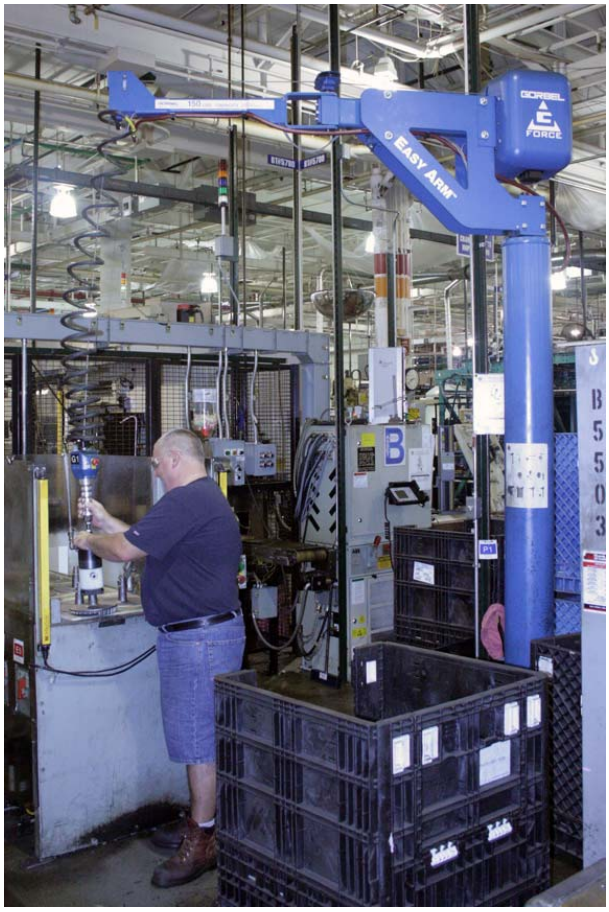
Easy Arm™ Eases Back Strain in Recreational Vehicle Assembly Application

With the previous method, "By the time you get to the end of a shift, you've got soreness in your back, shoulders and arms. It starts to add up."

The Application:



A machining station at a manufacturing plant for recreational sport vehicles starts with a raw steel casting and loads it into a machine for cutting, shaping and refinement of what will become flywheels for assembly. The raw castings arrive at the work bay in large bins and are unloaded onto a conveyor with a mold for the flywheels to sit into. Positioning is important because the flywheel is deeper on one side than the other and will only fit into the mold if placed in correctly.

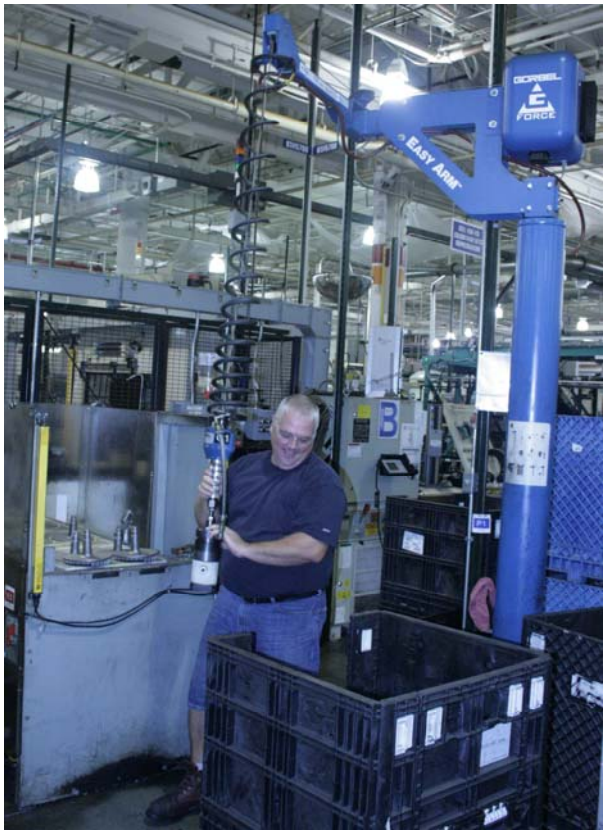
Each flywheel weighs about twenty pounds, and is a circular disc with a cone shaped point at the top. The work cell is small, with just enough room for an operator to pick up parts from the bin, turn 180 degrees and load them onto the conveyor.

The Problem:

Cycle counts for this application are typically about 200 pieces per shift. Operators had been moving each piece by hand, often bending low into part bins. "The parts don't seem very heavy at first," said the machine operator. "By the time you get to the end of a shift though, you've got soreness in your back, shoulders and arms. It starts to add up."

Alternatives Considered:

A company-wide assessment of ergonomics brought this application to the foreground, and a process change was called for. A crane with a chain hoist was explored, but a bridge crane was not feasible with the small work cell and machine obstructions. In addition, workers expressed concern over a typical chain hoist, fearing it would inhibit productivity and would therefore be bypassed.



The Gorbel Solution:
The company chose to install a freestanding Easy Arm™ by Gorbel. The integrated articulated jib crane with G-Force™ lifting technology offered both a very small footprint (standard 4 bolt base with no special foundation required) and fast, easy movement of the castings. They designed their own pneumatic end tooling which grips the cone-shaped top of the casting, and gently releases the part onto the conveyor.

"We were worried about bringing in any sort of lifting device because they typically slow us down," said the machine operator. "I used to work on the assembly line with hoists that were a bear to move. The Easy Arm™ doesn't slow me down at all. It moves as fast as my arm moves, and it's the easiest lifting device I've ever used."

The operators also benefit from very little deadweight of the crane itself. Rather than competing with the weight of full length boom on a typical jib crane, the Easy Arm's secondary boom is all that is needed to move from loading at the parts bin to unloading at the conveyor.

Asked if the Easy Arm™ has been accepted by operators, the factory engineer replied, "You can tell that they like it because they use it. If they don't like something or if it slows them down, it gets pushed off to the side. There's a very short learning curve on the Easy Arm™, and at the end of their shift, they aren't complaining about soreness anymore."