

## 9 Prefabrication

### 9.1 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.

*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.

Large identical pipe systems are typically installed in hospitals and residential buildings..



Illustration 9.1 Prefabricated pipe sections



Illustration 9.2 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 9.3 Installation under difficult conditions

### 9.2 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:

- Easy handling due to the light weight of HDPE. A related advantage is the lower transport costs.
- 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.

### 9.3 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 chapter 8.2). 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.

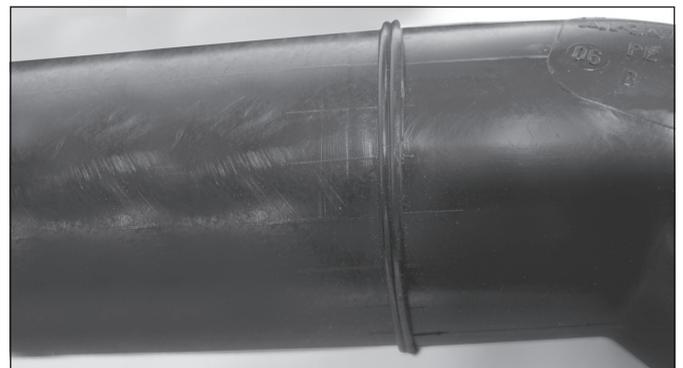


Illustration 9.4 Fitting with graduated arc

## Prefabrication

### Protection plugs



*Illustration 9.5 Protection plugs for pipe (Code 40xx29)*

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 (Code 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.

### 9.4 BIM and prefabrication

BIM is a process for integrating intelligent 3D models of every aspect of a design into a single model from which one can extract enormous amounts of data. Before starting the building process a virtual building is created ensuring that every single component of the project works.

BIM will change the way architects and builders work. By combining the advantages of Akatherm HDPE and the intelligent functions of BIM, pipe systems can be prefabricated. Ultimately saving time and ensuring reliable joints, made under factory conditions.

The smart files will help you to automatically pick the right products for all your direction changes, branches and other junctions. Change in diameter and reducers are placed automatically without the hassle to re-enter your library. Integrated push-fit insertion and butt-weld jointing losses create truly accurate pipe lengths. The Akatherm Revit content packages create 'as built' designs.

We are continuously updating our Revit family files. The content is available in a multitude of Revit versions. Our packages are available at the Akatherm website only, ensuring you will always be able to download the most up-to-date files.