



WHEELED SUPPORT PIGS

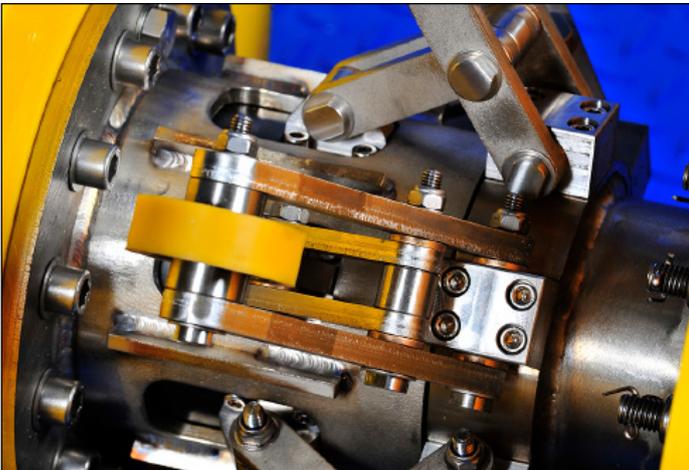
Product Overview

With the increasing need for pigs to pass through multi-diameter pipelines there has been significant development of new pig types.

Where traditional multi-diameter pipelines have stepped between 50-60mm, now diameter changes up to 150-250mm can be considered.

Propipe has been providing a unique pig design, which uses wheeled support arms to replace the conventional guide disc arrangement.

The pig has proven to provide 100% reliability and also a dewatering ability that is second to none. Wheeled support pigs use a series of wheel mounted arms to carry the pig. These are mounted to a central suspension system, allowing the suspension arms to move as a collective unit and providing constant, non-rotational operation. This action ensures that the pig does not drop its centreline below the pipeline centreline, which in turn means that the sealing discs are always centrally held within the pipeline.



Conventional pipeline pigs use rigid polyurethane guide discs to support the weight of the pig, guide it through the pipeline, but these guide discs can suffer from compression set or slow recovery (when used for large diameter changes), which can mean a loss of seal.

Sealing discs that are held centrally within the pipeline provide maximum sealing ability, which ensures maximum dewatering ability.





WHEELED SUPPORT PIGS

In many cases, piggability trials and offshore operations have confirmed that a wheeled pig can be ran with a small number of seals, but provides extremely high dewatering performance.

The low running DP needed also helps to ensure that the pig is allowed to perform at its optimum without any speed-affected loss in performance. This improved performance also allows the pig design to be used for cleaning and gauging operations as well as production maintenance operations.

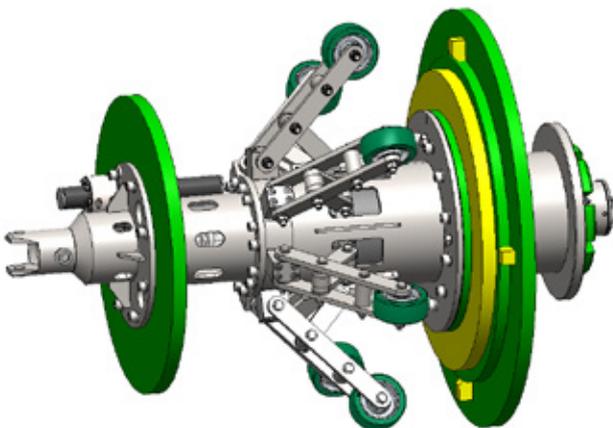
Pigs can carry brush modules, bypass jetting units and both standard and SMART Gauge Systems, along with Wheeled Measuring Systems.

Wheeled-support pigs have been designed, tested and field proven for the following diameter changes and Propipe continues to develop for larger step changes.

As an alternative to gauging OR a more complex caliper tool, the Trident diameter measuring system delivers an average internal diameter of the pipeline.

The system utilises the wheeled suspension systems of the pig to measure the diameter the wheels are on throughout the pipeline run. This is done by measuring the position of the central piston (inside the pig) to which all wheel arms are connected.

The accuracy of this system is +/- 0.2mm change in diameter.





WHEELED SUPPORT PIGS



Project References

Propipe has provided products for a number of significant projects. Below is a brief list of some of these projects and products.

CLIENT	PROJECT	DETAIL	FLEXIBLE PIPE
Shell UK	Shamrock / Caravel	16" x 20" Flooding and Dewatering Pigs	Rigid
Yemen LNG	YLNG	38" x 320km Heavy Duty Black Powder Cleaning Pigs	Rigid
Baker Hughes USA	Keithley Canyon Project	16" x 20" Cleaning Pigs – 330km	16"
Technip / Clough	ONGC G-1 & GS15 Field Development	10" x 8" Dewatering Pigs	Rigid
Enterprise Oil USA	Lucius Spar	16" x 20" Flood, Clean & Dewatering Pigs	Rigid
Saudi Aramco / Saipem	Wasit Project	12" x 8" Dewatering Pigs	Rigid
Halliburton UK	Shell Bittern	8" x 10" Heavy Duty Cleaning Pigs	Rigid
Baker Hughes Canada	SWRX Gas Injection Pipeline Project	10" x 8" Dewatering Pigs	10"
EnQuest UK	Northern Producer Pipeline	8" x 10" Production Cleaning Pigs	10"
Weatherford UK	Ghana Gas Project	10" x 12" Operational Cleaning Pigs	10"
Halliburton UK	TEN Project – Jubilee Gas Export Pipeline	10" x 12" Decommissioning Flooding Pigs and also Recommissioning Dewatering Pigs	10"
Allseas Netherlands	ROTA 3 Project – Brazil	20" x 24" Flood, Clean, Gauge and Dewatering Pigs	Rigid
Chevron Nigeria	Escravos Gas Pipeline	20" x 24" Pre-Inspection Cleaning and Gauging Pigs	Rigid