

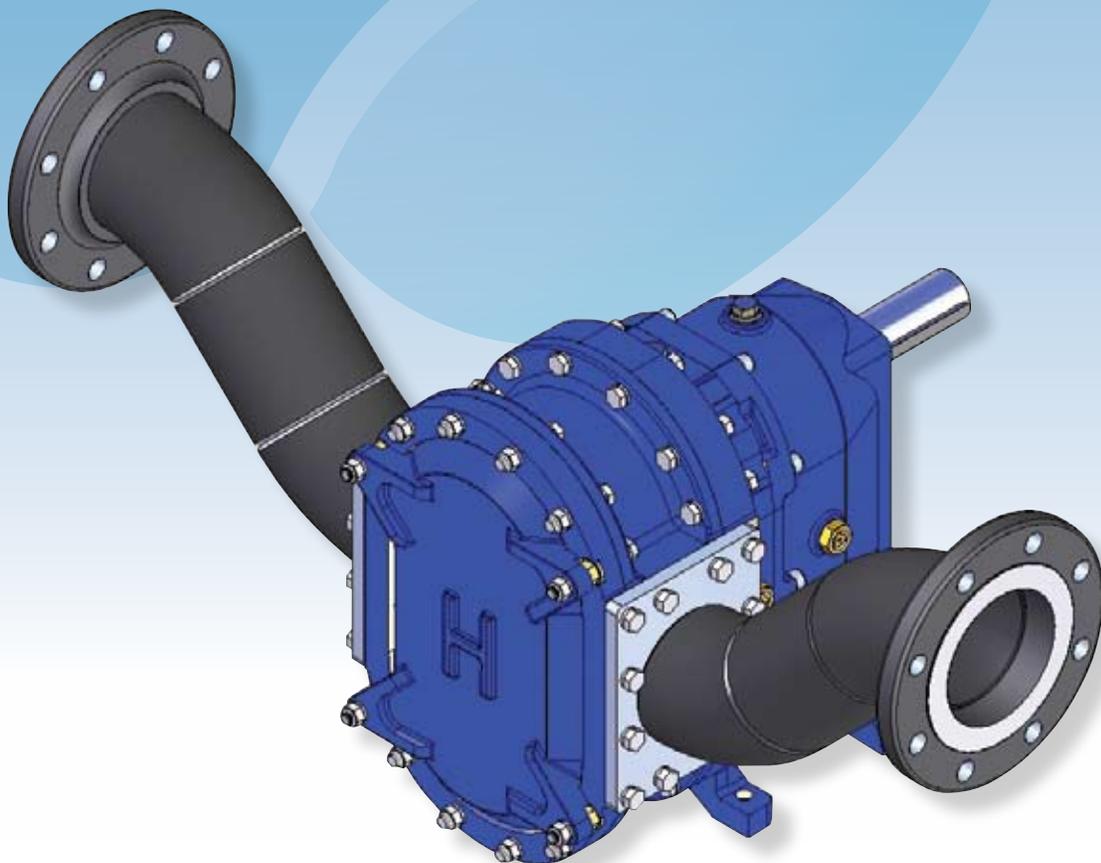
# Positive Displacement Rotary Lobe Pumps

Three Great Lines

**G Series:** General Use

**R Series:** Sludge, Mud & Slurries

**C Series:** Chemicals & Corrosives



**LobeStar**  
by Holland Pump



## Is a LobeStar rotary pump right for you?

- 1). Are you pumping sludge, mud or slurry?
- 2). Does your application require a pulse free or low shear flow?
- 3). Does your application require self-priming suction lift or a strong vacuum?
- 4). Are you pumping a mixture of air and fluid?

If you answered yes to just one of the above questions, then you could possibly benefit from a LobeStar pump.

### LobeStar rotary pumps

LobeStar rotary lobe pumps are members of the positive displacement pump family and are ideal for agricultural, industrial and municipal applications.

### LobeStar versus centrifugal pumps

LobeStar Pumps are effective replacements for centrifugal pumps in sludge and slurry applications because *they are more forgiving*. Centrifugal pumps are adversely affected by entrained air, by inadequate Net Positive Suction Head (NPSH) or if not operated within 10% of their best efficiency point.

