Make sure you fly in aircraft that are tested regularly!

Aircraft, especially short haul aircraft that make the same trip many times in a day, have their cabin air pressure repeatedly compressed and decompressed before take-off and after landing, causing an expansion and contraction of the skin which is held together by rows of hundreds of rivets. These rivets can become loose and radial cracks can appear that propagate from rivet to rivet resulting in whole sections of the aircraft falling off. Regular testing of the aircraft rivets is therefore a good idea.

Similarly, it is important to regularly inspect other critical structures whose failure will result in a major disaster leading to loss of life, environmental pollution and loss of production.

These structures tend to be large and often located in dangerous environments. Examples are pressure vessels in nuclear power plants, petrochemical storage tanks, hulls of ships, wings and fuselage of aircraft, dams, bridges, and high rise buildings.

To inspect these structures, inspectors have to get access to test sites that may be located on remote vertical surfaces or in harmful radioactive, toxic or explosive environments.

The preparation required to perform the inspection is time consuming and expensive. For example, scaffolding is erected for buildings and ship hulls before a human operator can climb up to the test area. To inspect the floors of oil storage tanks have to be emptied and cleaned repeatedly to remove all vapour that is toxic and explosive. This can take many months.

Wall climbing robots, like Spiderman, can climb on large vertical structures.

Wall climbing robots eliminate scaffolding costs and can be sent into hazardous areas where humans cannot go.

WALL CLIMBING ROBOTS

You could abseil down to the test area on ropes but this is dangerous and not too steady.

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Wall climbing robots, like Spiderman, can climb on large vertical structures.

If possible, e.g. in food processing plants, robots can climb on the outside to detect internal corrosion and fouling using ultrasound. Our RING robot is designed to climb up vertical pipes, lamp posts and towers by gripping the pipe wall.

Internal pipe climbing robot

RING-climbing robot

Pipelines are the most efficient way to transport liquids and gas. In Europe, more than 10 million kilometre of pipeline (mostly buried in the ground) transports oil, gas, water, and chemicals.

It is important to inspect these pipelines for caved-in walls, cracks, corrosion and internal fouling.

Buried pipelines are inspected by robots (called smart pigs) traveling through horizontal pipes.

Our internal pipe climbing robot is designed to also climb inside vertical pipes. This robot climbs by gripping the pipe wall.

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