

X Y Axis for Automated Drilling Application

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INDUSTRY	PRODUCT	COUNTRY	PROCESS
Mechanical Handling	GV3 - V Linear Guide System	Belgium	Drilling

Task

Many companies in the building industry often look to produce their own in house machinery to aid production and this manufacturer of sectional doors was no exception. Drilling holes in door panels is a regular requirement and as production volumes were increasing the need to automate the process was becoming apparent. The panel lengths can vary and in order to ensure maximum throughput it was decided to make the X axis 7.5 metres long with the cross Y axis, carrying the drilling head, 1 metre wide. For precision positioning of the drilling head rack drive systems were preferred for both axes, as it was important that each door had the holes in the same position within +/-0.2mm.

Solution

For the X axis an SBM beam one side with M44P1 grade slides fitted 7.5m long with AU4434 carriage modified to suit space available. To save on setting two vee systems accurately in parallel the opposing side used 40 x 20mm FT flat track fitted directly to the machine structure. This side comes complete with rollers to provide the axial compliance over the 7.5 metres. Both guidance systems incorporated a machined rack with two pinions linked by a drive shaft. The Y axis again used an SBM beam 1m long with the same M44P1 grade slide plus rack driven carriage

Scope of Supply

X axis beam SBM44 L7500 plus 2 carriages AU4434L180CSDR-SPL, FT4020P1 L7500 flat track with LRN34 rollers.

Y axis SBM44 L1000 plus AURD4434CSDR

Result

GV3 has many different options and this customer utilised the key ones to ease the assembly process and simplify the design. SBM beams provide firm structures for fitting slides and other equipment to and the integral Tee nut slots enable easy fitting to the machine structure.

Achieving two guidance systems in parallel over 7.5m is challenging even when mounting surfaces are machined, the simple way of fitting flat track with rollers to the structure made the whole setting process that much quicker. The end result was a smooth low friction system capable of performing many hours without maintenance.