

Wassara

# DRILLING FOR INSTRUMENTATION CASING IN DAMS



# WASSARA SINGLE STEP SYSTEM

The water-powered technology from Wassara is the fastest and most cost-effective method to drill casing for monitoring instruments in dams. The proven technology, which is eight times faster than traditional methods, also minimises the risk of pressurisation of the formation.

## SENSITIVE AREAS

There are always safety concerns when drilling in dam structures. With Wassaras water-powered drilling technology, these concerns are minimal. The unique technology, which has been used in numerous dam rehabilitation projects over the years, greatly reduces the pressure applied to the rock formation.

Furthermore, by combining Wassaras DTH technology with a filter tube, installing instruments can be carried out much faster than with traditional methods. A traditional installation of a 2" tube usually takes up to two full working days. A Wassara installation of a 2" tube takes approximately two hours. This is up to eight times faster than comparable technologies.



The Wassara way of installing an instrumentation casing

## WASSARA AND DAM INSTRUMENTATION

The Wassara dam instrumentation casing system comprises:

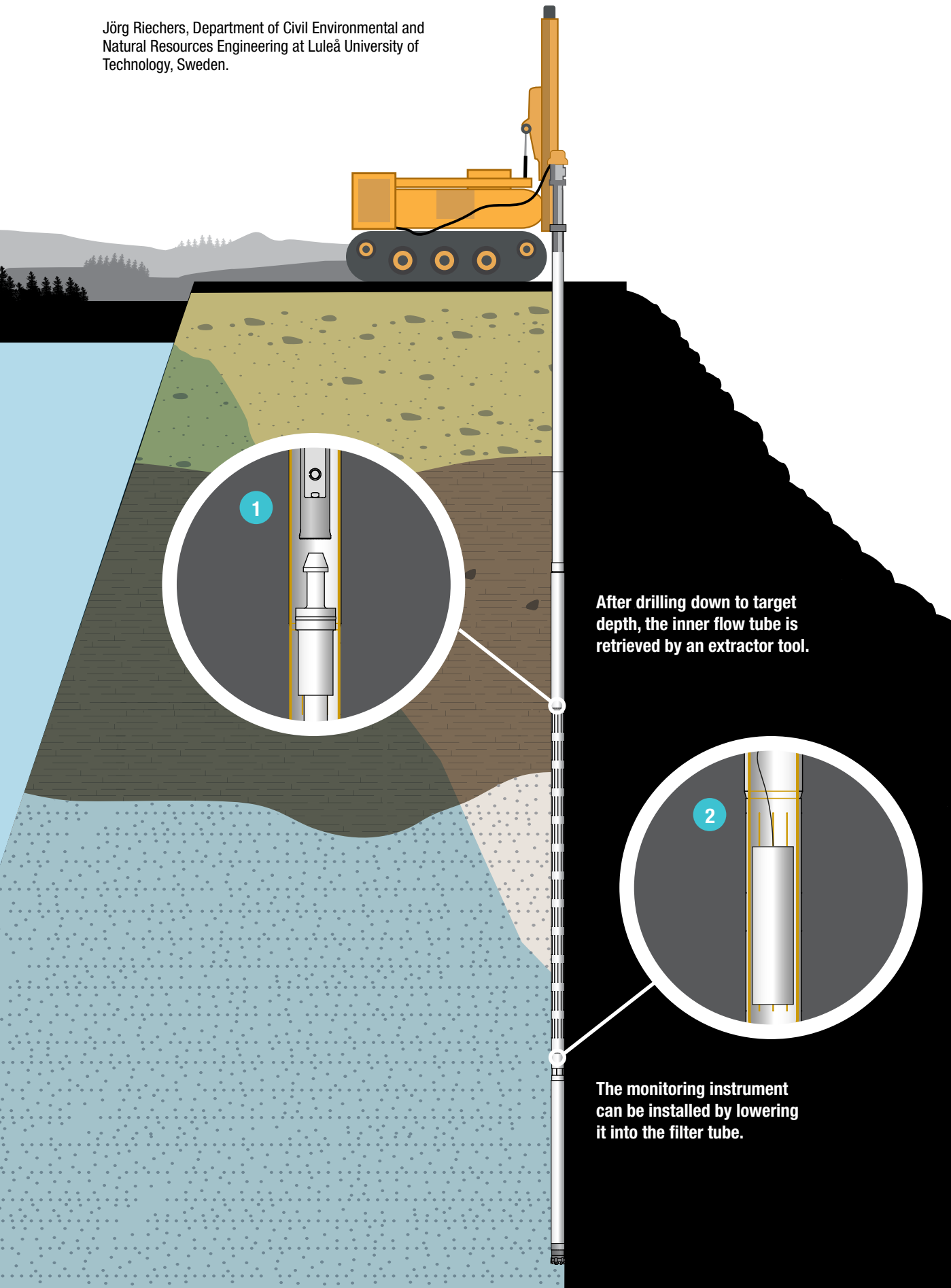
- Wassara hammer and bit
- Casing tubes
- Filter tube
- Inner flow tube
- Extractor tool

