

IPC – Company & DPI Presentation

February 2017

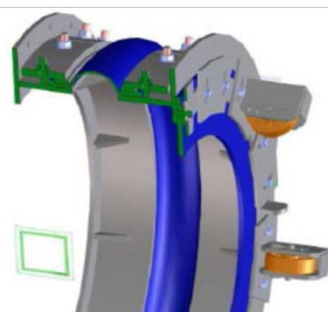


WHO WE ARE – OVERVIEW



Innovative Pipeline Crossings Inc. (IPC)

- Founded in 2013, in Calgary
- Private Company
- Since July 2016 under new Management
- Supervisory Board of Directors
- Strategic Alliances with Key Personnel and Partners worldwide
- Fully Operational Machine Fleet
 - MTBM 36" / 42" / 48" – Pipe Thruster 500to & 750to
- Involved in RFP's on all major projects in Canada & USA
- 1 upcoming projects in Hand with TCPL / 1 upcoming project short listed



WHO WE ARE - MANAGEMENT



NEW IPC MANAGEMENT TEAM

- More than 19 years experience in the local market
- More than 20 years experience in the drilling and tunneling business
- Upright
- Reliable
- Customer oriented



GREGG BIGGS
CEO & President



PETER HENNIG
VP Operations



BRETT HUFFEY
VP Finance



SAFETY FIRST!



Grade “A” Rating with various companies and partners



WHAT WE DO – DIRECT PIPE



WHAT IS DIRECT PIPE

- One-pass operation for tunnelling and pipeline installation
- The combination between **MICROTUNNELING MACHINE** and **PIPE THRUSTER**



WHAT WE DO – DIRECT PIPE

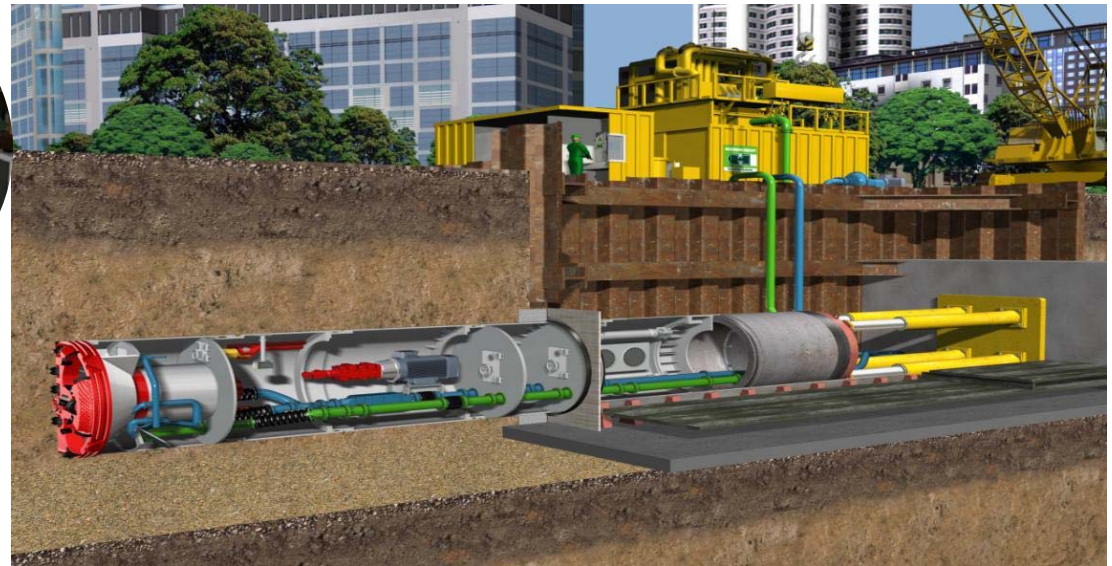


MICROTUNNELING MACHINE

- Microtunneling Machine (MTBM)
- Pipe



- 1 Cutter
- 2 Power Pack
- 3 Steering cylinder of the active steering joint
- 4 Feed line
- 5 Slurry line



