

HUITEX K-Liner Technology

HUITEX K-Liner is a “state of the art”, robust concrete protection liner system, designed to protect concrete structures in chemically aggressive environments. This “cast-in” liner is manufactured from High Density Polyethylene (HDPE) ensuring peerless performance and easy customization of the product to suit a wide range of applications and requirements.

HUITEX K-Liner is a high quality liner, enhanced through the formation of anchor knobs on one surface. The knobs are formed during the manufacture of the HUITEX K-Liner sheeting and not welded or glued to the sheet in a secondary process. This provides total homogeneity between the knobs and the sheet, ensuring the highest possible adhesion to the structure and maximum reliability. HUITEX K-Liner has a wide range of concrete protection applications and can be installed in new or existing concrete structures, as well as existing brick structures by using a grouting procedure. This significantly lengthens the service life of such structures, whilst minimizing maintenance costs.

HUITEX K-Liner allows for some movement of the supporting structure, while remaining securely in place through the closely spaced matrix of anchor knobs, each able to withstand substantial pull-off forces. It will maintain its integrity even in situations where the concrete structure itself has cracked.

The polymer used for the manufacture of HUITEX K-Liner is extremely resistant to chemicals. The HUITEX K-Liner system combines the economy and versatility of concrete structures with the robust qualities of plastic linings to provide the perfect solution to concrete protection.

HUITEX K-Liner Advantage

HUITEX K-Liner has proven to be extremely resistant to mechanical and chemical attack. HDPE is considered to be the chemical resistant barrier material of choice worldwide, while the system's anchoring strength ensures a permanent bond with the concrete structure. HUITEX K-Liner provides the highest life expectancy, even in the harshest environments. HUITEX K-Liner will not support bacterial growth and is also resistant to ultra violet attack.

- **Homogeneous Seams**

As all joints are welded, not glued, the entire lining system offers the same high level of chemical resistance, avoiding the weakness found in non-homogeneous systems. This is why HUITEX K-Liner is the most robust concrete protection solution available today.

- **Flexibility**

The flexibility of the “cast-in” liner system allows it to tolerate some movement in the structure behind it, always safeguarding the integrity of the structure.

- **Maintenance Savings**

HUITEX K-Liner is also an economical solution, since the service life of the concrete structure is increased and the maintenance costs are minimized. HUITEX K-Liner avoids hidden long-term costs.

- **Enhanced Performance**

The low friction surface of HUITEX K-Liner increases the velocity of liquid flowing over it, improving capacity of pipelines and decreasing build-up of debris.

- **Ease of Installation**

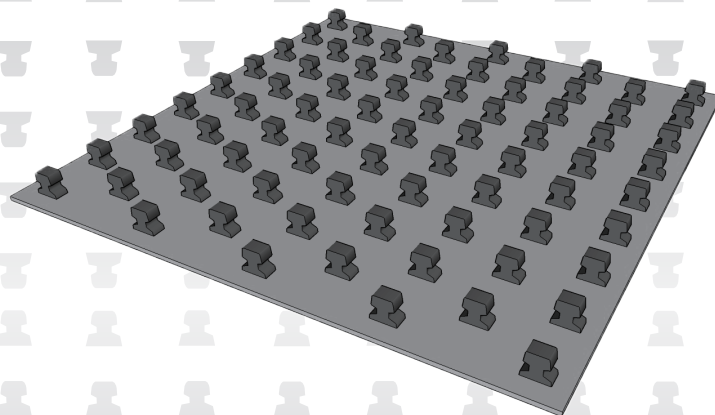
Most other protection systems require surface preparation, adding to the cost of the system. Concrete contractors require only initial training to install HUITEX K-Liner and only the welding of joints needs to be performed by specialists. Various details have been designed to simplify the installation process and reduce installation costs.

• Compatibility/Versatility

The HUITEX K-Liner system includes designs for sealing around pipes, protrusions and fixtures. Prefabricated sheet segments can be tailored and prepared to specification. HUITEX K-Liner can be cast into new concrete or grouted onto existing concrete and even brick structures.

• Superior Design

HUITEX K-Liner has an enhanced individual anchor knob design and offers a higher frequency of knobs per m² (1230/m²). This superior design ensures the liner has the best distribution of forces, minimizing stress in the liner. The HUITEX K-Liner system also offers a wide variety of sheet widths and thicknesses. HUITEX K-Liner can be manufactured in sheets up to 2.6 m wide in order to minimize jointing and in any thickness from 2 to 5 mm, allowing the service life and initial cost to optimize.

