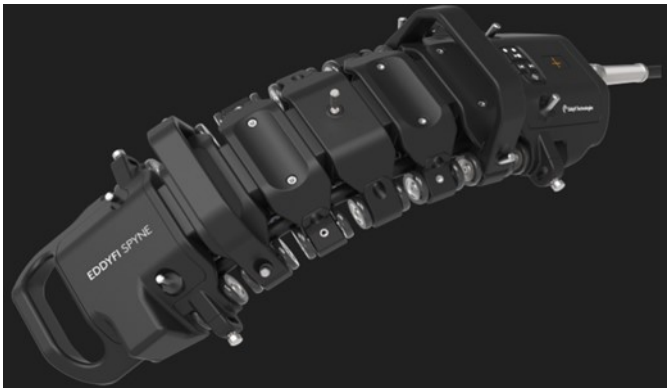
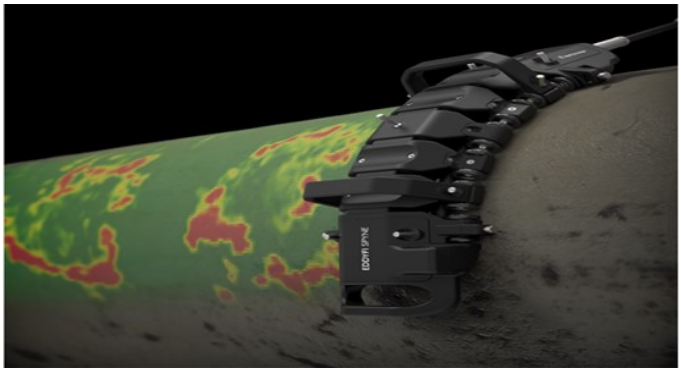
SHAW PIPELINE SERVICES

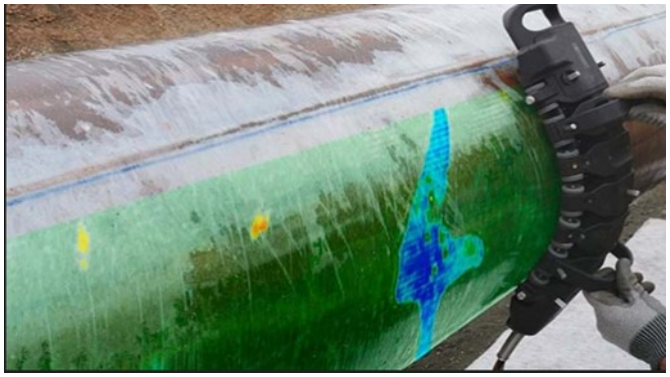
EDDYFI SPYNE SYSTEM



The SPYNE probe is a screening tool that is utilizing surface eddy current set up in a flexible eddy current array probe. Combined with the Reddy system and the Magnifi GO software enables this unit to scan at a high rate of speed and a high probability of detection. This is a great option to use in lieu of traditional MT due to its ability to detect surface breaking liner indication while providing a 360-deg. map of the pipe. The scan speed with this unit is up to 24 in/sec and has a coverage area of 8 in. A 40' joint of 24" diameter pipe could potentially be scanned in under 10 minutes. Scanning can also be performed through certain types of coating.

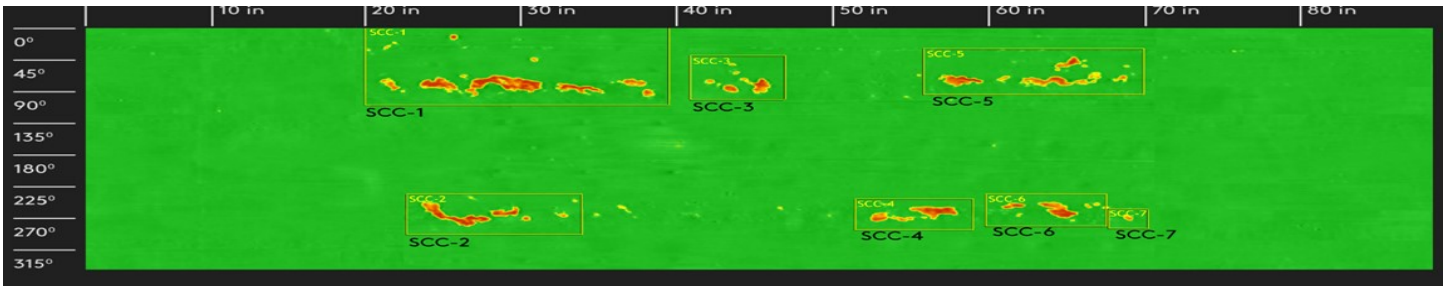
SCC investigation: Used as a screening tool this unit is capable of replacing traditional MT with a much faster rate of evaluation for the detection of all linear surface breaking anomalies. The unit has a depth capability of 120 to 180 mils depending on lift off that can determine if the linear indications can be buffed out. Full and detailed sizing would still need to be performed using SWUT or PAUT if a complete evaluation would be required.





Hard Spots: Hard spots are relatively common in certain pipeline vintages and are caused by uncontrolled cooling at local areas, resulting in martensitic microstructures and regions of high hardness. This combined with certain environmental conditions may make them highly susceptible to cracking. Hard spots are known to be particularly common in flash-welded pipe from the 1950s. Currently this system is being used extensively on location hard spots. Due to the changes in the steels micro structure which leads to significant property changes in the pipe wall this application is a perfect fit.

C-Scan Image of the full section scanned and anomalies found.



EDDYFI INDEX	ORIENTATION (°)	AXIAL POSITION (IN)	WIDTH (IN)	LENGTH (IN)	MAX DEPTH (IN)
SCC-1	0	20	9	20	0.118+
SCC-2	225	23	5	11.5	0.109
SCC-3	35	41.5	5	6.5	0.076
SCC-4	230	52.5	3.5	8	0.090
SCC-5	25	57	5.5	14.5	0.099