Operating centrifugal pumps in excess of 10% their best efficiency point causes shaft deflection, vibration and cavitation, which damages internal parts and reduces the effective life of the pump.

Rotary Lobe Pumps will happily pump air and water, will not cavitate as a result of inadequate NPSH and are equally efficient at all points within their operating range. Unlike centrifugal pumps, the output of positive displacement pumps are largely unaffected by head or viscosity.

Wear rates in abrasive applications are greatly affected by pump RPM's. As pump RPM's increase, relative wear rates increase exponentially. This is

why LobeStar engineers are involved in every aspect of pump selection. LobeStar engineers will specify the proper pump and speed requirement for your application ranging from 200-300 RPM's for abrasive applications to 500-600 RPM's in non abrasive applications. Contrast this for wear rate to centrifugal pumps which commonly operate at 1750 RPM's. This difference in pump speed has the added result that centrifugal pumps mix and agitate the fluids pumped whereas rotary pumps operated at low RPM and gently transfer the fluid with low shear flow.

Another significant difference is rotary lobe pumps create a strong vacuum which brings the material to the pump and makes them self priming without having to separate air from fluid. Centrifugal pumps must have a separate priming mechanism to separate air from water in order to self prime. This mechanism is easily clogged by solids or viscous materials. Centrifugal pumps do not bring the material to the pump.

### LobeStar versus progressive cavity pumps

LobeStar pumps can be used in most transfer processes involving thick or thin sludge, mud and slurries. They have the following advantages over progressive cavity pumps:

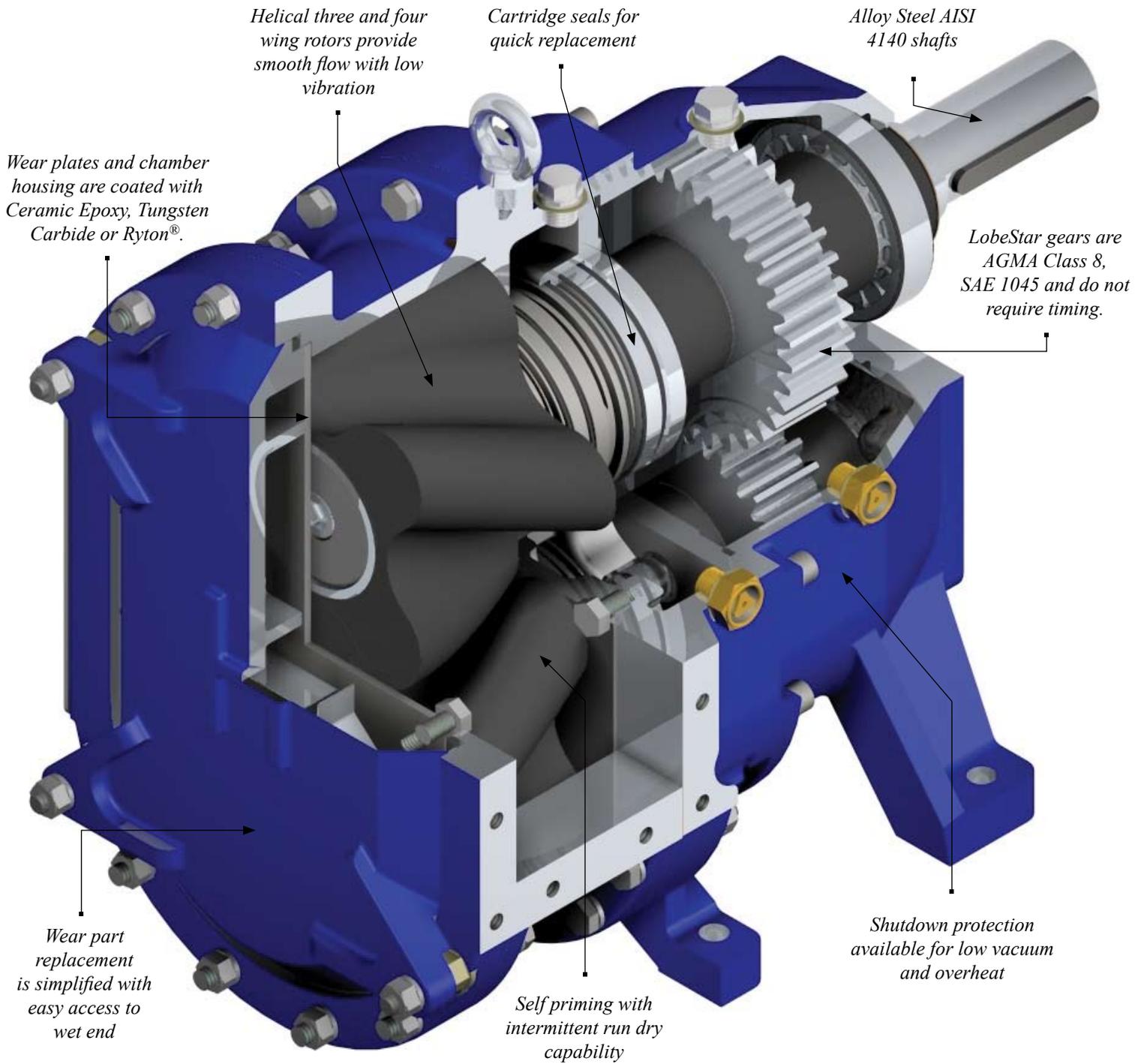
1. Ability to run dry for a period of time
2. Sharply lower maintenance and repair cost.
3. Require approximately 1/3 their physical space.  
*In addition, progressive cavity pumps need additional space for removing the rotor and stator.*
4. As an added benefit, LobeStar rotary pump lobes, seals and wear plates can be replaced without removing attached piping.