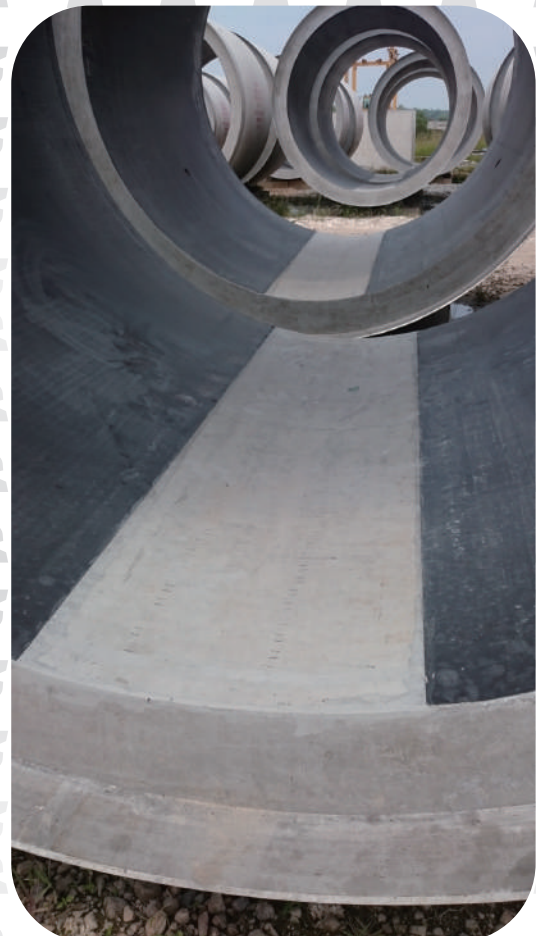
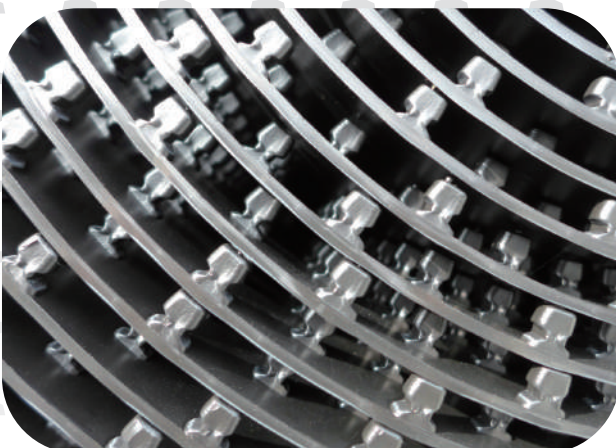


HUITEX K-Liner Applications

• Typical Applications

HUITEX K-Liner can be used in most industrial applications where corrosion protection of concrete is required.

- Sewers, pipes and manholes
- Bunds
- Tunnels and shafts
- Sumps
- Chutes
- Wash bays
- Channels
- Digester Soffits
- Storage tanks
- Loading bays



HUITEX K-Liner

Testing and Quality Assurance

The production of leading quality concrete protection liners is our prime objective. To ensure this, a premium grade resin is selected for the manufacturing process. Masterbatch packages are also carefully customized to suit the specific application, which can range from the containment of aggressive liquids to portable water.

All relevant properties are closely monitored, from the verification of incoming raw material through to the finished product.

The properties and performance of HUITEX K-Liner have been thoroughly tested by an independent research institution and competing liners in the international market. These tests included:

- **A full assessment of the physical and chemical properties required for sewer lining applications**
- **Individual knob pull-off resistance**
- **Linear load pull-off resistance (tested across 1 meter)**
- **Linear resistance to reverse hydraulic load (attempting to push the HUITEX K-Liner away from the concrete surface)**

HUITEX K-Liner superior performance in the above tests offers irrefutable evidence that it is the most effective and reliable concrete protection lining system available worldwide.



HUITEX K-Liner Applications

The function of HUITEX K-Liner is to protect the concrete against corrosive attack by liquids or gases. HUITEX K-Liner is installed to all pre-cast concrete pipes and shafts, soffits to cover slabs, chambers and landings. HUITEX K-Liner is also incorporated in the in-situ cast walls and cover slabs to sumps, channels and tanks. HUITEX K-Liner is made of premium HDPE (High Density Polyethylene) with anchor embedded knobs which are integrally and homogenously manufactured in single process. It has superior features including outstanding pull-off resistance, tensile properties, puncture resistance, and strong resistance against aggressive chemicals, UV, and environmental stress crack. HUITEX K-Liner is the best long-term solution and an economic way to extend the life of the concrete system.

HDPE HUITEX K-Liner Properties

| Properties | Test Method | Unit | Value |
|--|------------------------|-----------------------|---------------------------|
| Density -Light coloured material -Black material | ASTM D 792 | g/ml g/ml | 0.94 0.948 |
| Carbon black content (for black material only) | ASTM D 1603 | % | 2 to 3 |
| Carbon black dispersion (for black material only) | ASTM D 5596 | category | 1 or 2 |
| Tensile properties -Yield stress -Break stress -Yield elongation -Break elongation | ASTM D 6693 Type IV | MPa MPa % % | >15 >20 >12 >500 |
| Puncture resistance | ASTM D 1004 | N/mm | >125 |
| OIT - Std | ASTM D 3895 | minutes | >100 |
| Stress Cracking Resistance – single point | ASTM D 5397 | hr | >400 |
| Anchors per m ² Resistance to pull-off per m ² | | # T/m ² | >1100 >70 |

*The thickness of HUITEX K-Liner ranges from 2.0 mm to 5.0 mm (excl. knobs).

*This information is provided for reference purposes only and is not intended as a warrantee or guarantee.

*Huikwang Corporation (HKC) reserves the right to change the specifications contained herein without notice. Please contact HKC for the latest version of specifications.

HUITEX K-Liner Spec

HUITEX K-Liner is normally custom produced for specific projects in selected colors, thicknesses, widths and lengths. HUITEX K-Liner can be supplied to the installer in coiled or flat sheets, but flat sheets are more economical to transport. A schedule of panel sizes can be agreed upon to minimize wastage as well as the number of joints to be welded on site. Any further cutting required on-site is carried out with a sharp knife or jig-saw, in accordance with the cutting schedule or actual formwork dimensions. Large panels can be prefabricated on site to installation. Specific shapes and panels can also be pre-fabricated using electronic butt-welding equipment.

By arrangement, a technician can be provided to assist with the forming and installation of the sheets before the concrete is poured.

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