
Ulrich Schaffhauser, Member of the Board, Herrenknecht AG
Manila, Philippines, February 2019
Herrenknecht AG in Schwanau, Germany.

- Founded in 1977
- Conversion to Herrenknecht AG in 1998
- Order Inflow 2018: 1.4 billion Euro
- Today around 5,000 employees worldwide, 2,000 in Schwanau, around 200 young people in training
Herrenknecht Group.
Application fields of Herrenknecht machine solutions.
Herrenknecht. Pioneering Underground Technologies
Herrenknecht Tunnelling Solutions.
Full-Range-Tunnelling for an optimized construction site process.

- Segment production
- Peripheral Equipment
- Separation Plant
- Belt conveyor system
- Multi-service vehicles
- Technical staff
- Navigation & Monitoring
- Data management

Herrenknecht. Pioneering Underground Technologies
Herrenknecht Tunnelling Solutions.
For Philippine Infrastructure Projects.

Utility Tunnels & Shafts
- Sewage networks
- Water supply tunnels
- Cable tunnels and casings
- Shaft construction

Pipeline Construction
- Oil & Gas pipeline crossings
- Pipeline landfalls

Hydropower Solutions
- Headrace tunnels
- Tailrace tunnels
- Penstock and pressure tunnels
- Inclined tunnelling
Herrenknecht Tunnelling Solutions.
For Philippine Sewage Projects.

- 12 x AVN Microtunnelling equipment delivered since 2013
- Ø 300 – 1200mm
- **Sewage Projects** in Manila and Cavite Province
- Designed for inner-city works with restricted surface and night-time operation requirement

- AVN 1500 delivered 2002
- **Microtunnelling for Fuel pipeline**, Airport of Manila
Herrenknecht Tunnelling Solutions.
For Philippine Water Projects.

- EPB 3100, OD 3500 delivered for **Manila Water Project**
  - NBAQ4: Novaliches – Balara Aqueduct No. 4
  - Tunnel length: 7.3 km
  - Curved alignment: r = 80m
  - Disassembly in the tunnel
  - Contractor:
    - NovaBala JV Corp.:
    - First Balfour, CMC, Chun Wo
  - Client: Manila Water
Herrenknecht Tunnelling Solutions.
For Hydropower Projects.

- Uma Oya Multipurpose Development Project
- M-1684M + M-1685M, Double Shield TBM 3600, OD 4240
- Location: Uva, Sri Lanka
- Use of tunnel: Headrace + Tailrace Tunnel
- Tunnel length: 3.6 km + 15.1km
- Geology: rock
Herrenknecht Tunnelling Solutions.
For Pipeline Projects.

- Tangguh LNG Expansion Project, Pipeline landfall
- H-123; HK400M, HK500PT Pipe Thruster
- Location: Bintuni Bay, Papua Barat, Indonesia
- Pipeline Ø: 24”
- Pipeline length: **3 x 2,065m**
Herrenknecht Exploration Solutions.
Vertical deep drilling rigs for geothermal energy, oil and gas.

- HK150CS SDD at 90° working angle
- Geothermal Wells for Heating (NL)
- **Depth:** 500 – 1,250m

- TI-350 Box-on-box, Finland
  - **Depth:** 2 x 7,000m
Herrenknecht Mining Solutions.
Philippine Projects with HK Mining Equipment.

- **RBR 600 – first HK Raise Boring Rig**
  - Machine delivered 2010
  - Ø up to 6m | Depth: 1,200m
  - Client: Pybar Mining Services
  - **Didipio Mine:**
    - Finished in total 8 shafts
  - **Carrapateena Mine:**
    - Reaming ongoing
PIONEERING UNDERGROUND TOGETHER

THE FUTURE LIES UNDERGROUND.

Herrenknecht. Pioneering Underground Technologies