabricated sections are installed on site using electrofusion.

Advantages:
- Saves time during installation
- Reliable butt-welded joints made under factory conditions

The advantages of prefabrication are especially visible in situations when the pipe systems are identical and can be prefabricated in large batches using retaining moulds.

Large identical pipe systems typically occur in for instance a hospital or an apartment complex.

Illustration 6.1 Prefabricated pipe sections

Illustration 6.2 Prefabricated pipe sections installed on site

Examples of installation in difficult conditions
The pipe sections are prefabricated in controlled conditions, after which installation on site can be performed using simple electrofusion joints.

Illustration 6.3 Installation under difficult conditions

6.2 HDPE as a material

Of course, pipe systems can be prefabricated from other materials. The properties of HDPE offer specific advantages as a material for this manner of installation.

- Simpler handling due to the light weight of HDPE. A related advantage is the lower transport costs in cases involving large distances between the factory and installation site.
- Minimal risk of breakage and deformation during transport and handling because HDPE is a flexible, impact-resistant and tough material. It will even survive rough treatment.
- Simple assembly using butt-welding or electrofusion, enabling firm and leak-free welded joints to be made.

6.3 Pipe and fittings

k-dimension
In some situations, it is necessary to shorten fittings. Fittings with the dimension "k" included in the product table can be maximally shortened by the "k" dimension in order to still allow butt-welding using a standard butt-welding machine. The k-dimension of the relevant spigot of most fittings is listed in the product table.
When welding must occur by hand, the entire spigot can be shortened (-5 mm for butt-welding, see the conditions in section 5.2.1). Welding with the aid of a butt-welding machine is always recommended.

Graduated arc
To facilitate the welding of fittings at angles, they are marked with a graduated arc. This consists of a long line at 45° with intervening short lines at each 15°. The pipe is also marked with two continuous lines.

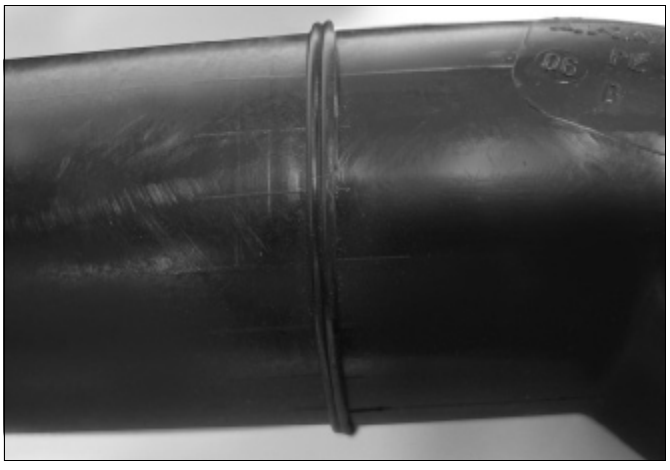
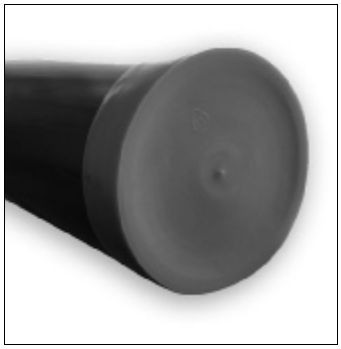


Illustration 6.4 Fitting with graduated arc

Protection plugs



A single fitting or pipe is easy to inspect visually for blockages prior to installation. This is not always possible when prefabricating pipe segments.

To prevent blockages, it is recommended to leave the protection plugs in the fittings (included in delivery) and to close the pipe ends with the special protection plugs for pipe (Art. Nr. 40xx29).

Illustration 6.5 Protection plugs for pipe (Art. Nr. 40xx29)

Dimensions

Dimensions of the fittings have been standardised. For instance, eccentric adapters are all 80 mm long and injection moulded 45° branches of the same diameter all have the same internationally standard lengths.

6.4 CAD software

The well-known CAD software available on the market includes Akatherm fittings in their libraries. By simply selecting the Akatherm brand, the parts list with the correct article numbers will be generated beside the drawing of the pipe system. This parts list also includes a sawing list for pipe lengths in order to simplify the prefabrication process.