ombran: Competence and Quality

ombran provides comprehensive system solutions for sewer and manhole repairs. The technically mature product systems have achieved a track record over many years through highest quality and cost-effectiveness.

- Sewer Repair
- Manhole Repair
- Liner Technology
- Systems for Robot Application
- Injection Systems
- Repair of Drinking Water Pipelines

Systematic manhole and sewer repair

ombran
The number of manhole and sewer structures in need of repair is steadily increasing. Leaks in the wastewater system cause infiltration which puts excessive strain on our wastewater treatment plants, reducing their treatment performance significantly. Due to exfiltration toxic substances permeate into the surrounding soil, which frequently causes heavy contamination and the groundwater may not be safe either!

**Why ombran?**
Ombran is a special area of MC-Bauchemie. Here specialists develop high-quality system solutions for manhole and sewer repairs. Our specialist advisors assist you on site from the initial damage analysis through to individual planning right down to the execution of the repair. In addition to an area-wide service network ombran offers a complete service package for any kind of repair. Decades of experience have made ombran the leading supplier in the area of sewer and manhole repair all over Europe.

**System Solutions**
Attacks from frost and de-icing salts, biogenic sulphuric acids and dynamic stress are responsible for heavy damages to manhole and sewer structures in addition to the aggressive wastewater itself. The reliable repair of such defects poses high demands on engineers, applicators and the product systems used. Only a specifically tailored repair concept and the selection of quality system solutions ensure the success of the repair measure and guarantee a lasting protection of the structures.

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**The principle role of the bond coat**

The bond coat is a particularly important element in a systematic repair or coating process. It is applied onto the damp substrate prior to application of the repair or coating mortar and serves as a bonding agent between substrate and repair system or rather between re-profiling and coating. To reduce the number of system components on the building site ombran HB provides you with a bond coat that can be applied both to brickwork and to concrete manholes.

**Standard assembly**

<table>
<thead>
<tr>
<th>Bond coat</th>
<th>Bond coat (ombran HB)</th>
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<tbody>
<tr>
<td>Reprofiling</td>
<td>Reprofiling (ombran MHP 15/ombran MHP)</td>
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<tr>
<td>Bond coat</td>
<td>Bond coat (ombran HB)</td>
</tr>
<tr>
<td>Coating</td>
<td>Coating (ombran MHP 15/ombran MHP)</td>
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**Tailored solutions**
Depending on requirements and damage symptoms tailored solutions can be realised for brickwork manholes and manholes made from pre-fabricated concrete and the suitable components of the ombran repair system. Our ombran specialists will assist you in selecting a repair concept that meets the specific requirements of your project. Just contact us!
1. Lowered manhole frames
   Lowered manhole frames are durably repaired with the innovative manhole frame grouting mortar ombran SVG.
   - ombran SVG / ombran SVG rapid

2. Leaking manhole ring joints
   Leaking manhole ring joints can be waterproofed both against escaping water and infiltrating water with an expansive, rapidly setting ‘plug’ mortar. In manhole constructions subject to dynamic stress an elastic two-component injection sealing using duromer resins is recommended.
   - ombran W / Konudur 208 / Konudur 216 / Konudur Kanalinjekt 01

3. Damaged access ladders
   Defective metal rungs are quickly and permanently set into the manhole wall with rapidly setting repair mortars or a two-component epoxy resin moulding material.
   - ombran MHP 15 / Konudur 134 CS

4. Cracked construction elements
   Water-bearing cracks in manhole constructions are either treated with sealing injection using Konudur Injection Device or are sealed close to the surface with a rapidly curing swellable ‘plug’ mortar.
   - ombran W / Konudur 208 / Konudur 216 / Konudur Kanalinjekt 01

5. Faulty or water-bearing pipe/liner bonding
   Water-bearing ring spaces between pipes and manhole wall or between hose liner and old pipe are either sealed durably by using a swellable ‘plug’ mortar or by using the Konudur Injection Device. Non-water-bearing areas are bonded with a two-component epoxy resin moulding material.
   - ombran W / Konudur Kanalinjekt 01 / Konudur 134 CS

6. Corroded concrete, exposed reinforcement
   The blasted, exposed reinforcement steel is coated with a mineral corrosion protection. A bond coat is then applied onto the prepared substrate. The damaged area is subsequently repaired with a highly sulphate-resistant mineral mortar.
   - Zentrifix KMH / ombran HB / ombran MHP 15 / ombran MHP

7. Damaged or washed out jointing
   Loose joint mortar, no longer able to be load-bearing must be removed from a washed out joint or from a joint substance damaged by acid attack and is then quickly reworked with a mineral joint mortar that sets rapidly.
   - ombran MHP 15

8. Wide-spread corroded concrete or brickwork
   After appropriate preparation the substrate is coated with a highly sulphate-resistant mineral surface protection.
   - ombran MHP 15 (pH 3,5 bis pH 14)
   - ombran MHP (pH 3,5 bis pH 14)

9. Damaged flow trench, floor and bench
   Washed out and corroded flow trenches and floors are repaired with highly sulphate-resistant mineral mortars after a bond coat has been applied.
   - ombran HB / ombran MHP 15 / ombran MHP

10. Wide-spread moisture penetration
    In case of wide-spread moisture penetration in concrete and sewer clinker brickwork a permanently swellable pore sealing is achieved through rubbing off the surfaces with a special mineral “powder”.
    - ombran IW

11. Damaged access ladders
    Defective metal rungs are quickly and permanently set into the manhole wall with rapidly setting repair mortars or a two-component epoxy resin moulding material.
    - ombran MHP 15 / Konudur 134 CS
Reliable protection against aggressive substances

Modern concrete and mortar systems used in wastewater areas are resistant up to a pH value of 5 without causing defects. Beyond that additional protection is of great importance. Don’t forget either that a reduction from pH 5 to pH 4 corresponds to a tenfold increase in potential acidic stress! Ombran offers system solutions that are able to withstand the attacks from the aggressive sewer environment and that give lasting protection to the structures.

System Solution from ombran
The applications in manholes and sewers are very diverse. From defect metal rungs to outbreaks in the bench to cracked construction elements – such defects require lasting repair.

pH-Value Chart

That’s why ombran offers, in addition to highly resistant coating systems, also repair solutions for:
- Waterproofing
- Reprofiling
- Manhole frame adjustment

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Repair Steps

The success of any repair measure mainly depends on adherence to the individual repair steps and their thorough execution.

Substrate preparation
The substrate must be clean and free from loose substances, cement laitance, dust, oil and grease or any other contaminants. The aim is a clean substrate with sufficient load-bearing capacity that can establish a firm and lasting bond with the repair system.

Waterproofing
Prior to re-profiling and coating works potential water ingress must be stopped and leaks must be sealed. To this end the following injection systems are at your disposal (Konudur 208/Konudur 216/Konudur Kanalinjekt 01), rapidly curing mortars (ombran IW) or swellable ‘plug’ mortar (ombran W).

Re-profiling of the substrate
The substrate must be reprofiled if extreme unevenness, outbreaks or a defect concrete cover are present. This reinstates the old geometry of the structure to create a surface that can be coated appropriately.

Coating
Depending on the level of attack the structure is coated with a protective system such as ombran MHP. As a final repair step the coating protects the structure lastingly from aggressive substances and preserves the value of the underground infrastructure for decades.

Curing
Following re-profiling or coating the surfaces must be suitably protected from drying out too rapidly. In any curing it must be ensured that the bonding with the subsequently applied layer is not impaired.