

Horizontal Biomass Reactors

Horizontal reactors for stirring biomass.

In Recent years we have received a number of inquiries for reactors to work with biomass of one type or another. Some of our first of these were for use with wood pulp. More recently these have included wood chips, corn stover (stalks and cobs) and other cellulosic materials.

While the moisture contents may be high by weight percentage, these materials can not be agitated in a conventional vertical stirred reactor. Rather, we have found that we can get good agitation by placing the reactor in a horizontal position and using multiarm stirrers which tumble these materials.

We have built these horizontal biomass reactors in volumes ranging from one liter to 5 gallons (18.5 liters). The most popular sizes have been two liters, one, and two gallons.

Many of the early horizontal reactors featured fixed cylinders. Some of these had large openings in the base of the cylinder thru which the biomass could be introduced. More recently the focus has been on designs where the vessel was mounted on pivots so that it could be filled in the vertical position and then rotated to the horizontal position for the reaction. These vessels can also be rotated to dump their materials at the end of the test run.

Here are some photos and drawings to help you and your customers understand what we have to offer for these biomass reactors.



Figure 1
Two gallon reactor in horizontal operating position.



Figure 2
Two gallon reactor in vertical filling position.



Figure 3
One gallon reactor in horizontal operating position.



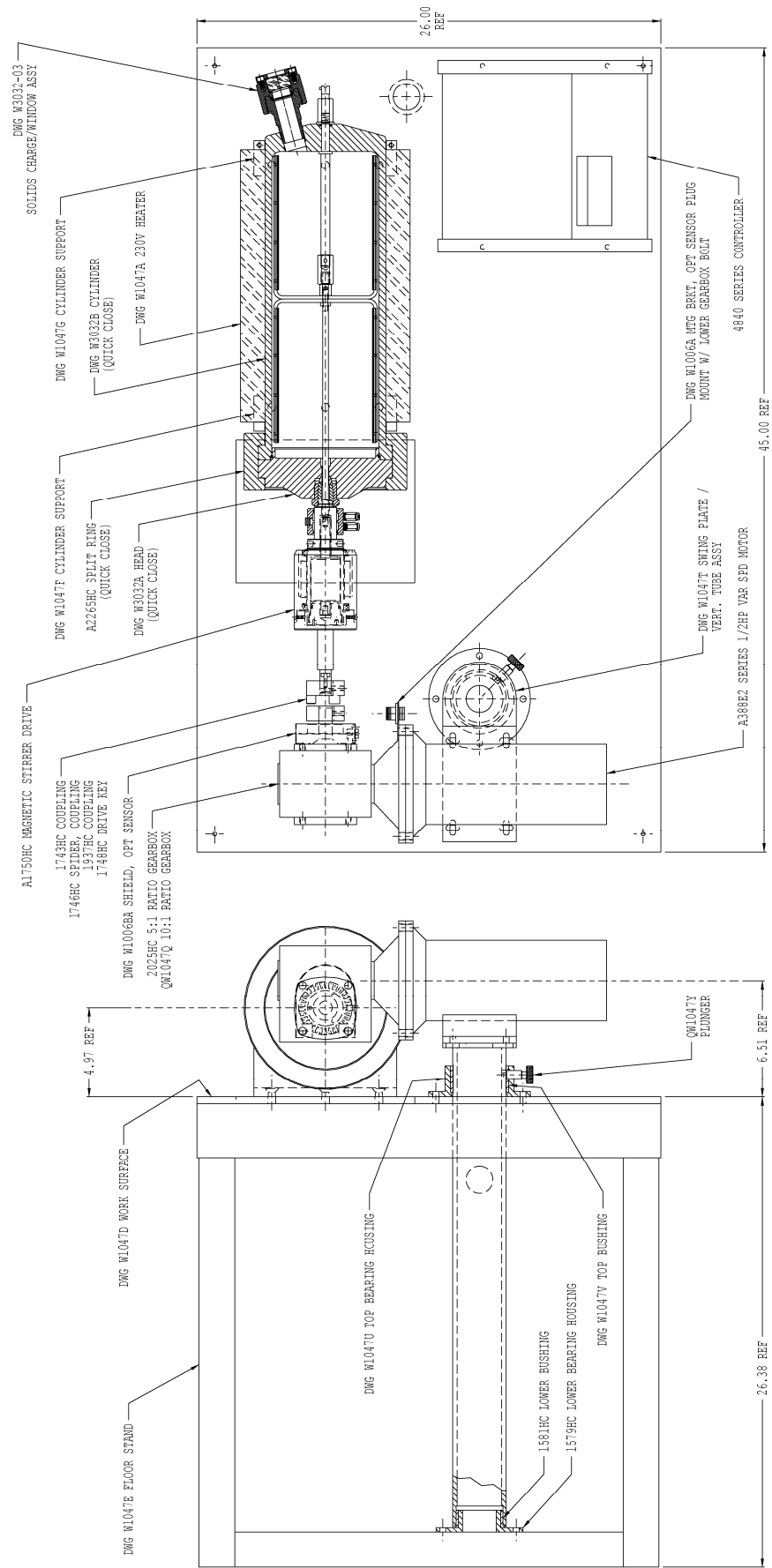
Figure 4
Five gallon reactor in vertical position with pneumatic tilt control.