## What applications are LobeStar pumps ideal for?

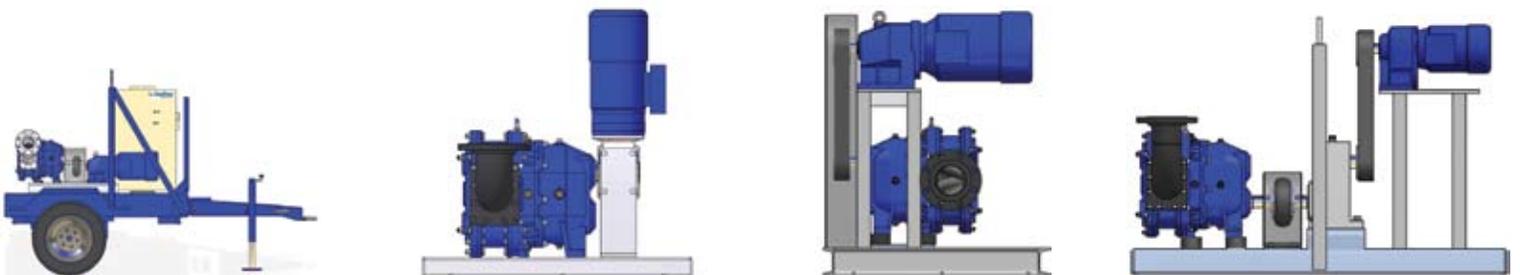
- Sewage Treatment Plants
- Waste Disposal Tankers
- Meat Processing
- Sugar Mills
- Milk Processing
- Fish Processing
- Potato/Starch Factories
- Beverage Industry
- Biogas
- Fruit and Vegetables
- Well Drilling
- Ship Fluid Transfers
- Chemical Industry
- Construction Dewatering
- Paper
- Recycling
- Metered Quantities

## What are the properties of rotary lobe pumps?

- Shear sensitive operation
- Capacity varied by speed
- Self priming to 25' wet
- Discharge pressure to 175 psi
- Capacities from 0 - 2,656 GPM
- Pulsation free operation
- Forward and reverse Pumping operation
- Long operational lifespan
- Ideal for pumping highly viscous fluids
- Easy access to wet end for in place wear part replacement
- Low maintenance
- Space-saving compact design



## Configurations



## How do rotary lobe pumps work?

Lobestar rotary pumps are positive displacement pumps. A positive displacement pump operates by trapping a fixed amount of fluid from an intake pipe and then forcing (displacing) that trapped volume into a discharge pipe.

