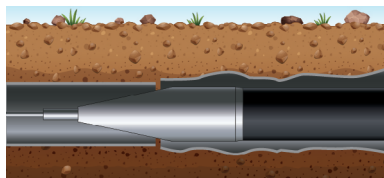


## INSTALLATION & TESTING

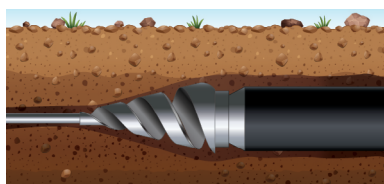
### APPLICATIONS BENEFITED BY MILLENNIUM® PIPE

#### PIPE BURSTING AND SPLITTING



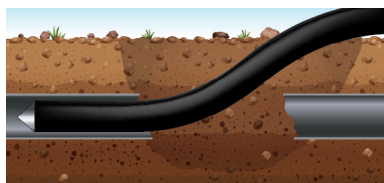
A conically shaped bursting head is winched through an iron, clay or concrete pipe to shatter and displace its fragments into the surrounding soil. The PE100 liner pipe is simultaneously pulled into the void. There is a risk that shards of fractured cast iron or earthenware host pipe will scratch the replacement pipe's wall beyond the 10% allowed for conventional PE100 pipe. Millennium® mitigates slow crack developing from these scratches.

#### HORIZONTAL DIRECTIONAL DRILLING (HDD)



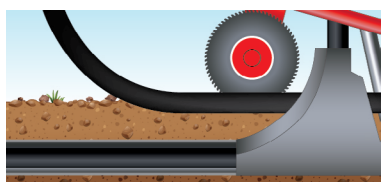
A steerable drilling head is plunged into the earth and driven along a shallow-arc trajectory. The head surfaces at a point beyond the obstacle that is being drilled beneath. Along the drilling path, rock is frequently drilled through. Following back reaming, a PE100 pipe string is pulled into the bored hole. Where hard rock is encountered, there is a risk of pipe surface damage beyond the 10% allowed for conventional PE100 pipe. Millennium® tolerates much greater pipe surface damage.

#### SLIP LINING/ SWAGE LINING



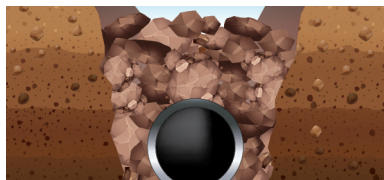
A close fitting PE100 pipe is winched through the corroded steel host pipe. Friction causes a slight reduction in the liner pipe's diameter during winching that eases installation. The PE100 expands to match the host pipe bore once the winching strain is released. Swage lining is similar except the liner pipe is pulled through a reducing die. The liner pipe's surface is scored and scraped by corroded host pipe lining beyond the allowable limits of 10% wall thickness. Millennium® resists cracks developing from surface scoring and scaping.

#### PLOUGH IN



A blade is towed or pulled behind a powerful tug, which cuts through the earth in a knife-like action. PE100 pipe is fed into the void through a chute at the rear of the blade. There is potential for buried rocks to impinge on the PE100 pipe's surface leading to stress cracks. Millennium® has far superior resistance to brittle failure resulting from rock impingement.

#### AS-DUG BACKFILL (SAND-LESS BEDDING)



As-dug backfill reduces the cost of pipeline construction by up to 25% through eliminating the need for sand or granular embedment. The native soil is screened to ensure a maximum particle size of 20mm before placing and compacting around the pipe. Millennium® pipe is suited to using as-dug backfill.

#### SQUEEZE OFF



Squeeze-off is used to stop flow in gas pipes. The PE100 pipe is compressed between cylindrical bars with force applied by a screw or hydraulic press. During squeeze and release, excessive stress may be applied to the pipe wall. Millennium® reduces the risk of micro-cracking leading to premature brittle failure.

The information contained in this document should serve as a guide only and is subject to change without notice. For more information please contact Iplex Pipelines Australia Pty Ltd.