鋼梁自主接合系統

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市場及需求:
工人需要站在未完成的結構上以手動方式協助鋼結構構件組裝，他們利用吊物下方的牽引線調整與校正鋼梁與牛腿間的螺栓孔位置，這項工作需要在高空中進行，也因此造成許多墜落意外。

技術摘要(含成果):
ABAS 包含四個不同的方法：旋轉、校正、螺栓固定與卸除。旋轉方法是在鋼梁上加裝一個飛輪，將梁旋轉到安裝角度。校正包含鉛直與水平兩個方向，鉛直校正藉由影像辨識方法校正高度。水平校正是藉由特殊設計的翼板確保鋼梁可以平順的牽引到正確的位置。螺栓固定的方法則是增加插入孔，讓螺栓可以插入滑入螺栓孔中。卸除方法則是為了將 ABAS 與吊裝纜線移除，我們在鋼梁上使用插銷機構固定纜線，當完成施作後，插銷會被馬達拔起，連同 ABAS 一起被吊車移除。

優勢:
工人不需要在高空中做吊裝接合，不會發生墜落意外。旋轉與校正方法可控制鋼梁的角度與位置。螺栓固定比傳統方法快速許多，增加施工效率。只需吊車手與一位地面操作員即可完成工作。

競爭產品:
本項專利與本國現有產品未有重複性出現，屬於新的產品與技術，競爭性高。本國目前有眾多吊車與鋼結構廠商，並且有高需求度。

專利現況:
專利申請中。

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Autonomous Steel Beam Assembly System (ABAS)

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Market Needs:

During the assembly process of steel beam, the worker must stand on the narrow steel corbel in the high-rise place to assemble structures. This manual method can result in potentially falling accident.

Our Technology:

The ABAS consists four methods: rotation, alignment, bolting and unloading method. The rotation method used a flywheel to rotate the rigging beam to assembly angle. The alignment method includes vertical and horizontal. The vertical alignment used image processing to align the height and the horizontal alignment used special-designed shape beam to align the position. The bolting method used plug holes and the bolts can slide into the bolt holes. The unloading method is to unload the ABAS and the cable with motor and pin mechanism. After the process, the ABAS will remove by the crane.

Strength:

The workers need not to stay in the high-rise location to assemble structures, which will decrease the happening of the falling accident. Rotation and alignment method can control the angle and the position of the rigging beam. The bolting method is faster than the traditional tighten bolt method, which can increase the efficiency of the construction. Only one crane operator and one ground operation is required to finish the whole process.

Competing Products:

The patent is a new technique in the market of the USA.

Intellectual Properties:

Patent applying

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