

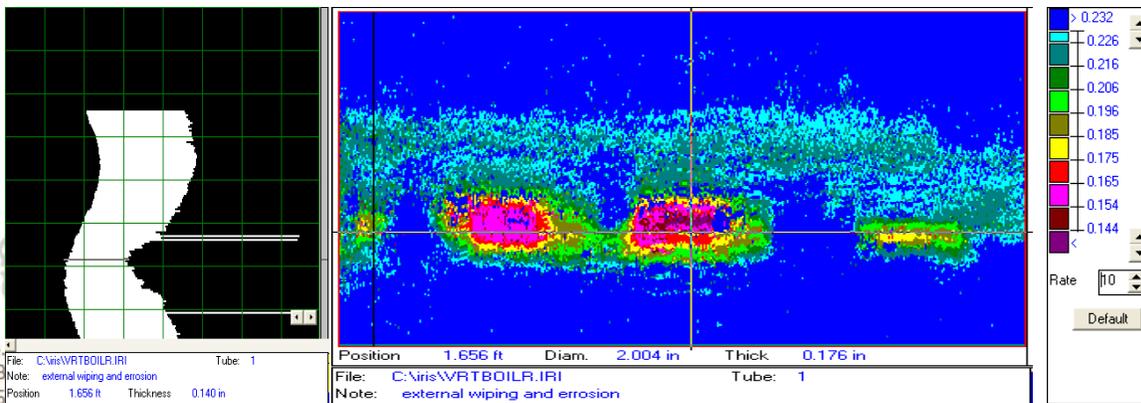
## IRISpig In-line Inspection Tool

Pipeline integrity is paramount in maintaining reliable service and optimizing repair budgets while ensuring environmental compliance objectives are met. Monitoring critical areas of the pipe for erosion, corrosion, and other thinning damage is an essential part of pipeline integrity.



Detailed knowledge of pipe wall condition is an inexpensive way to proactively plan for maintenance activities and extend the remaining useful life of the line. Use of the Internal Rotating Inspection System Pig (IRISpig-as pictured) reduces long-term project costs and provides reassurances in a challenging economy and amid increasingly stringent environmental regulations and penalties.

The ultrasonic (UT) IRISpig has been successfully applied as a pipeline and facility piping corrosion best-practice tool internationally for more than 30 years. Its real-time feature allows identification of ID/OD erosion, corrosion, dents, bows, and can provide greater accuracy than conventional Magnetic Flux Leakage (MFL) tools. The technology is easily applied when pipelines are undergoing maintenance.  
Bottom Line: Increased protection, no lost time, and fewer project dollars needed.



462, 11215 Jasper Ave.  
Edmonton, AB  
T5K 0L5  
Phone: 780.461.9393  
Fax: 780.463.4386  
Info@avheng.com  
www.avheng.com

Accurate, easy to understand B & C scan displays.



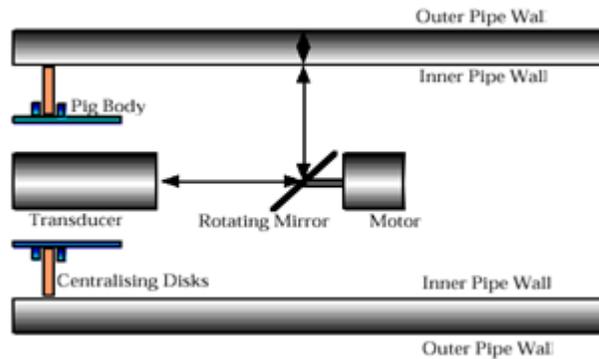
**AVHENG**  
ASSET  
INTEGRITY  
SERVICES



# IRISpig In-line Inspection Tool

## How Does it Work?

The IRISpig's design allows for easy access to the interior of the pipeline. When in the pipeline, the IRISpig's transducer sends UT signals to a rotating mirror, which reflects them through liquid couplant to the pipe wall, where the pipe wall thickness is accurately measured. The UT signal returns to the electronics for evaluation (see live picture of screen below).

