



DUAL-DIAMETER AND MULTI-DIAMETER PIGS

A conventional Disc Pig has stiff, rigid guide discs that are sized below (typically 99%) the minimum pipe internal diameter (min ID) and soft, flexible sealing discs sized above the maximum ID (typically 105%).

The term multi-diameter or dual-diameter is applied to lines with definite changes in outer diameter (say 8" x 10"), but also lines of one diameter that contain several large internal diameter changes.



Changes in pipe wall-thickness or fittings (valves, tees etc) can also create situations similar to those seen in true 'dual-diameter' or 'multi-diameter' pipelines. When designing a pig to suit more than one ID, we first look to see if a conventional pig design can be used. To do this we see if the sealing discs can be increased (to a maximum of 12% over the minimum line ID) or if the guide discs can be reduced. If the seals are too large, we run the risk of them creasing in the smallest ID, causing a leak path. Similarly, if the guide discs are too small, the pig sits lower in the large IDs, leading to a potential leak path at the top of the pig (as the seals are sitting too low in the pipe too).

If the changes in pipeline ID mean that conventional seal and guide arrangements cannot be used, then we must adopt a multi-diameter approach to the pig design. There are two basic possibilities: -

- Leave the design as normal, but cut slots around guide discs, so that they can run in the larger ID but bend easily in the smaller ID
- Use guide discs sized below the minimum ID and seals sized above the maximum ID plus intermediate seal/guide discs to provide sealing or support in the zone between the ID range of the pipeline
- Use sealing or guide discs that are provided as flaps / segmented
- Replace (or supplement) guide discs with wheel support

The decision on which option to use is not based purely on the minimum and maximum pipe ID, but also where those diameters occur within the pipeline system. If the line ID is the minimum ID, but bends are at the maximum, the pig will be different from one for a line where the bends are a smaller ID than the pipeline.

Propipe produces all styles of pigs, backed up with engineering drawings and studies plus prototype development and in-house testing. Selection of the correct pig design is always done specific to the pipeline and is dependant upon the number if ID changes and their location within the pipeline.

Propipe experience and commitment to providing the correct pig is essential, to ensure safe, reliable performance.



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