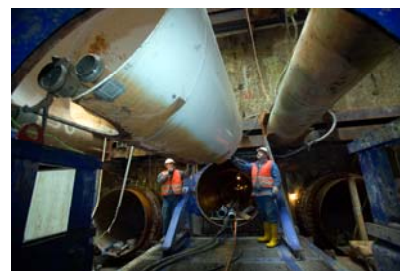
WHAT WE DO – DIRECT PIPE



• MICROTUNNELING REFERENCES

Over 25 years of Utility Tunneling

- Around 600 Utility Projects tracked
- Around 530 Pipe Jacking projects tracked
- Around 440 of them with AVN or AVND technology
 - Almost 70 referenced Sea Outfall projects
 - Almost 50 referenced Blind-Holes, Pipe Arches, Railroad / River / Road Crossings
 - Approx. 250 Projects in Mixed Ground
 - Approx. 160 Projects in Rock or Hard Rock
 - 35 Projects explicitly referencing Boulders



Proj. No.	Year	Country	Client	Project Name	Length (m)	Dia. (mm)	Material	Notes
1	2000	USA	...	...	...	...	...	...
2	2001	USA	...	...	...	...	...	...
3	2002	USA	...	...	...	...	...	...
4	2003	USA	...	...	...	...	...	...
5	2004	USA	...	...	...	...	...	...
6	2005	USA	...	...	...	...	...	...
7	2006	USA	...	...	...	...	...	...
8	2007	USA	...	...	...	...	...	...
9	2008	USA	...	...	...	...	...	...
10	2009	USA	...	...	...	...	...	...
11	2010	USA	...	...	...	...	...	...
12	2011	USA	...	...	...	...	...	...
13	2012	USA	...	...	...	...	...	...
14	2013	USA	...	...	...	...	...	...
15	2014	USA	...	...	...	...	...	...
16	2015	USA	...	...	...	...	...	...
17	2016	USA	...	...	...	...	...	...
18	2017	USA	...	...	...	...	...	...
19	2018	USA	...	...	...	...	...	...
20	2019	USA	...	...	...	...	...	...
21	2020	USA	...	...	...	...	...	...
22	2021	USA	...	...	...	...	...	...
23	2022	USA	...	...	...	...	...	...
24	2023	USA	...	...	...	...	...	...
25	2024	USA	...	...	...	...	...	...

Proj. No.	Year	Country	Client	Project Name	Length (m)	Dia. (mm)	Material	Notes
26	2000	USA	...	...	...	...	...	...
27	2001	USA	...	...	...	...	...	...
28	2002	USA	...	...	...	...	...	...
29	2003	USA	...	...	...	...	...	...
30	2004	USA	...	...	...	...	...	...
31	2005	USA	...	...	...	...	...	...
32	2006	USA	...	...	...	...	...	...
33	2007	USA	...	...	...	...	...	...
34	2008	USA	...	...	...	...	...	...
35	2009	USA	...	...	...	...	...	...
36	2010	USA	...	...	...	...	...	...
37	2011	USA	...	...	...	...	...	...
38	2012	USA	...	...	...	...	...	...
39	2013	USA	...	...	...	...	...	...
40	2014	USA	...	...	...	...	...	...
41	2015	USA	...	...	...	...	...	...
42	2016	USA	...	...	...	...	...	...
43	2017	USA	...	...	...	...	...	...
44	2018	USA	...	...	...	...	...	...
45	2019	USA	...	...	...	...	...	...
46	2020	USA	...	...	...	...	...	...
47	2021	USA	...	...	...	...	...	...
48	2022	USA	...	...	...	...	...	...
49	2023	USA	...	...	...	...	...	...
50	2024	USA	...	...	...	...	...	...



