

# DELIVERING MORE WITH A LONG BORE

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Asset owners are increasingly using the long bore capabilities of HDD specialists, such as Maxibor, to provide innovative solutions for the installation of infrastructure assets. Long boring provides asset owners with value for money through reduced overall project cost and an optimisation of broader benefits to utilities, operators and the community.

Long bores, constructed using horizontal directional drilling (HDD), are generally classed as installations over 500 m, requiring maxi-rigs 40,000 kg or above. Maxibor is well equipped to meet its client's requirements in this growing segment of the market, with the company's fleet of 11 rigs, including four maxis capable of delivering long bores: a Vermeer 330x500, two Vermeer 100x120s and an American Auger D660.

Even for large diameter pipes, boring over these extended distances is not an impediment to maxi-rigs, so long as they follow a design appropriate for the conditions, are operated with an experienced crew and supported by ancillary equipment. Machines of this class can conquer the most difficult jobs using their power to muscle through the most complex ground conditions.

## BENEFITS

Asset owners, whether they be in gas, water and sewerage, rail, communications, mining, power or renewables, can benefit from preferencing a longer bore in several ways, including:

- reduced access costs
- reduced mobilisation time and cost
- reduced environmental impact
- more focus in the design stage
- involvement of a more experienced HDD company
- streamlined project timelines and administration.

## CHALLENGES

Challenges that can arise from long bores include:

- length
- range of different ground conditions over length of installation
- drilling fluid management as ground conditions change
- location of services



Maxibor's new rigs and the other equipment that will be required for the long bores.

- pipe strength
- tracking at depth
- having all plant and tooling suitable to complete the bore.

These challenges are not unique to long bores, but their impact is likely to be more severe if problems arise. This is where use of an experienced long bore HDD design and construct specialist, such as Maxibor, is essential if the bore is to be a success.

Maxibor's methodology adapts accepted practices and specifically focuses on solving these issues through engineered design. HDD methodology and design is a highly iterative process for longer bores. Each step in the process feeds back to the previous parameters, which evolve the design into a pipeline installation solution that considers safety in design, constructability through engineering application and ultimately usable infrastructure.

During the project's installation phase, Maxibor takes care to ensure:

- The maxi-rig is appropriate for the expected subsurface conditions and the pipe diameter to be installed.
- Correctly sized drill rods are capable of

carrying required quantity/flow of drill fluid to transport cuttings to the surface.

- Drill rods are capable of withstanding stress, torque and force required to rotate the reamers without creating excessive rod rap/coiling and fatigue.
- Reclaiming/recycling units have enough capacity to clean the drill fluid/cuttings returned to the surface at the entry and or exit pits.
- Mixing system to mix additives can cope with the flow rates required.
- Mud pumps are of a sufficient size to transport drill mud around site.
- A high-density polyethylene slurry return line is in place to transport drill mud between entry and exit pits.
- Drill heads and reamers are appropriate for the expected subsurface conditions and the pipe diameter to be installed.
- The tracking system is able to locate drill head during the pilot bore.
- A vacuum truck is available to remove drill slurry from containment pits and as a precautionary measure to remove any spillages or frac-out.



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## AUSTRALIA'S LEADING HDD SPECIALIST

Maxibor is using its network of experience to deliver better project outcomes to asset owners and principal contractors alike.



- Quality and collaborative service without the pain
- Expertise to advise at the right time in the project delivery cycle
- Build a future we all look forward to
- Water and sewer, rail, road, power, gas, telecommunications, mining, residential development and renewables
- Large diameter and long bore specialists in hard rock and difficult conditions

If you need help with a project contact us on 02 4937 5500 or [admin@maxibor.com.au](mailto:admin@maxibor.com.au). For more information visit [www.maxibor.com.au](http://www.maxibor.com.au) or [www.maxienergy.com.au](http://www.maxienergy.com.au) and follow us on LinkedIn, Facebook and Twitter.

## INNOVATION

The growing confidence to complete maxi-rig long bores is allowing infrastructure stakeholders to think collaboratively and outside the bore hole. Some areas where solutions of this kind are being innovatively applied include:

- Replacement of above ground infrastructure, such as power and comms under a joint arrangement by the location's asset owners.
- The use of return lines on river crossings by other infrastructure asset owners.
- Combining smaller bores into one longer bore.
- Extending smaller bores to fit the needs of other infrastructure asset owners.
- Shortening of long routes by avoiding above ground environmentally and culturally sensitive areas.
- At-depth long bores in established business areas to provide additional capacity to high data and power demand sections.

The benefits of these maxi-rig delivered long HDD bore solutions include:

- Creation of an additional revenue earning asset for the infrastructure asset owner.
- Creation of an asset others would be willing to pay for (revenue stream from lease for access).
- Creation of an asset with a life of up to 100 years.
- Shared cost of installation.
- Avoidance of existing services using deeper routes.
- Climate change solution for above ground asset risks – power, communications.
- Urban amenity.

## COLLABORATION

The realisation of these benefits requires good collaboration across asset owners, which can become complicated when private sector stakeholders are involved; however, there is a greater net benefit if all asset owners along common routes identify areas for HDD installation that could be mutually beneficial.

As part of a collaborative process, the infrastructure asset owners would also benefit from consultation with state and local government, as well as business and community stakeholders. This broader consultation can generate other ideas and funding to facilitate an improved infrastructure installation solution.

Maxibor now has several asset owners as clients, which are benefiting from this more strategic and innovative approach. The company expects more to be involved as the demonstrated evidence of benefits mounts.

Key decision-makers, whether they be from infrastructure asset owners, government, business or the wider community, are encouraged to connect with members of ASTT specialising in HDD to better understand how they can benefit from long bores.

As one of these members, Maxibor will continue to assist and educate any interested stakeholders on how working in collaboration can achieve better outcomes for all stakeholders. **T**

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