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In order to allow us to most efficiently evaluate HAPP™'s ability to clean your pipeline, please send us the filled in HAPP™ Questionnaire available on our website.

Preferred Partners:

Aqua Drill International Inc., Houston, Tx., USA

AKOjet, Gretzenbach, Switzerland

**Do you expect extraordinary results
from a pipeline pigging job?**

Pipeline pigging with a

Hydraulically Activated Power Pig

HAPP™

Efficiency

Reliability

Flexibility

The information contained herein is general in nature and is not intended for specific construction, installation or application purposes. HAPP Technology reserves the right to make changes in specifications or add improvements at any time without notice or obligation.



The new approach for pipeline pigging:

A **Hydraulically Activated Power Pig (HAPP™)** transforms the transportation energy available in your pipeline in effective cleaning power. Today, no other pigging technology is able to clean your pipeline in such an effective and elegant way.

HAPP™ – How does it work?

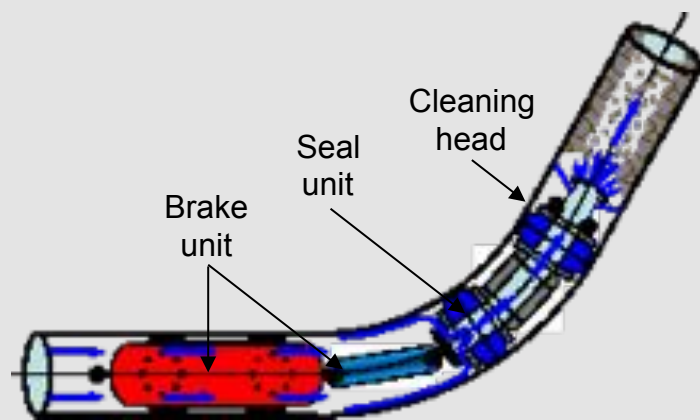
To allow pipeline cleaning with HAPP™ only the operation line pressure needs to be increased by 100 to 400 psi (7 to 28 bar) to maintain the original fluid flow rate. The higher the pressure can be increased (the maximum operation pressure of the pipeline is the limit) the more effective the HAPP™ technology will clean.

HAPP™ consists of three units: a brake unit, a seal unit and the cleaning head:

All units have openings that allow the entire fluid flow of a pipeline to bypass. The brake unit ensures that HAPP™ is held back against the fluid flow in the pipeline. Thus the fluid pushes against the following seal unit which channels it into the openings of the cleaning head.

With the pressure difference across the seal the fluid is accelerated in the cleaning heads' nozzles creating extremely strong liquid jets directed onto the pipe wall and removing all kind of deposits. The brake unit is adjusted in a way that HAPP™'s travel speed is up to 60 times slower than the fluid velocity thus entirely removing deposits from the pipe wall before HAPP™ travels across the cleaned surface.

The deposits removed are immediately flushed downstream the pipeline with the main jet of the cleaning head which is directed in the middle of the pipeline. With all deposits removed from the pipe wall and transported downstream by the product flow there remains no risk of HAPP™ getting stuck as a result of a debris plug that built up in front of it.



Applications

Our many years of experience in hydraulic pipeline cleaning allows us to choose the appropriate cleaning head for removal of your specific deposit.

The HAPP™ technology is available for pipeline inner diameters from 6".

It is notably appropriate for:

- Non-standard and difficult industrial pipeline cleaning / pigging jobs.
- Industrial pipeline cleaning / pigging jobs which need to be carried out while the pipeline has to be kept in operation.
- Industrial pipeline cleaning / pigging jobs desiring a exceptionally clean pipeline (i.e. a prerequisite for intelligent or smart pigging).
- Cleaning jobs that need to be completed in one single run or a very short time.
- Pipelines already subject to a regular pigging program but still requiring a more powerful cleaning run from time to time in order to prevent build-up of hard scale.

HAPP™ pigging service – elegant & effective!

Our experienced operators adopt HAPP™ to your specific pipeline situation (inner diameter, fluid properties, deposits, pressure situation, etc.) in order to most effectively fulfil your cleaning expectations.

Why choosing HAPP™ ? – Advantages

Pipeline operations:

- Pipeline operation can continue while pigging.
- No limits in operation reach.

Cleaning effectiveness:

- The adjustable and controlled travel speed allows extraordinary pigging effectiveness: with only one single cleaning run the pipeline is 100% clean!
- Various cleaning heads are available for removal of all kind of deposits.
- The local pressure difference across HAPP™ can be transformed in any kind of cleaning energy (brush, high pressure fluid jets, rotating, etc.).

Removal of debris:

- Removed debris is constantly flushed downstream by the fluid flow through the pipeline and the HAPP™.

Pipeline geometry:

- The HAPP™ construction allows negotiation of T-fittings, steps, deformed pipe inner diameter, welding lines, elbows, etc.

Safety:

- No conventional pig blocking due to built up of debris plug in front of it.