WHAT WE DO – DIRECT PIPE



PIPE THRUSTER

- Invented as Aid Tool for HDD assist



WHAT WE DO – DIRECT PIPE



PIPE THRUSTER - COATING

- The Pipe Thruster System can operate on different Pipeline Coatings
- Multiple Pipeline Owners did test their Product Pipes in Germany at Herrenknecht AG Factory
- The following Coatings can be used:
 - Polyethylene (PE)
 - Polypropylene (PP)
 - Fusion Bonded Epoxy (FBE)
 - Glass-Fiber-Reinforced-Plastic (GRP)
 - Concrete Coating



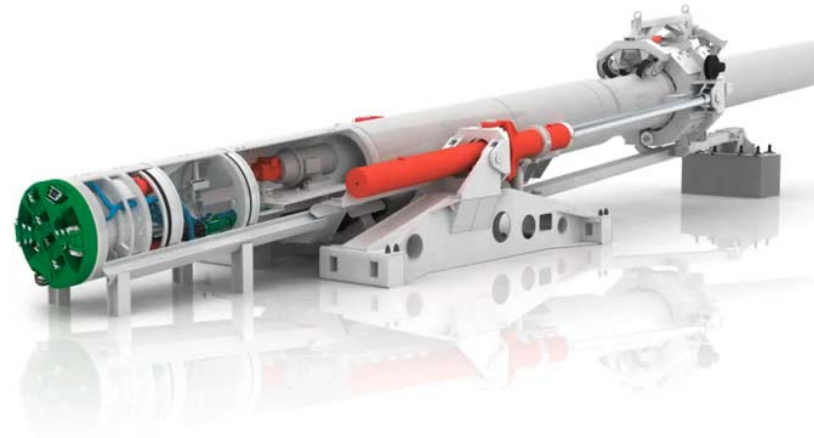
Provided by



WHAT WE DO – DIRECT PIPE



Direct Pipe Pipeline installation in one step



WHAT WE DO – DIRECT PIPE



• DIRECT PIPE REFERENCES

Over 70 Crossings successfully completed

- 30% of the projects were in sandy, clayey ground conditions containing cobbles / stones / gravel (explicitly mentioned)
- 10% of the projects mention wood or timber explicitly
- 10% of the projects were in geological conditions containing boulders or rock



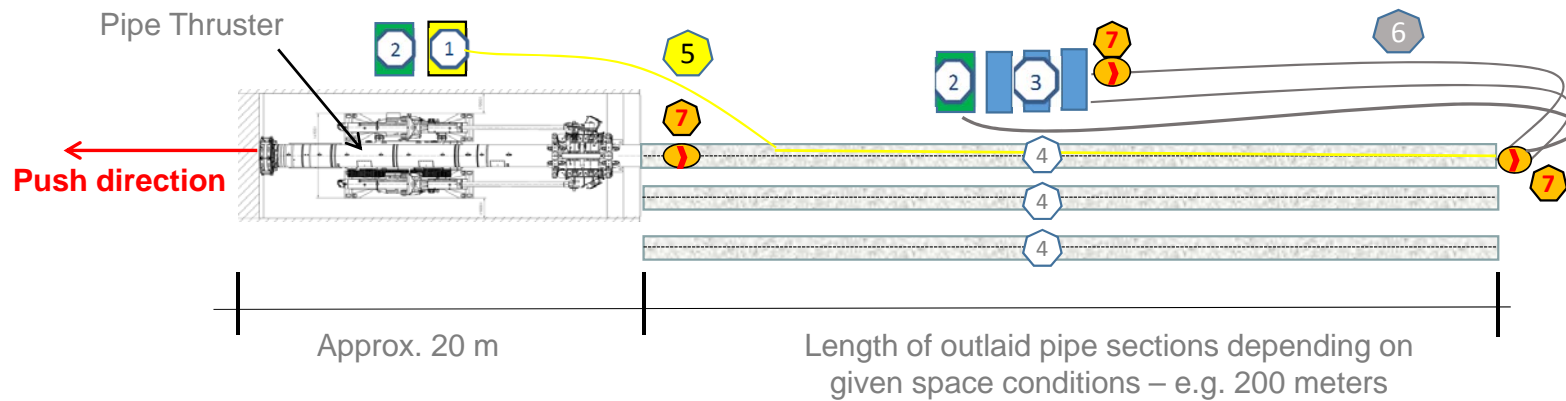
Year	Country	Client	Project Name	Length (m)	Depth (m)	Notes
2010	USA	...	...	...	...	...
2011	USA	...	...	...	...	...
2012	USA	...	...	...	...	...
2013	USA	...	...	...	...	...
2014	USA	...	...	...	...	...
2015	USA	...	...	...	...	...
2016	USA	...	...	...	...	...
2017	USA	...	...	...	...	...
2018	USA	...	...	...	...	...
2019	USA	...	...	...	...	...
2020	USA	...	...	...	...	...
2021	USA	...	...	...	...	...
2022	USA	...	...	...	...	...