**1** To displace the pumped material, LobeStar pumps utilize intermeshing helical lobes mounted on parallel shafts. The shafts are rotated by timing gears.

**2** As the lobes un-mesh on the intake side, they create a cavity with an expanding volume. Your sludge or slurry flows into the cavity and is trapped by the lobes as they rotate.

**3** The sludge or slurry then travels around the interior of the casing in the void between the lobes

and the housing segments. The pumped material does not pass between the lobes.

**4** As the lobes begin to mesh on the discharge side, the lobes force the sludge or slurry through the outlet port under pressure. The capacity of material being pumped can be changed by varying speed of the rotary pump.

LobeStar pump model numbers correspond to the volume pumped per 100 revolutions. For instance, the RM100 can pump 100 GPM per 100 revolutions or 1 gallon per RPM.

*\* See the illustration at right for an example of how a LobeStar positive displacement rotary lobe pump operates.*

## Why choose Lobestar pumps?

### 1. Long life and steady flow

- Our pumps have long life because they run slowly which dramatically reduces wear.
- Our helix shape 4 wing lobes give them a steady, pulseless flow.

### 2. Small size and run dry ability

- Our pumps are typically 1/3 the size of an equal flow Screw Pump.
- Our seals are oil cooled permitting limited dry running.

### 3. Ease of maintenance.

- Mechanical seals, lobes, and wear plates can be changed on site without disconnecting suction and discharge fittings.
- Our pumps cannot get out of timing.
- Additionally, we made many simple improvements such as using corrosion resistant bolts, nuts and materials in the wet end which greatly facilitates disassembly.

### 4. Long lasting, leak free seals.

- Our seals are simple to install and carefully tested for leaks before shipment.
- Our seals do not require manual compensating

pressure to prevent seal leaks resulting from wet end pressure up to 50 PSI.

- We do not use packing which is, of course, is designed to leak.
- We use mechanical seals which are designed for extreme shock and vibration.

### 5. Wear parts shipped within 2 working days of order receipt or the Parts are Free!

This guarantee applies for 5 years after the purchase of a LobeStar pump.

### 6. Highly experienced staff.

We have engineers and mechanics in the USA who are here to answer your questions or trouble shoot problems.

### 7. Modern manufacturing facility.

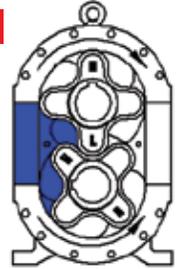
We have the most modern machining, welding, metal cutting and forming, painting and testing facilities available at our Georgia headquarters to cater to any custom requirements you may have.

### 8. Made in the USA.

LobeStar Pumps are 100% made in the USA which helps us maintain high quality, fast delivery, and good communications.

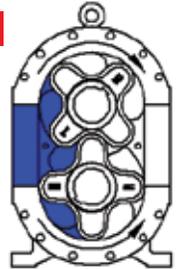
## OPERATING PRINCIPLE

**1**



Fluid enters suction side of pump.

**2**



Fluid fills cavities between lobes.

**3**

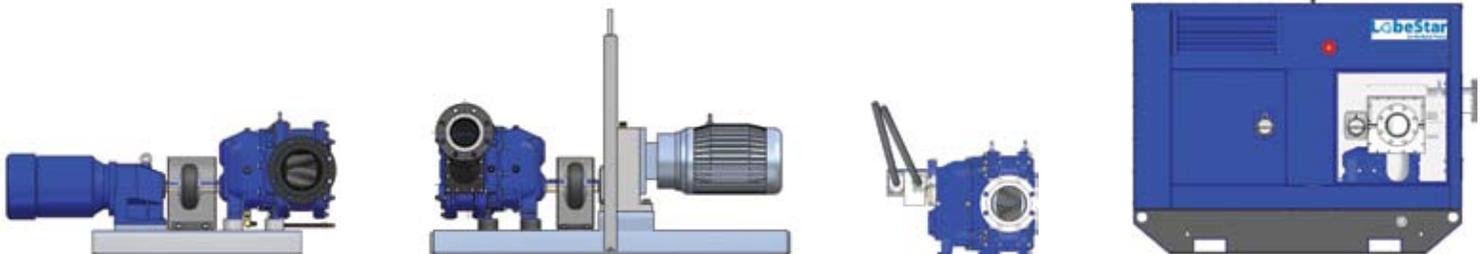


Fluid travels around interior of casing.