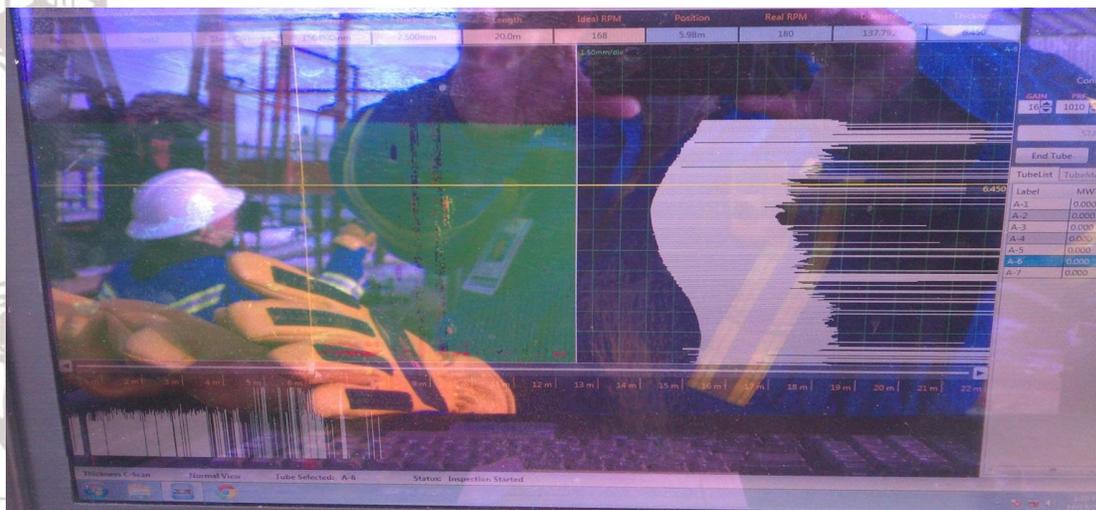


The tool differentiates between the internal and external surfaces, providing a wall profile and accurate wall thickness measurement as it travels through the pipeline in either bi-directional, self-contained or tethered modes. As an added benefit, the IRISpig is suited for non-piggable lines with single access points, flow lines, risers, river/road crossings, tank lines, and can even negotiate difficult 1.5D bends. Bottom Line: Production and compliance assurances can only be built on precision and accuracy.

## Tool Specifications

	IRISpig
Diameter range	150 mm – 600 mm (6"-23")
Horizontal distance	Up to 5 km (3.1 miles)
Wall thickness	Up to 40mm (1.575")
Weight	75 kg (165 lbs)
Speed/minute	1.5 metres (4.9 feet)
Material	Ferrous / non-ferrous / plastic / HDPE / other

462, 11215 Jasper Ave.  
Edmonton, AB  
T5K 0L5  
Phone: 780.461.9393  
Fax: 780.463.4386  
Info@avheng.com  
www.avheng.com

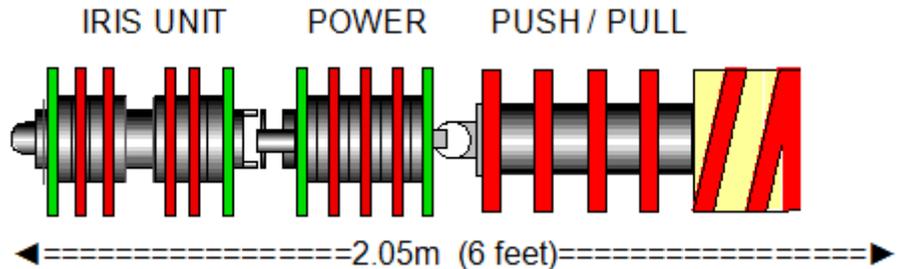


# IRISpig In-line Inspection Tool

## Features

The IRISpig consists of self contained assemblies joined with universal couplings:

- Push/Pull Unit
- Power Unit
- Inspection Unit (IRIS)