WHAT WE DO – DIRECT PIPE



DIRECT PIPE - FOOTPRINT



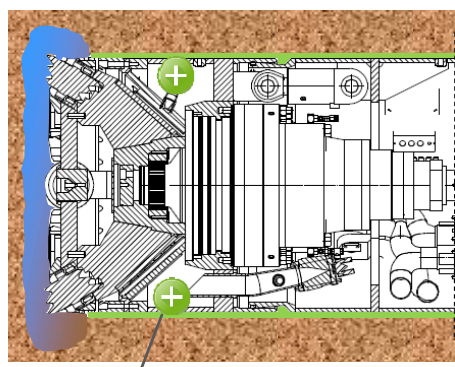
1. Control Container
2. Generator
3. Separation & Bentonite Mixing Plant
4. Pipe sections
5. Data- & Electric cables
(connected with Control Container)
6. Slurry- & Bentonite Lubrication Lines
(connected with Separation Plant)
7. Feed- & Discharge Pumps



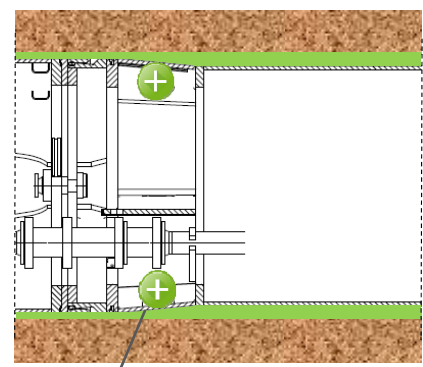
WHAT WE DO – DIRECT PIPE

LUBRICATION SYSTEM

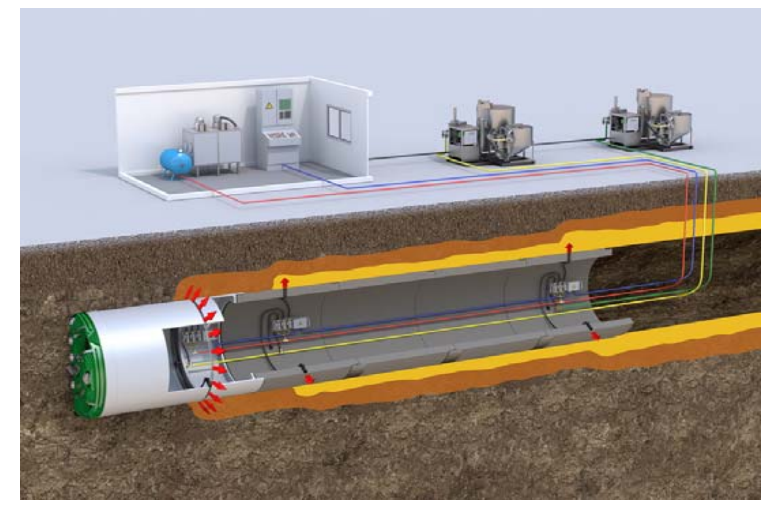
- 2x Lubrication Ports (Launch Seal & Machine)



