

10 Reasons to Choose **KRAH** HDPE Pipes Over Traditional Materials for Your Infrastructure Projects

Most sewage and wastewater systems in the Middle East and Asia are still designed using rigid pipe materials such as concrete, clay, and asbestos cement. However, with the introduction of thermoplastics like HDPE—a versatile material—many benefits are offered, which should be considered for sustainable infrastructure.



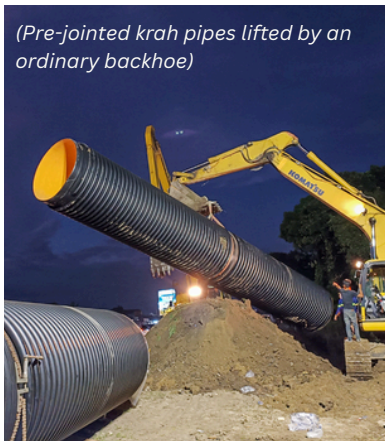
(Various krah pipe wall profiles)

1. DESIGN FREEDOM

Pipes produced using KRAH technology can be designed with an optimum stiffness-to-weight ratio in sizes ranging from 300 mm to 4000 mm, using either solid wall, structural wall or combined designs. These pipes can also be used to fabricate manholes or tanks based on specific requirements, allowing the entire pipe system to be made from HDPE homogeneously. Optimized designs are achievable.

2. LIGHT WEIGHT

The specific weight of the material is lighter than that of conventional materials, resulting in reduced transportation and handling costs. Additionally, pipes can be welded above the trench in long lengths and then lowered into place without the need for special bedding requirements.



(Pre-jointed krah pipes lifted by an ordinary backhoe)

3. DURABLE YET FLEXIBLE

Flexible pipes absorb external loads by deforming slightly, transferring stress to the surrounding fill material with minimal to no impact on flow capacity. Unlike rigid pipes, which retain stress and risk cracking, flexible pipes offer safety and eliminate the need for special fittings for gentle curves. Flexibility is safety!



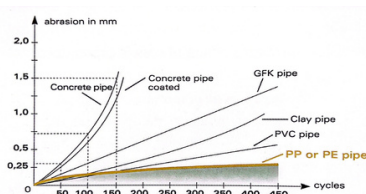
(On-going electrofusion jointing)

4. LEAK PROOF

Jointing is done by electrofusion, extrusion, or butt fusion welding, ensuring a tight and homogeneous system. This eliminates exfiltration, infiltration, and root intrusion, significantly reducing the need for maintenance or replacement.

5. HYDRAULICALLY SMOOTH BORE

The pipes have a very smooth internal surface, this a very low friction factor. Typically the C - coefficient is 150 and this remains same throughout the lifetime compared to concrete which decreases over a period of time.



(Abrasion curve of various pipes)



6. ABRASION RESISTANT

Tests result from the so-called Darmstadt procedure acc. to DIN EN 295 1 have shown that HDPE have much higher resistance to abrasion than concrete, clay or asbestos cement pipes. It is for this reason HDPE pipes are used to carry slurries in mining industries, a property equally important for sewers in Middle East where sand is often carried.



7. CORROSION RESISTANT

Corrosion is a major cause of network failure in the conventional materials. This is more common in the wastewater network where there is formation of sulfuric acid on the pipe wall due to oxidation of H₂S gas in the system. This leads to thinning of pipe wall and eventual collapse of the pipe.

8. LONG LIFESPAN

HDPE pipes are known for their exceptional durability, often lasting between 50 to 100 years when used in typical infrastructure applications. Their resistance to corrosion, abrasion, and chemical attack makes them ideal for long-term use in harsh environments. With minimal maintenance required, HDPE pipes offer a reliable, cost-effective solution for infrastructure projects over many decades.

The most common failure in HDPE pipe systems occurs at the joints, where improper connection can lead to leaks or weaknesses. To ensure a long service life for a pipe network, Kraih recommends using a homogenous jointing technique like electrofusion, which creates seamless, strong bonds between pipes. This method is crucial for maintaining the integrity and durability of the entire system over time.

9. LOW MAINTENANCE

With proper installation and the use of homogenous jointing techniques like electrofusion, Kraih pipe systems require minimal intervention, reducing the need for frequent repairs and ensuring a reliable, long-lasting performance with minimal upkeep.

10. SUSTAINABLE

Kraih pipes are designed with optimal weight for each application, ensuring a one-time installation with a long lifespan. This eliminates the need for recycling while contributing to CO₂ footprint reduction by avoiding overdesign and excess weight. By optimizing pipe weight, we reduce carbon emissions and ensure the pipes serve their purpose for a lifetime.

