自动化设备端拾器方管悬臂梁

产品名称	自动化设备端拾器方管悬臂梁
公司名称	上海固纤新材料科技有限公司
价格	7550.00/件
规格参数	产商:固纤 规格:全碳定制 产品用途:机器人端拾器悬臂梁
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产品详情

产商	固纤	规格	全碳 定制
产品用途	机器人端拾器 悬臂梁		

机器人碳纤维方管悬臂梁

carbon fiber square tube cantilever beam used for robot

对机器人方管悬臂梁的受力分析

stress analysis to the robot’s square tube cantilever beam

机器人方管悬臂梁是保证自动化设备正常稳定运行的重要结构部件。它的作用机理一般为：梁的一端为不产生轴向、垂直位移和转动的固定支座，另一端为自由端，可以产生平行于轴向和垂直于轴向的力。

the robot’s square tube cantilever beam is an important structural component to ensure the automation equipment operates normally and stably. its mechanism of action generally is that: one end of the beam is the fixed bearing which does not produce axial or vertical displacement and rotation. and the other is a free end, which can produce parallel or perpendicular force to the axial.

传统金属材质方管悬臂梁的性能缺陷

the performance defects oftraditional metalsquare tube cantilever beam

以往情况下，为了获得足够的强度和硬度，悬臂梁通常被设计为金属构件，不锈钢或铝合金材质居多。它的强度在短时间内是可以保证的。但是，由于金属构件的自重较大，悬臂梁在金属疲劳的作用下很容易产生局部的永久性累积损伤，直至最后发生断裂而导致设备出现故障，甚至造成意外事故。

in past cases, in order to obtain sufficient strength and hardness, the cantilever beam is usually designed to metal structures, mostly stainless steel or aluminum alloy. its strength is guaranteed in a short time. however, as the metal component itself is heavy, the cantilever beam is very prone to appear local permanent cumulative damage under metal fatigue, eventually rupture and cause the device to appear failure, and even cause accidents.

碳纤维材料应用于悬臂梁的主要优势：

the main advantages of carbon fiber applications in the square tube cantilever beam:

①提高管体刚度，减轻整体重量

increased stiffness of the tube, reduce overall weight

碳纤维树脂复合材料（cfrp）的抗拉强度一般都在3500mpa以上，是钢的7~9倍。它的抗拉弹性模量为23000~43000mpa，亦高于钢。但是，其密度仅相当于铝的一半，或者钢的五分之一。

the tensile strength of carbon fiber reinforced plastic (cfrp) is usually over 3500 mpa, which is 7 to 9 times than steel.its tensile elastic modulus is 23000 ~ 43000 mpa, which is also higher than steel.however, its density is only half of aluminum or one fifth of steel.

②耐磨损，性能稳定，提高管体抗疲劳性能

good wear resistance and stable performance, improved fatigue resistance

研究表明，碳纤维合成材料具有出众的抗疲劳特性，而且碳纤维的热膨胀系数远远小于铝及铝合金，物理性能稳定。

studies have shown that, carbon fiber composite has superior anti-fatigue properties, whose coefficient of thermal expansion is also much smaller than aluminum and aluminum alloys ’, and its physical properties are stabile.

③出类拔萃的耐腐蚀性，延长使用寿命

outstanding corrosion resistance extends the service life.

即使在强酸或强碱等腐蚀性环境中，碳纤维依然能保持着固有形态，令其制品使用寿命更长。

even in strong acid or alkali and other corrosive environments, carbon fiber is still able to maintain a natural shape, make it a longer product life.