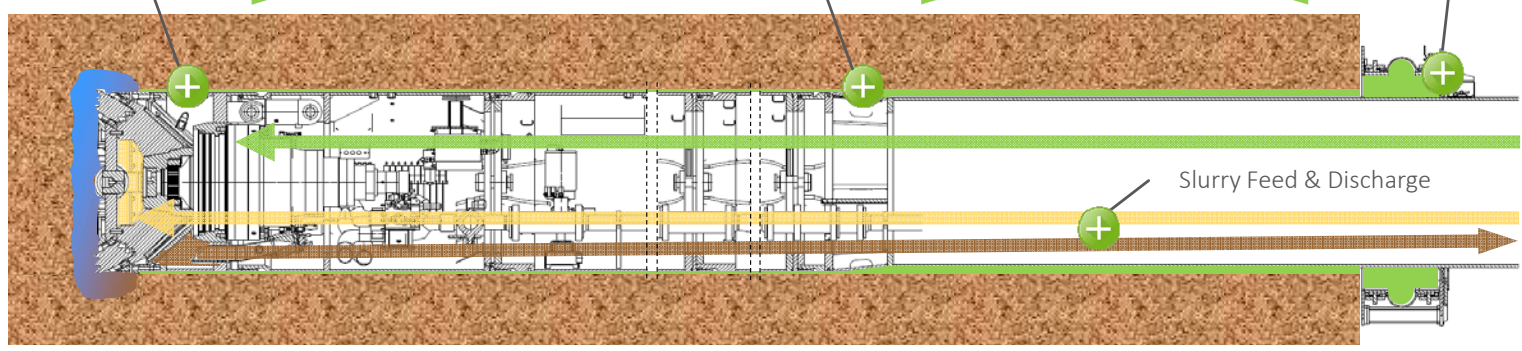
Lubrication Ports at DP-MTBM



Lubrication Ring at Conical Transition



Bentonite Lubrication at Launch Seal

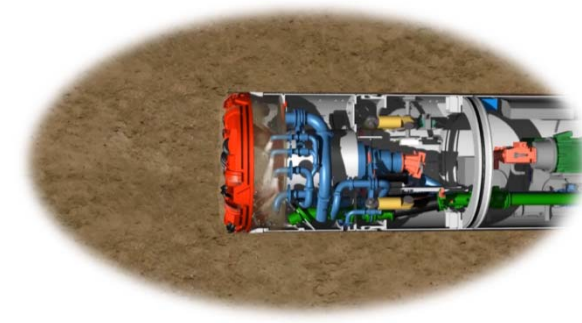
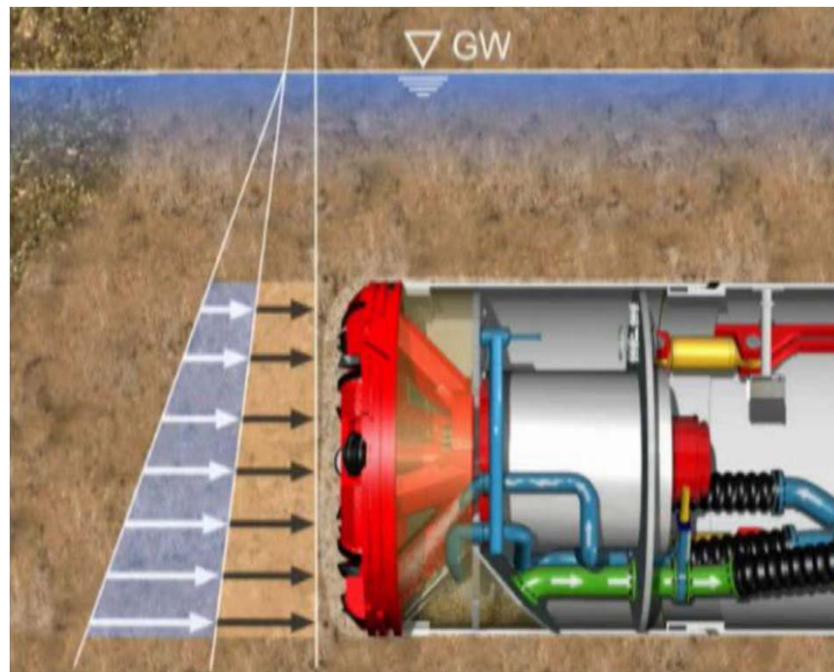


