Plastics in environmental protection
SIMONA® PE CoEx Sewer Pipe Systems
for municipal waste water
Areas of use for SIMONA® PE CoEx Sewer Pipe Systems

Public sewerage systems are responsible for the collection and safe transportation and disposal of domestic waste water from developed areas. Safe transportation and disposal means that the sewage collected has to arrive at its destination, the sewage treatment plant. On its journey, leakage of any kind is to be avoided. Similarly, extraneous water must not be allowed to enter the sewer, i.e. the quantities of water to be treated in the sewage treatment plant have to be minimised.

Extraneous water penetrating sewers and the associated expenditure on treatment of the sewage pose considerable problems, often culminating in high-cost sewerage repairs after just a few years of operation. Compromises in terms of material selection or proper installation often result in unforeseen expenses at a later stage.

Given the fact that the financial resources of local authorities are dwindling rapidly and the additional costs of operation cannot always be passed on to end-users, shortcomings within this area are unacceptable. Germany is a case in point: it has the highest sewage charges in Europe, but also the highest level of connection to biological sewage treatment plants.

PE-HD has a proven track record in sewage disposal

Sewer pipes, fittings and shafts made of PE-HD (high-density polyethylene) have a proven track record in sewage disposal spanning more than 30 years.

Test certificate confirming the high-pressure rinse resistance of SIMONA® PE CoEx pipes
The state-of-the-art SIMONA product range includes traditional black PE-HD pipes as well as a comprehensive waste-water pipe system made of co-extruded PE-HD solid-wall pipes, known as the SIMONA® PE CoEx sewer pipe system. The light grey interior layer of SIMONA® PE CoEx sewer pipes allows optimum illumination during camera inspection without any reflections. This is where modern design and a high level of functionality offer tangible benefits in operation and maintenance.

The pipe range is complemented by shafts, branches, bends, eccentric producers, shaft connections and saddles. For specific applications, such as ATV A-142 Recommendation “Sewers in water catchment areas”, the SIMONA® double-containment pipe system provides maximum reliability.

**Combining economy with reliability**

The first step towards cost-effective operation of sewage disposal pipes is actually taken very early on – at the planning and pre-engineering stages. By using thermoplastic SIMONA® PE 80 CoEx sewer pipes, it is possible to counteract the four main sources of damage associated with leaking sewers.

**Flexibility of SIMONA® PE 80 CoEx Sewer pipes**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Bending angle ~ 20°C</th>
<th>Bending angle ~ 10°C</th>
<th>Bending angle ~ 0°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>30 x d</td>
<td>52.5 x d</td>
<td>75 x d</td>
</tr>
<tr>
<td>17.6</td>
<td>20 x d</td>
<td>35 x d</td>
<td>50 x d</td>
</tr>
</tbody>
</table>

SDR is equivalent to diameter/wall thickness ratio

- Corrosion
- Non-tight socket connections
- Material cracks
- Encrustations

These patterns of damage commonly occur with traditional materials; they are responsible for more than 80 per cent of existing sewer damage.

**SIMONA® PE 80 CoEx sewer pipes – for a tight rein on expenses**

The key advantages of SIMONA® PE CoEx sewer pipe systems over stoneware, concrete and cast-iron pipes used in the past are:

- Light weight
- Pipe flexibility
- Internal and external corrosion resistance
- Permanent watertight seal
- High abrasion resistance
- Excellent chemical resistance

SIMONA’s state-of-the-art solutions ensure that the pipe system remains cost-effective – at all times – from initial installation to ongoing operation. The main benefit for local authorities: peace of mind in terms of project and cost planning.

Flexibility – in every sense of the word – is another key benefit of SIMONA PE pipes. Owing to the favourable bending radii, a “change of direction” does not necessarily require cost-intensive installation of pipe fittings or shafts – in contrast to rigid pipe materials. The pipeline can thus follow the direction of the road even if there are sections with numerous bends. In addition, the number of access points can be reduced significantly.