- Distance encoder
- Metric or Inch measure
- Bi-directional
- Programmable delay start
- Negotiates 1.5D bends
- Hydraulic Push
- Water /other liquid couplant
- 6mm Scan Width
- Minimum defect resolution dependent on pipe diameter
- Turbine RPM – dependent on pipe diameter - from 200 rpm
- Pig travel speed - Dependent on pipe diameter – from 1m / minute in 600mm OD
- Transducer – 3, 5, 7, 10 MHz
- Data view – on Windows based PC computer
- Data download. – Within 20 minutes of pig cleanup
- Data images – B scan sweeps, C scan length, and 3D scan displays

## Comparison: IRISpig vs. MFL runs

IRISpig Data										MFL RESULTS		
Position	Defect Area #	Location	Width	Length	RWT	Position	% RWT	Comment	Pos.	% ML	Comment	
0.0		Start sea line										
6.5		Start i.c.										
10.3	1	End i.c.	113	3,750	14.3	12	90%	Elongated shallow pitting			No data	
13.0		Start i.c.										
14.5	2	End i.c.	100	600	14.3	12 / 6	90%	2 x pits	13	37	Could be corresponding	
16.0		Start i.c.										
16.3	3	End i.c.	127	500	14.5	12 / 6	91%	2 x pits	18	11	No match found	
47.0		Start i.c.										
47.7	4	End i.c.	180	100	13.5	12	85%	Short pit	49	12	No match found/ No data	
51.0		Start i.c.										
51.3	5	End i.c.	400	90	12.3	12	77%	Short but wide/deep pit	55	21	Could be corresponding	
59.4		Start i.c.										
74.8	6	End i.c.	275	15,400	12.7	12 / 6	80%	2x Elongated pit, worst at 333.4	74	37	Could be corresponding	
92.0		Start i.c.										
113.2	7	End i.c.	400	21,200	12.4	12 / 6	78%	Elongated pits, start at weld, worst at 364.6	109	40	Could be corresponding	
120.9		Start i.c.										
146.0	8	End i.c.	430	25,100	12.6	12 / 6	79%	Elongated Pits	146	17	No match found	
147.0		Start i.c.										
173.0	9	End i.c.	300	26,000	11.7	12	74%	Elongated, worst corroded area in the line	168	38	Could be corresponding	
181.3		Start i.c.										
198.3	10	End i.c.	375	17,000	14.0	12	88%	Elongated, shallow pitting	205	35	Could be corresponding	
205.5		Start i.c.										
218.4	11	End i.c.	250	12,900	14.5	12	91%	Elongated, shallow pitting	207	33	Could be corresponding	
230.0		Start i.c.										
230.4	12	End i.c.	125	400	14.2	12	89%	Small pit	229	32	Could be corresponding	
237.7		Start Dent										
241.3	13	End Dent	NA	360	NA	12	NA	Elongated indentation on top of pipe			No data	
261.1		Start i.c.										
262.1	14	End i.c.	240	1,000	14.8	12	93%	Short, shallow pit			No data	
274.0		Start i.c.										
279.7	15	End i.c.	200	5,600	14.5	12 / 6	91%	Short, shallow pit	279	10	No match found	
281.7		Start i.c.										
294.0	16	End i.c.	260	20,000	12.8	12	91%	Elongated	280	10	No match found	
303.2		Start i.c.										
311.0	17	End i.c.	250	7,800	14.1	12	89%	Elongated	300	35	Could be corresponding	
325.0		Start i.c.										
354.0	18	End i.c.	260	29,000	14.1	12	89%	Continuous shallow pitting	352	15	No match found	
386.5		Start i.c.										
403.5	19	End i.c.	240	17,000	14.1	12	89%	Continuous shallow pitting			No data	
414.3		Start i.c.										
445.0	20	End i.c.	320	30,700	14.3	12	90%	Continuous shallow pitting	446	14	No match found	

462, 11215 Jasper Ave.  
Edmonton, AB  
T5K 0L5  
Phone: 780.461.9393  
Fax: 780.463.4386  
Info@avheng.com  
www.avheng.com