WHAT WE DO – DIRECT PIPE



DIRECT PIPE – SMALL OPERATING PRESSURE

- Less coverage required (1.5 – 2 x Pipe OD) = **less Operating Pressure = LESS FRAC OUT RISK**
- The maximum Operating Pressure is defined by the Ground- and Water Pressure in the **Operating Depth** of the Alignment

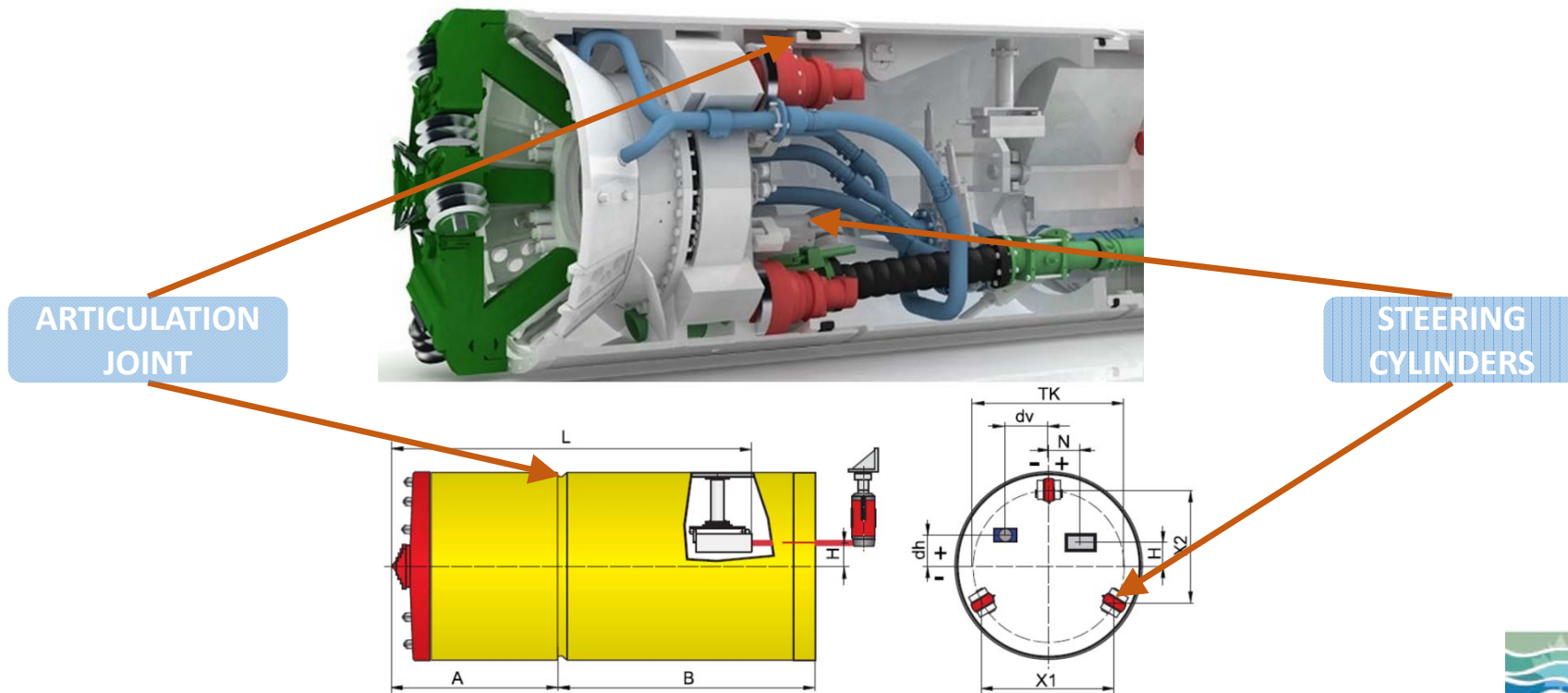


WHAT WE DO – DIRECT PIPE



DIRECT PIPE – SEETING & NAVIGATION SYSTEM

- Steering of the MTBM with an active **ARTICULATION JOINT** and **STEERING CYLINDERS**

