



Bushman AvonTec Designed Special Rotating Axis Grab

A unique, rotating axis grab solved a challenging problem faced by a manufacturer of special refractory products. The application required a unique grab that could safely pick up and gently rotate 2,500 lb refractory blocks.

These refractory blocks are very brittle and slippery to hold, similar to chalk. The dilemma for Bushman AvonTec was to apply the right combination of gripping pad material and gripping force. If the block were to slip, the dust would fill in the pad crevices and the grab would lose its grip. If the block was gripped too tightly, it would crumble and fall to the floor. Additionally, the sides of the blocks were not parallel, and had low spots making the application even more complex.

Bushman developed a special five surface gripping pad to be able to apply the right amount of pressure. The rectangular center pad is surrounded by four round satellite pads, each of which are in a “ball and socket” pivot joint attached to a spring backed movable arm. The satellite pads compensate for the uneven surface of the blocks, and maintain enough gripping area to adequately distribute the required gripping force. The pad material was made from special conveyor belting and glued to the plate. The block is rotated about its axis by the grab rotation drive system. Bushman selected an AC adjustable frequency drive to achieve smooth starting and stopping, thus preventing the block from slipping out of the grab’s grip.

This design effectively provided a solution to handle heavy, yet delicate loads with uneven, slippery surfaces, and simplified a difficult and time consuming process for the customer.



This Model M2038 motorized rotating axis grab has a capacity of 3,000 pounds. It was designed to lift and rotate graphite blocks from six to 20 inches wide. The blocks are 42 to 70 inches long.