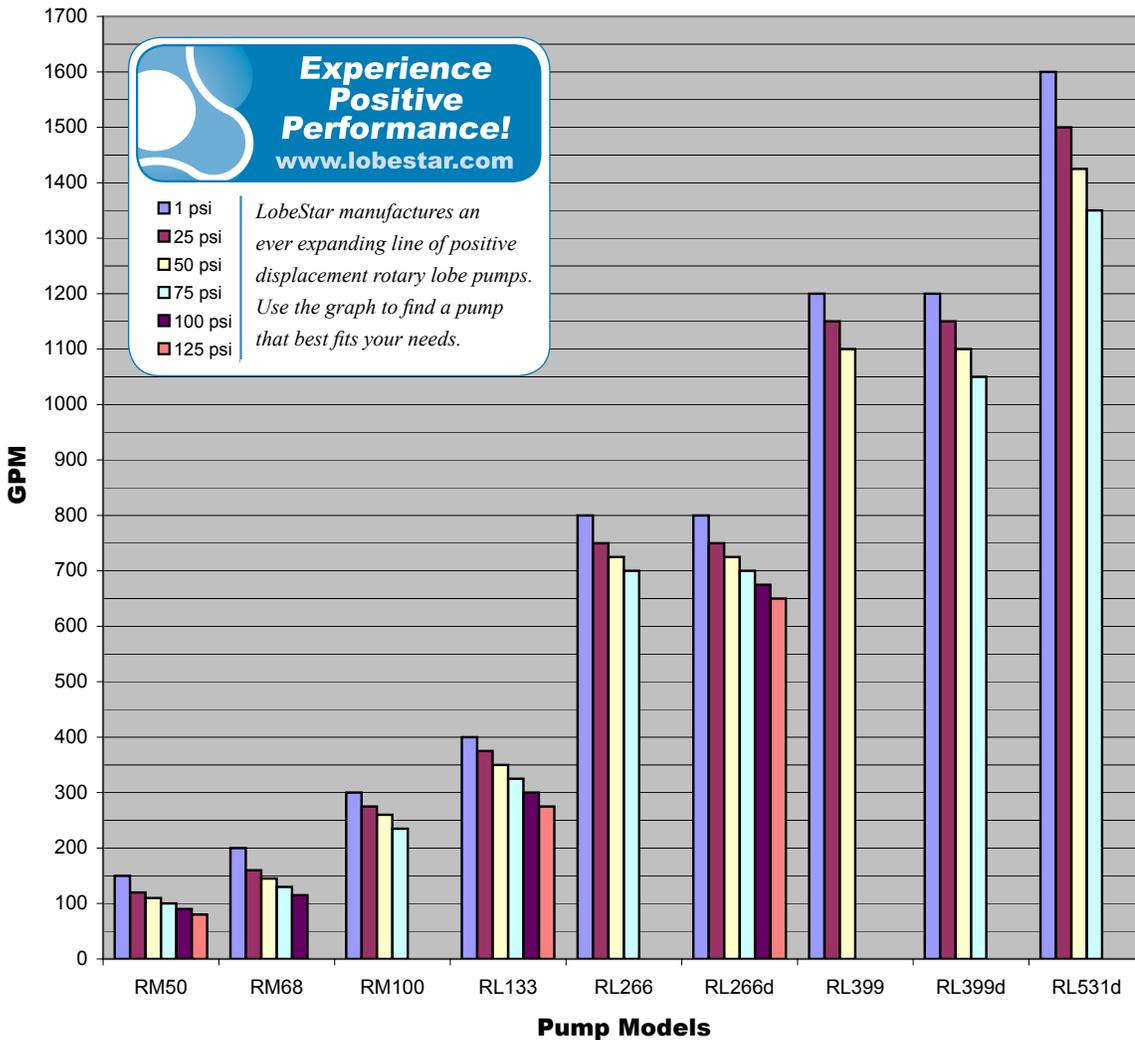
**4**



Lobes force fluid out discharge port.