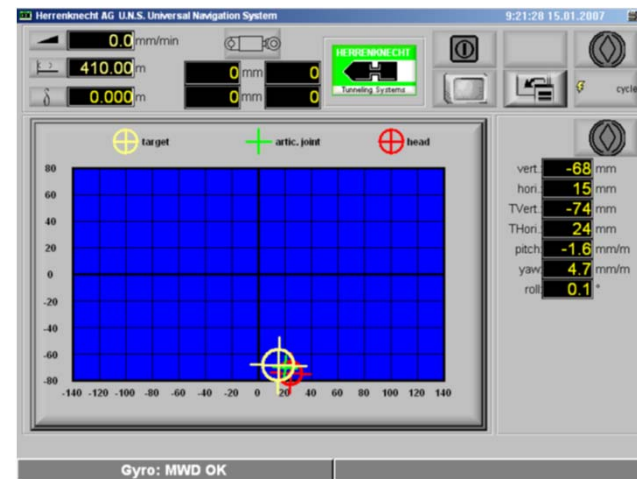
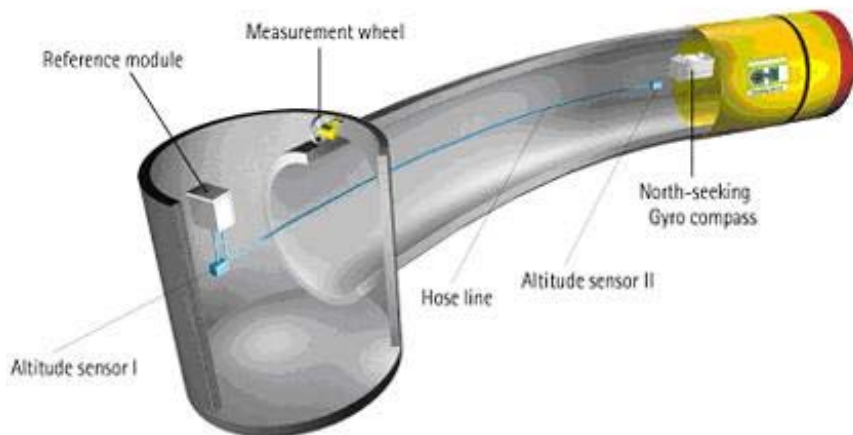


WHAT WE DO – DIRECT PIPE



DIRECT PIPE – SEETING & NAVIGATION SYSTEM

- Navigation System by Herrenknecht AG – U.N.S
 - Gyro
 - Hydrostatic Water Level (HWL)
 - Height & Reference Sensors
 - Length Measuring Wheel
 - Displayed on a Monitor in the Control Container