SIMONA® PE 80 CoEx sewer pipes – the key to reliable and cost-effective solutions in waste-water disposal.
Advantages of SIMONA® PE CoEx Pipes at a glance

- Elimination of internal linings and protective coats due to excellent corrosion resistance
- High abrasion resistance to solids and liquids, thus eliminating the need for wall thickness allowances in cases of high solids content
- Low maintenance as a result of minimal tendency to encrustation
- Resistant to all substances contained in the ground such as humic acids, sulphates and chlorides as well as biogenic sulphuric acid
- Favourable hydraulic conditions thanks to extremely low wall roughness
- Cost-effective installation due to adapted pipe lengths, production of pipe sections in 6 m and 12 m; pipes up to 23 m in overall length possible
- Inspection-friendly due to light-coloured pipe interior
- Compatible with high-pressure rinsing >100 bar without any risk of damaging inside wall of pipe
- Permanently watertight, strong connection by means of welding
- Elimination of fixing points and abutments
- Efficient handling, even with long pipe lengths, due to light weight and impact resistance
- No pipe break in the event of water hammer or soil settlement due to high elasticity
- Superior flexibility of material for more efficient installation
- UV and frost-resistant
- Approved basic raw materials as per Section 19 WHG
- Production ISO 9000 certified
- Recyclable without any additional material processing
- Maximum economy in transport, laying, operation and maintenance
Fittings

**Bends 90°**
Injected, $r = d$

**Bends 90°, 60°, 45°, 30°**
Seamless, $r \approx 1.5 \times d$

**Bends 90°, 60°, 45°, 30°**
Segment-welded, $r \approx 1.5 \times d$

**Tees**
Segment-welded
(pressure reduction factor 0.65)

**Tees reduced**
Saddle-mounted, swept
(pressure reduction factor 0.75)

**Branches 60°, 45°**
Segment-welded
(pressure reduction factor 0.50)

**Reducers, eccentric**
Injected

**Inspection box**
Welded

**External service pipe connection**

1 Injected fittings in black only
SIMONA® PE CoEx Sewer Pipes and Fittings for municipal waste water

Pipes

**Material**
PE 80
to DIN 8074/75

**Type**
homogeneous extrusion

**Colour**
light grey with black UV protective layer

**Dimensions**
as per DIN 19537,
standard length: 6 m
sections
On request: 12 m
sections, overall lengths
up to 23 m

**Remarks**
Other dimensions,
colours and lengths
on request.
Subject to technical
changes, also with
regard to dimensions.

<table>
<thead>
<tr>
<th>Pipe</th>
<th>SDR 26</th>
<th>SDR 17.6</th>
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<tbody>
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<td>160</td>
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<td>150</td>
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<td>10.2</td>
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<td>250</td>
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<tr>
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<td>21.4</td>
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<tr>
<td>600</td>
<td>630</td>
<td>24.1</td>
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¹ Based on DIN 19537
Double-containment pipes

<table>
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<tr>
<th>Material</th>
<th>Welding processes</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>Internal pipe: PE CoEx to DIN 8074/75; External pipe: PE 80 to DIN 8074/75; Colour PE CoEx: Light grey with black UV protective layer PE 80: black</td>
<td>Internal pipe: SDR 17.6 External pipe: SDR 26 Simultaneous welding; Internal pipe: SDR 17.6 External pipe: SDR 17.6 Cascade welding</td>
<td>Other dimensions and lengths on request. Subject to technical changes, also with regard to dimensions.</td>
</tr>
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<th>External pipe</th>
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<td><strong>PE CoEx</strong></td>
<td><strong>PE 80</strong></td>
</tr>
<tr>
<td><strong>SDR 17.6</strong></td>
<td><strong>SDR 26</strong></td>
</tr>
<tr>
<td>d (mm)</td>
<td>e (mm)</td>
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1 injected double-containment pipe fittings in black only
Our expertise – your gain

We offer an all-embracing service, with professional advice ranging from project planning to on-site engineering. Equipped with an in-house plastics workshop, we are also able to produce customised designs. Take advantage of the special services we offer and contact us: +49 (0) 67 52 14-722 or pm.umwelt@simona.de