DENLOK
VITRIFIED CLAY JACKING PIPES
INTRODUCTION

The DENLOK range of vitrified clay pipes has been specially developed to meet the requirements of installation by trenchless construction methods. DENLOK pipes are supplied to major projects throughout the world for installation by various techniques including:

- MICROTUNNELLING
- AUGER BORING
- PIPE BURSTING
- PIPE EATING
- SLIP LINING

PROPERTIES

The excellent long term performance of vitrified clay pipes is well known and they form an extremely durable structure, which combines high load bearing strength and excellent chemical and abrasion resistance. DENLOK clay jacking pipes are characterised by a high axial strength, making them an ideal choice for installation by trenchless methods.

DENLOK pipes offer:

- High axial strengths to withstand jacking forces.
- Accurately machined ends to ensure directional stability during installation.
- Dimensional accuracy of pipes and joints, minimising frictional resistance during jacking.
- Push-fit joints with integral packing ring for easy assembly.
- Joints that meet the performance requirements imposed by trenchless installation.
- High resistance to imposed earth loads.
- High resistance to abrasion and corrosion.

Excellent long term performance to high pressure jetting and other cleaning methods.
Denlok™ Performance Advantages

Municipal Advantages
- Minimum 100 year life guarantee
- Demonstrated results from centuries of vitrified clay pipe use
- Unsurpassed corrosion resistance that is unaffected by time
- Water/air tight joints
- Proven worldwide successes in 17 countries
- Highest abrasion resistance of all sewer materials
- Strength does not decrease with age as do pipes of resin or plastics *
- Excellent hydraulics for sanitary sewer use
- Lowest cost per allowable jacking force
- Economical installations
- Lowest ownership cost in the long run
- Exceeds European and ASTM standards for ceramic pipe

Contractor Advantages
- Precision diamond cut ends for less induced point loads
- High jacking strength compared to other products
- Rigid material eliminates “telescopng” of joints under jacking load
- Low external friction for lower jacking loads
- Factory made self centering packing / cushion rings reduce job site hassles
- Lengths to 10 feet available

More Advantages
- Premium material and premium performance without a premium cost
- Available from 6”(150mm) through 48”(1200mm) diameters
- Exceeds requirements of both European Standard, EN 295-7 and ASTM C1208

Important Elements of EN 295-7 Standard
- 10,875 psi minimum compression strength, for higher jacking strengths
- End squareness tolerance < 0.040”(1mm)
- Straightness tolerance < 0.2” (5mm)
- Stainless steel sleeves for long life and best structural performance

High Pressure Ratings Available
- External pressures proven to 60 ft head
- Greater pressure ratings, above standard, are available upon consultation.

* H 211.41A, Los Angeles 50 Year Tensile Strength & Modulus of Elasticity of Structural Plastics for Piping, 1997
Can Clay’s manufacturing operations are operated under ISO Quality System certification, 9001:2008. Manufacturing consistency, procedural repeatability and design control are elements essential to quality products. Can Clay is the only VCP pipe manufacturer in the United States to have earned this certification. Product verification testing is performed per quality standards and project specifications.
Experience has shown that the flow characteristics of all pipe materials must be adjusted for real world conditions. Sanitary sewer pipes build up sedimentation, obstructions and slime over time. Prudent designs recognize that roughness increases from idealized factory flow tests. Denlok™ in service roughness compares well to other materials.
Delivery and Site handling

Packaging
The pipes and joints are normally packaged for unloading by forklift or crane. If other arrangements are necessary, please contact the factory prior to placing the order.

Site Receiving and Storage
All pipes and joints should be inspected at delivery. Identification of any damage from transportation must be noted on receiving documentation.

Unloading and site handling should be done with caution. Installation of cushions, wood or other compressible materials, on the vertical portion of forks have proven effective aids. Impact damage of the pipes and joints should be prevented with good handling techniques and proper equipment.

Joint cushion / packing rings must be protected from moisture. The cushion material is of finely ground particle board which transmits jacking loads better than other materials, but is susceptible to continued saturation. Typically, the rings are shipped in a water resistant container. Protection should be maintained during storage.

Under normal conditions and typical project storage duration, Denlok™ pipes and joint components are resistant to heat, ozone and ultraviolet light.

Cushion / Packing Rings
Extreme caution should be exercised to ensure that rings are inserted between each pipe prior to jacking. The compressibility of the rings assists in distribution of the jacking loads between the ends of the pipe.

Do not install damaged rings. They are an essential element for successful installations.

Site Testing
Prior to installation all components should be visually inspected for signs of damage which could have occurred from transportation and handling. Do not use damaged pipes that could affect performance.

Additional Site Testing Technique
Denlok™ jacking pipes are tested at the factory for structural integrity prior to shipping.

The dye testing method can be used on the site.

Dye Test
Dye testing uses a dye penetrant. Magnaflux brand Spotcheck® or equal has been found to provide good results to aid visual inspection of the pipe. It is often preferred because of the ease of use.

The recommended procedure includes testing of each end of the pipe immediately prior to placement in to the jacking frame. Additionally, follow the dye penetrant manufacture’s use instructions. Detailed instructions are available.

Any pipes that have cracks through the barrel should not be used.

Suggestions
It is recommended that pipes are installed with the spigot / un-sleeved end facing the tunneling head. This is normal, but not essential.

When jointing the pipes, care must be taken to avoid the sealing ring from becoming displaced and lubricant is applied to clean sealing surfaces.

Always follow prudent safety practices.
INSTALLATION

It is important that pipes are handled with care when placing them in the packing rig, with careful use of slings and avoiding excessive swinging, to prevent impact damage.

Can Clay strongly recommends the use of the Can Clay internal testing device immediately prior to insertion to ensure that the pipe ends have not been damaged during handling.

Pipes should be installed with the unsleeved end of the pipe facing the tunneling head. Before installation, both ends of the joint should be thoroughly cleaned and Can Clay Joint Lubricant applied.

AVAILABILITY

Due to the increasing demand for DENLOK throughout the world, large stocks are maintained at the factory to enable prompt delivery.

CONNECTIONS

In line connections to DENLOK pipes can easily be made using standard techniques and materials. Flexible couplings and epoxy saddle kits are available.