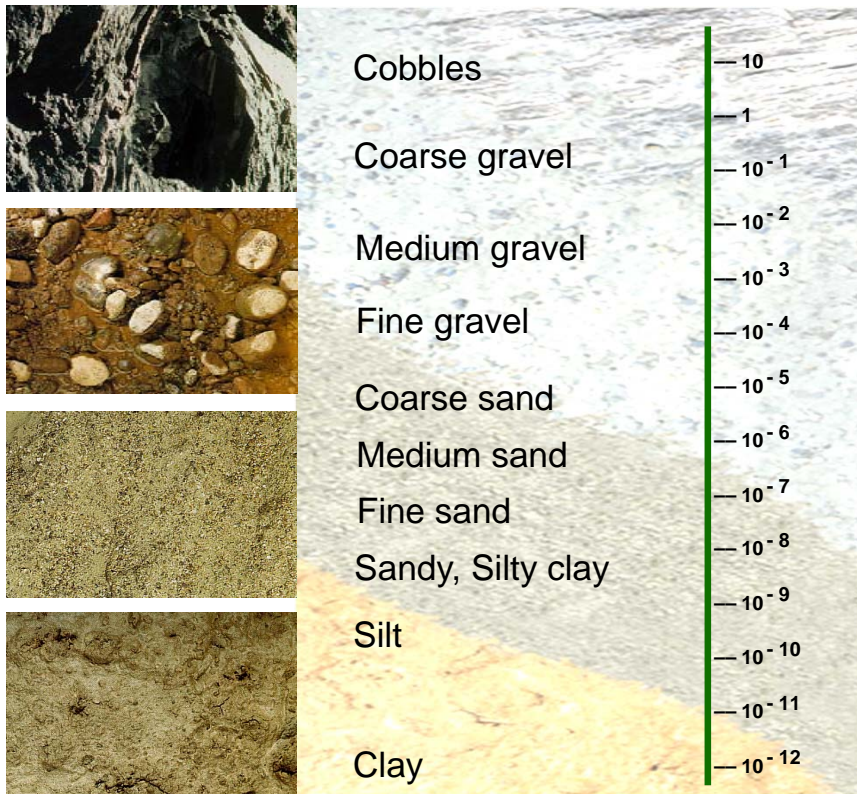


WHAT WE DO – DIRECT PIPE



DIRECT PIPE - BENEFITS

- Adaptation to various soil conditions



Rock Cutter Head



Mixed Cutter Head



Standard Cutter Head

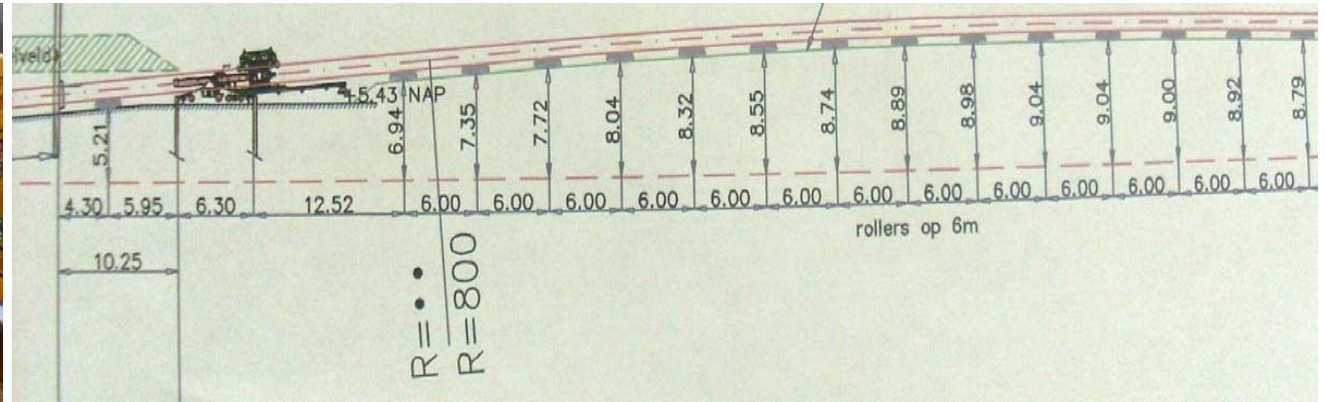


WHAT WE DO – DIRECT PIPE



DIRECT PIPE - BENEFITS

- Small Overbend
- Less Side Boom and Crane Operation
- Cost Efficient
- Less Product Pipe Stress



WHAT WE DO – DIRECT PIPE



DIRECT PIPE - BENEFITS



90% Less bentonite



60% less fuel consumption



50% less working space on entry side, **70%** less working space on exit side



80% less water



65% cost savings due to reduced drilling mud

WHAT WE DO – DIRECT PIPE



DIRECT PIPE - EXIT

- Recovery from Surface possible
- No major Pit construction required (depending on project circumstances)



THANK YOU FOR YOUR ATTENTION



PLEASE DON'T HESITATE TO CONTACT US FOR ANY QUESTIONS



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