Figure 5
Five gallon reactor in horizontal operating position.



Figure 6
Five gallon internal tumbler stirrer with PTFE wiper blades.



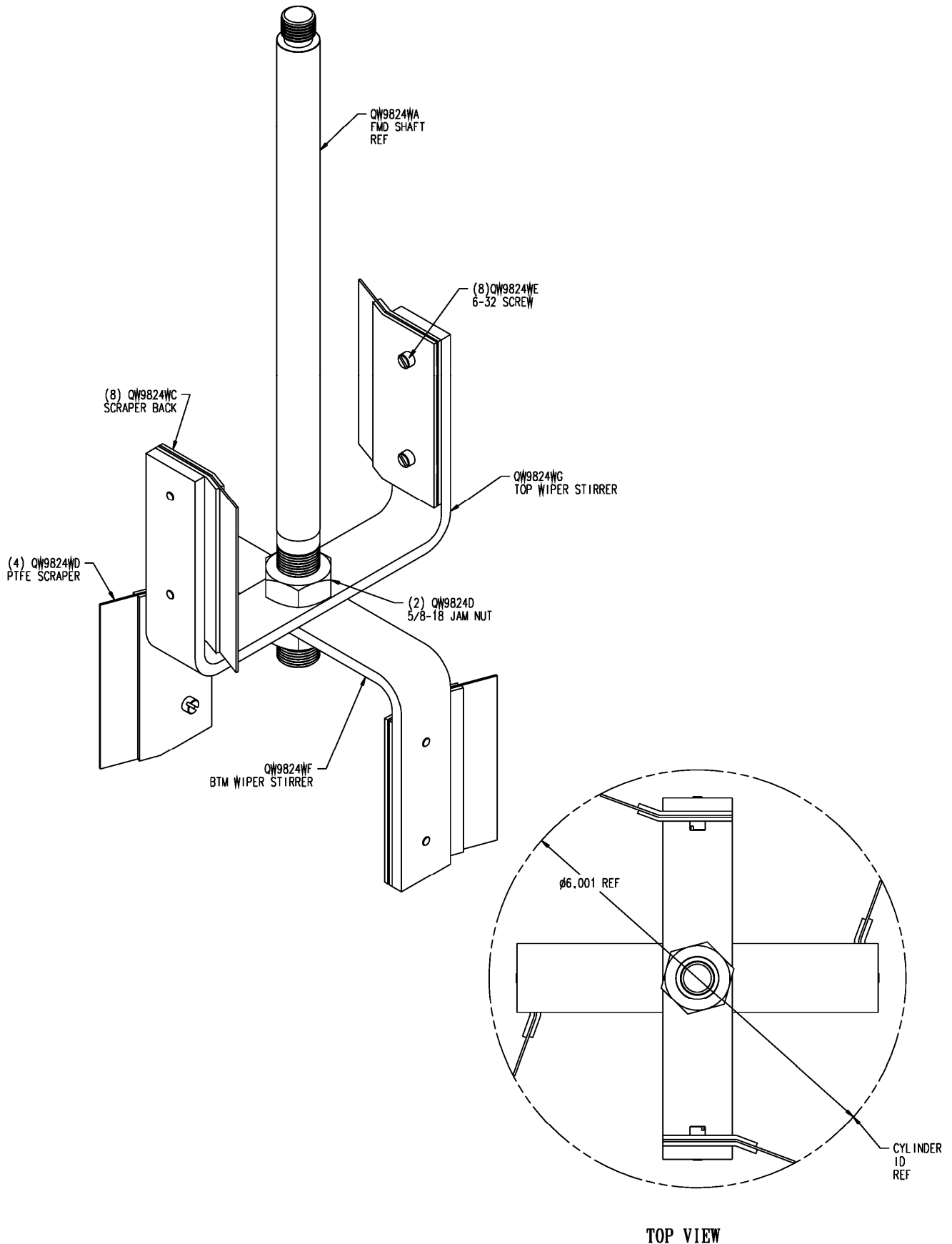


Figure 8
One gallon tumbler stirred with PTFE wiper blades.



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