



Why Reverse a Grinder?

Zoeller offers a range of reversible grinder pumps, including the model 7011 from the Zoeller Engineered Products line. But why is this such an important feature? Here, we'll explain some of the main reasons we suggest a reversible grinder for so many tough applications.

First, let's review why we use a grinder system. The purpose of a grinder system is to cut solids in the wastewater into small particles (typically $\frac{1}{4}$ " to $\frac{3}{4}$ " or less) that can be passed through the pump, valves, and piping without clogging the system.

Since the solids are ground up into a fine slurry, we can now reduce the size of the pump discharge. With a smaller diameter piping attached at the discharge, this lowers the flow rate needed to achieve the proper cleaning velocity. This, in turn, allows the electric power consumed by the pump to come from a residential service entrance. Pumps are designed to provide higher heads at moderate to low flows, as required by the hydraulics of pressure sewer systems.

Grinder pumps are typically designed to cut common household items such as rags, diapers, tissue, panty hose, gloves, sewage, and toiletry items. When an item is introduced to the system that will require more than one pumping cycle to pass, the item is typically wound up on the cutter. This is sometimes referred to as 'roping'. This usually occurs on items that are long (>12") or bulky (>12"x12"). When the item is wound on the cutter, the pump could either continue to operate at a reduced efficiency or stop operating altogether. Let's look at both these possibilities.

If the pump continues to operate, the system will continue to empty the basin, but the run time usually increases due to a partially clogged intake and less flow rate. Otherwise, the pump could stop operating. This would be due to an increase in amperage, which usually trips the pump's internal overload caused by a locked rotor condition or increased resistance on the cutter. If a system is not capable of reversing, the wound-up material on the cutter will stay there. The material may eventually come undone after repeated cycling and decomposition but will more than likely end up with a (very expensive) service call. If the pump can reverse the direction of the cutter with each cycle, the amount of time required to clear the clogged material will be greatly reduced. Each time the pump runs, a little more material can be unwound and sucked into the pump. Within a few cycles, the material can be cleared (less service calls).

When one tries to remove two components from each other and they are stuck, what is the first thing they do? Usually, you'll try to turn the parts in the opposite direction. This is done to

loosen up whatever may be holding the pieces together. The same is true for a reversing grinder. If the pump jams, it is much easier to clear the jam if the pump impeller and cutter operates in the opposite direction.

Another benefit to reversing a grinder pump is increased pump life. Since the cutter is now using both sides of the cutter blade, the life of the cutter is doubled. This means the cutter stays sharp to do the job for a much longer period of time. This translates to less service calls due to clogging and dulled cutter blades.

Now that we understand why we need to reverse a grinder, how does the model 7011 grinder pump system meet these requirements? First, the pump was designed with hydraulics that give the same performance when operating in either direction. Second, the pump utilizes a cutter system that cuts with the same efficiency in either direction. Third, the controls on the automatic reversing feature were designed such that every time the pump goes off, the pump will start in the opposite direction with the next cycle. It does not matter if the pump went off due to cycling of the floats or tripping on overload because of a jam, when it comes back on, the rotation will be in the opposite direction. As proven in the field, the Zoeller model 7011 reversing grinder pump will reduce the operating and maintenance cost of any grinder system.