# Lobestar Pump Capacities @ 300 RPM



**Pump Models**  
Graph information represents performance for LobeStar GM, GL, RM, RL, CM and CL pumps at 300 RPM. Recommended speed depends on the abrasiveness of the fluid pumped.

## Lobestar Pump Models

LobeStar rotary pumps available as GM, GL for general use, RM, RL standard pumps and CM & CL chemical/corrosive pumps.

Model	Capacity GPM	Flow Per 100 RPM	Pressure PSI	Max. Compressible Spherical Solid	Rated Speed RPM
RM50	300	50 US Gal	To 150 psi	To 1.5"	0-600 RPM
RM68	408	68 US Gal.	To 120 psi	To 1.5"	0-600 RPM
RM100	600	100 US Gal.	To 70 psi	To 1.5"	0-600 RPM
RL133	665	133 US Gal.	To 140 psi	To 2.5"	0-500 RPM
RL266	1,328	266 US Gal.	To 70 psi	To 2.5"	0-500 RPM
RL266d	1,328	266 US Gal.	To 150 psi	To 2.5"	0-500 RPM
RL399	1,995	399 US Gal.	To 50 psi	To 2.5"	0-500 RPM
RL399d	1,995	399 US Gal.	To 105 psi	To 2.5"	0-500 RPM
RL531d	2,656	531 US Gal.	To 87 psi	To 2.5"	0-500 RPM



	<b>GL and GM</b>	<b>RL and RM</b>	<b>CM and CL</b>
<b>Service</b>	General use**	Sludge/ Abrasives**	Chemical/ Corrosive**
<b>Rotary Lobe Elastomer</b>	NBR	NBR*	NBR*
<b>Lobe Profile</b>	Helix	Helix	Helix
<b>Number of lobe wings</b>	4	4	4
<b>Core</b>	ASTM A48	ASTM A48	ASTM A48
<b>Sealing O-rings</b>	NBR	NBR*	NBR*
<b>Lip seals</b>	NBR Option HNBR	NBR Option HNBR/FKM	NBR*
<b>Mechanical seals</b>	Duronit vs Duronit	Duronit vs. Duronit	Silicon Carbide
<b>Seal holders</b>	Mild Steel coated with Electroless Nickel	Mild Steel coated with Electroless Nickel	Stainless Steel 316
<b>Housing Segments</b>	ASTM A48 rust primed	ASTM A48 Tungsten Carbide Coated	Stainless Steel 316
<b>Wear plates</b>	A36 Steel	A36 Steel Tungsten Carbide Coated	Stainless Steel 316
<b>Shaft</b>	SAE 4140 Steel	SAE 4140 Steel	SAE 4140 Steel
<b>Quench Chamber</b>	ASTM A48 Rust primed	ASTM A48 Coated with Electroless Nickel	ASTM A48 Coated with Ryton
<b>Gear Housing Casting</b>	ASTM A48	ASTM A48	ASTM A48
<b>Bolts</b>	ASTM F568/ISO 898/I	ASTM F568/ISO 898/I	Stainless Steel DIN 931 A2-A4
<b>Bolts- Strain Bolt</b>	ASTM A574M-12.9 Zinc Plated	ASTM A574M-12.9 Zinc Plated	ASTM A574M-12.9 Electroless Nickel coated
<b>Gears</b>	AGMA Class 8 SAE 1045	AGMA Class 8 SAE 1045	AGMA Class 8 SAE 1045
<b>Pressure Disc</b>	A36 Steel	A36 Steel	Stainless Steel 316

**Notes:**

\* Peroxide cure necessary

\*\* Consult Factory for application temperature above 80°C (175°F)

LobeStar Product Partner



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