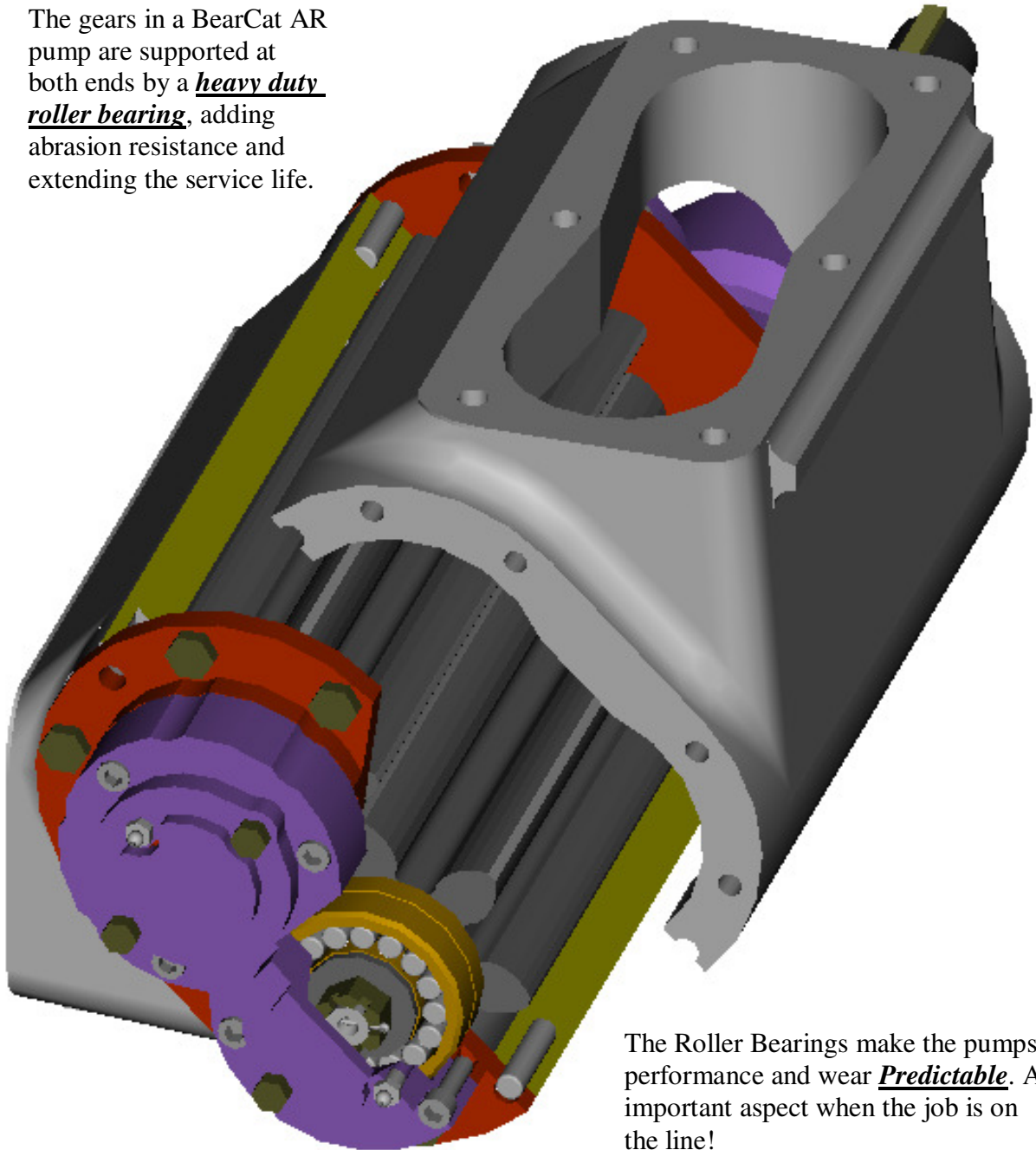


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## ***BearCat AR (Asphalt Rubber) Pumps***

The gears in a BearCat AR pump are supported at both ends by a **heavy duty roller bearing**, adding abrasion resistance and extending the service life.



The Roller Bearings make the pumps performance and wear **Predictable**. An important aspect when the job is on the line!

