

Flexible Drilling Head [FDH]

5 Axis Crawling Drilling and Riveting Machine



The FDH is a 5 interpolated axis drilling machine with modular design for easy system customization. Its principle is to 'walk' over the aircraft fuselage, holding on place by means of a set of vacuum cups. Once the FDH walks to position, gets locked with the vacuum cups and is ready to perform the drilling/ riveting operation.



After drilling/ riveting at the current area, the FDH walks one more step, by releasing the vacuum at half of the cups and moving them one step ahead, where it will lock them on place again getting ready for the next drilling/ riveting operation.

The FDH does not need any additional guiding system mechanically engaged to the Aircraft to walk on its fuselage, irrespective of its position, even upside down.

FDH is a 5 axes autonomous platform that carries the necessary end-effectors for drilling and countersinking. A 5 minutes set up on place by 2 operators is enough.

The robot optimal design ensures the best drilling and countersinking positioning accuracy and a high speed performance at the lowest weight. A vision and laser system ensures that the FDH follows the desired path and correct CNC program from theoretical to real path. The FDH may work and walk on most of the current aircraft models from smaller aircraft to the largest jettliners. Applications are drilling and riveting circumferential, longitudinal and conical joints. A portable electric cabinet is provided, connected to the FDH by means of a minimum hosing/ wiring harness.

A MTORRES developed control system allows the FDH to work without needing a conventional CNC system.



FLEXIBLE DRILLING HEAD (FDH) 5 Axis Drilling Crawler Robot is a portable and autonomous drilling and riveting stand alone robot.

PROGRAMS



• Airbus A350



• Airbus A380



• Comac C919