

# Case Study:

## Castor Oil For Resin Bound Aggregates

### EQUIPMENT SUPPLIED



**Debem Boxer 100 AODD Pump, 1 x Boxer 503 Pump and 2 x Boxer 502 Pumps**

Fluid	Castor Oil
Viscosity	Differing depending upon part of the process
Body	Aluminium
Diaphragm	Hytrel & PTFE
Certifications	ATEX Zone 2

### ENQUIRY

Castle Pumps received an enquiry from an aggregates company who produce a wide range of aggregates for landscaping, road surfacing and construction. They had already purchased some AODD pumps from us for one of their sites, and after being impressed with their performance were now back with an enquiry for similar pumps for a different site.

They were building a new process for pumping castor oil that is used as an adhesive to create resin bound aggregates. The process required several pumps as they needed to feed the ambient castor oil to a heating tank, and then pump the hotter castor oil from the heating tank to where it is being used.

### KEY CHALLENGES

1. Wanted to use air rather than electric motor.
2. Varying viscosities of castor oil.
3. Specific duties required.



### SOLUTION

For air operated pumps, which was the request of the customer in this instance, Castle Pumps specify the Debem Boxer range of AODDs so we immediately began looking at our options from this range.

When it comes to oils, adhesives and other lubricating fluids, viscosity changes with temperature. Therefore, one of the biggest considerations when selecting which models of air operated diaphragm pumps to use, was achieving the same flow rate requirements at the differing viscosities. For the pump feeding the colder castor oil to the heating tank, a larger pump (Boxer 503) was needed to achieve the flow rate required, whereas the smaller Boxer 100 was sufficient for transferring the heated castor oil from the heating tank to where it is being used.

An additional benefit of the AODD pump design for this resin pump application include their ability to dry run without damage if the container the castor oil is being pumped from becomes empty. Debem pumps in particular also benefit from long life diaphragms designed for more than 50 million cycles and a lot fewer internal wearing parts to maintain compared to equivalent AODD pump models (30 vs a typical 72). We supplied these air operated diaphragm pumps complete with air regulators allowing the customer to easily adjust the pump to achieve their flow rate requirements.