Technical data	
Hole size Ø	43 mm
Filter tube material	Stainless steel
Outer filter diameter Ø	38 mm
Inner filter diameter Ø	26 mm
Slot width	0.5 mm
Casing tube material	Galvanized steel
Casing tube outer diameter Ø	40 mm
Casing tube inner diameter Ø	30 mm
Casing tube length	1 or 2 m



**The Wassara solution gives up to 8 times higher productivity at 40 m deep holes, a measured average of 4 holes per day with the Wassara solution. Traditional drilling method requires 2-3 days per hole.**

Jörg Riechers, Department of Civil Environmental and Natural Resources Engineering at Luleå University of Technology, Sweden.



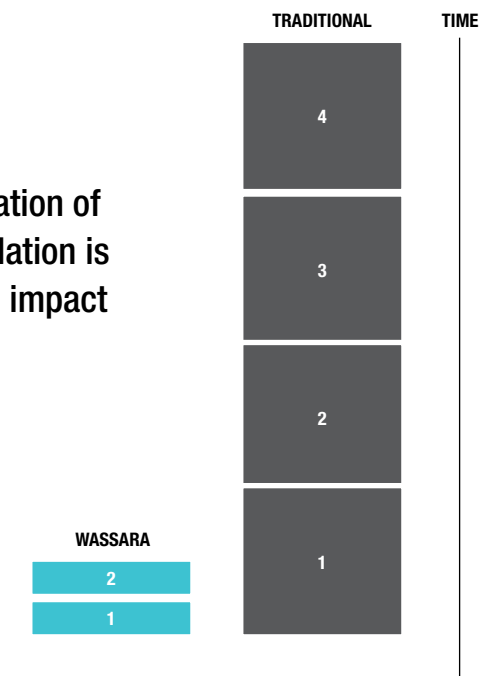
**After drilling down to target depth, the inner flow tube is retrieved by an extractor tool.**

**The monitoring instrument can be installed by lowering it into the filter tube.**

## COMPARING WASSARA AND TRADITIONAL METHOD

Steps	The Wassara way	The traditional method
1	Drill down to target depth. The inner flow tube prevents the water from escaping through the filter.	Install a 4" casing by drilling it down to target depth.
2	When the target depth is reached, the inner flow tube is retrieved by an extractor tool.	The 2" instrument tube is installed inside the 4" tube.
3		The remaining area is filled with filtration sand.
4		The 4" tube is extracted.

By eliminating the temporary installation of a 4" casing, the time spent on installation is greatly reduced. This also gives less impact on the dam structure.





# KEY BENEFITS WITH WASSARA

**Reduced**  
project time

**Simple**  
installation

**800%**  
faster installation

**LOW**  
water  
consumption

Allows  
**smaller**  
and **lighter**  
equipment

**Minimal**  
disturbance to  
dam structure





**wassara**

## **Wassara – cost-efficient and environmentally friendly drilling**

LKAB Wassara is a Swedish company developing and manufacturing unique water-powered drilling systems for high performance in surface- as well as underground drilling operations. The heart of the Wassara drilling system is the world patented water-powered down-the-hole hammer.

The drilling systems have been used for more than 20 years in various applications within many industries; mining, exploration, ground engineering, dams, geothermal, marine, oil & gas storage. Our experience covers more than 25 million drilled metres working in different locations around the world. Reference studies can be found on our website.

LKAB Wassara was founded in 1988 and is owned by LKAB. LKAB is an international high-tech minerals group that produces iron ore products for the steel industry and other mineral products for many other industries and applications.

**Explore more at [www.wassara.com](http://www.wassara.com)**