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## Why We Use Bearings

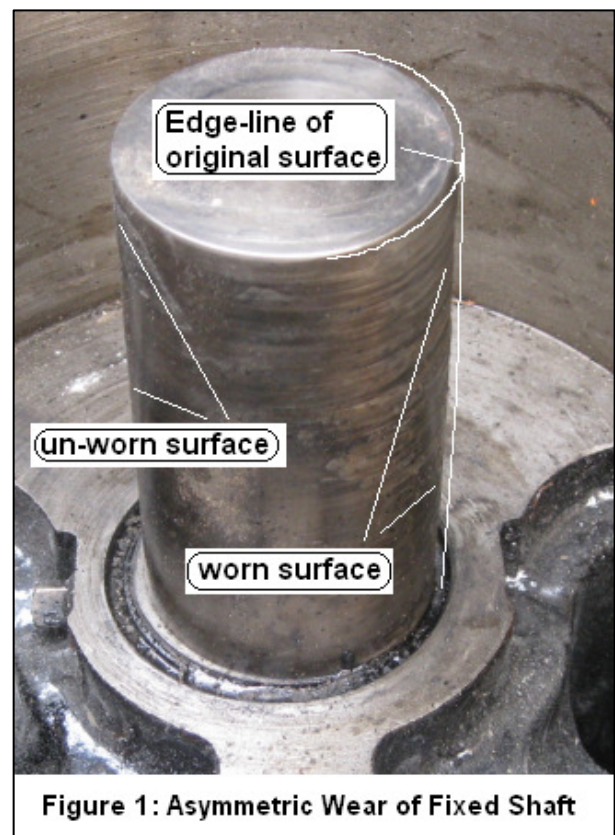
The single most important component of the BearCat Rubber pump is its bearings. **Roller bearings** are used instead of **bushings** for two very significant reasons, extended service life and predictability.

### The Bushing and Shaft Design

The *bushing and shaft* design are comprised of a ground steel shaft rotating inside a bronze bushing. Some designs have a rotating shaft inside a fixed bushing, or the shaft is fixed with the bushing attached to a rotating gear. This type of design works well when the circulated material has good lubricating qualities as in the case of most common grades of asphalt. In other words, a steel surface rubs against a bronze surface with an oil (asphalt) lubricant. Introducing ground tire rubber causes significant problems here! Rubber is a very abrasive material. As a result, rapid wear can be expected.

Another problem is also introduced when this wear occurs. The fixed surface develops a very *asymmetric* wear pattern (Figure 1). This makes the failure of the pump very un-predictable.

*Predictability* can be an extremely important aspect. If a pump fails without notice, the consequences can be severe! Costs can significantly outweigh the cost of just a new pump. Uncompleted mix batches and jobsites shut-down can be major problems.



When a pump wears as shown (Figure 1), the problem is that the pump seems to work fine as long as it is running in the forward rotation. When the pump is reversed, the idle gear shifts and re-centers itself. It then has a gap from its teeth to the bore of the housing. The gap then causes the pump to lose its pumping capability. An operator may assume that the supply lines are cleaned out; when in fact they are not. When production is started the following day, the pump cannot re-establish its prime, and the job is shut down.

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## **The Roller Bearing Design**

The BearCat Asphalt/Rubber pumps have (4) severe duty roller bearings in each pump. The bearing itself is a semi-sealed from material by means of a labyrinth seal system that permits the liquid asphalt to seep through, yet restricts the majority of the abrasive rubber particles. The material small enough to pass through which is predominantly asphalt serves to lubricate the bearing. Particles that seep through are small and more importantly are “rolled over” as opposed to “rubbed between” as in the case of a bushing and shaft.

Another important element of this bearing design is the *predictability*. The pump has a very linear wear life. The gradual decline allows an operator to prepare for the maintenance of the pump over weeks with a positive idea of the pumps internal condition. The reason being is the bearings wear symmetrically and the pumps works equally in both forward and reverse direction at all times. The operator is not lulled into a false sense of his pumps conditions, and then caught off-guard in the midst of a blending/paving job.



**Figure 2: Roller Bearing**

In conclusion, the combination of labyrinth seal and bearing design has proven very successful in pumping Asphalt/Rubber. The bearings not only increase the service life but also make the pump *predictable*, and as a consequence help avoid un-expected downtime.

***Made in U.S.A.***

