Fact Sheet

Innopipe Piggable Drip

Removes pipeline liquids in annular flow and remains piggable

Produced water, condensate, inhibitors and carry-over chemicals left in a gas line cost money, reduce throughput, cause higher corrosion risk and cause slugs. Effective liquid removal must work alongside cleaning and smart pigs. Traditional drips miss most of the liquids along the full diameter annulus at typical gas transmission velocities. The Innopipe piggable drip removes the liquid film continuously and keeps the line fully piggable.

~10x better than most common industry drips in annular flow	**>99%+** liquid-free, typical under design conditions	**<1 psi** pressure drop for the piggable Innopipe	1" - 60" line sizes, sweet or sour service

Why traditional drips fall short

- **Built for slow flow only.** A traditional drip is a U or L-shaped leg under the line and only captures liquid flowing along the bottom of the pipe (stratified flow), which only happens at low gas velocities.
- **Most gas lines operate at higher velocities.** Above about 3 m/s (roughly 10 ft/s), fast-moving gas pushes the slower-moving liquid into a thin film on the pipe wall (annular flow), resulting in much of the liquid bypassing a conventional bottom drip opening.
- **Efficiency collapses.** In field tests conducted with a major producer and the University of Calgary at a gas plant, standard and modified drips fell to less than 5% of the maximum attainable efficiency once annular flow established itself naturally.
- **Liquid stays in the line.** Liquids collect in low spots, raise pressure drop, speed up internal corrosion and arrive at the plant or compressor as slugs or difficult to control surges.

How the Innopipe piggable drip works

1

Full-bore pipe section

The separator is a pipe section of the same diameter as the pipeline, surrounded by an outer chamber.

2

Barred slots

Slots in the pipe wall let the annular liquid film exit the stream, while the pigging bars enable pig passage.

3

Liquid drains away

Slow moving liquids are given a path to make way for fast moving gas and drain by gravity into the collection reservoir. Gas is given equalization space but does not require processing.

4

Pig passes through

For pigging, close either of the isolation valves to the reservoir and the pig passes through, in either direction. It can even be stopped inside the Innopipe temporarily if desired.

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Key Benefits

- **Works *with* annular flow, where traditional drips fail.** Outperformed the most common industry drips by close to a factor of ten in field tests.
- **Up to 99%+ liquid removal.** Gas is typically >99%+ free of liquids under typical operating conditions.
- **Under 1 psi pressure drop** for the piggable version, so less or no booster compression is required.
- **Fully piggable, bi-directional.** Innopipe's slots that accommodate bi-directional pig transits.
- **Same size as the pipeline.** Main gas flow continues through what is essentially straight pipe.
- Flexible installation: buried, above ground or in vaults.

Specifications at a glance

Item	Innopipe piggable drip
Line sizes	1" to 60"
Service	Sweet or sour
Design codes	ASME
Liquid removal	Up to 99%+ free of liquids under typical design conditions
Pressure drop	Under 1 psi (piggable version)
Annular-flow performance	Efficiency maintained through the annular flow regime; declines gradually only at very high velocities, to about 45% at 15 m/s (49 ft/s) under the conditions tested yet remains effective in non-annular flow regimes.
Pigging	Fully piggable and bi-directional; close either of the isolation valves to pig
Installation	Buried, above ground or in vaults

Using them together

Component	What it does	Removes liquids?	Pig passes?
Innopipe piggable drip	Removes the liquid film continuously at low and high velocities	Yes, including in annular flow as well as stratified flow	Yes, in both directions
Traditional drip	Catches liquid at the bottom of the pipe	Only at low velocity	Yes, if barred, and opening is correctly sized for pig.