An Introduction to Durst

Durst is a division of Regal Beloit Corporation, a leading manufacturer of electric motors, mechanical and electrical motion controls and power generation products serving several markets throughout the world for which sales are projected to be in excess of 3 billion euros in 2012. Durst boasts one of the most comprehensive mechanical power transmission product offerings for off-highway, agriculture and material handling equipment. With over 75 years experience, Durst offers full design, development and test capabilities, three-dimensional solid modeling and four-square testing. Whether standard, modified or custom, our products are designed and manufactured to customer specifications.

The Durst Product Family

- Pump Drives
- Heavy Duty Transfer Cases
- Zero Offset Direct Drives
- Mechanical Transmissions
- Velvet Drive Transmissions
- Worm Drives
- Parallel Shafts
- Bevel Drives
- Custom Gearing
- Wheel and Center Pivot Drives
- Turning Gears
- Custom Gearboxes
Pump Drives

### Features
- Patented Modular Design
- Patented Spline lubrication feature built into cast iron housings
- AGMA Class 10 Gears for quieter operation
- All Viton Seals and O-rings
- One-piece Gear and Shaft (solid on-shaft) Design
- Material Handling

### Applications
- Construction
- Mining
- Agricultural
- Forestry

### Durst pump drives run cooler, last longer and are quick and easy to service. In the process of engineering these new modular drives, we went back to the drawing board and developed a product that is fundamentally better than any of the competition. Our patented pump pad design keeps oil constantly flowing through the bearing and provides for wet spline operation, even at startup. All Durst pump drives incorporate class 10 spur gears that run on heavy-duty ball bearings. They also feature an internal spline, which, with a spline adaptor, are compatible with any pump shaft and offer quieter operation.

Our responsive engineering team can quickly modify our modular designs to fit a wide range of custom applications. Back that with top flight customer service and quick turnaround times, and you have a superior pump drive solution.

### Spline Adaptor

<table>
<thead>
<tr>
<th>Input Gear</th>
<th>Output Gear</th>
<th>Pump Pad</th>
<th>Input Housing</th>
<th>Output Housing</th>
</tr>
</thead>
</table>

### Input Shaft
The Durst pump drive input shaft engages the input gear through a 29T-12/24 spline. The input shaft is retained in the gearbox and allows the drive plate or torsional coupling hub to ride free on the input shaft, reducing misalignment stresses from the engine flywheel and the gearbox. It can be removed or replaced without disturbing the internal workings of the gearbox.

### Heavy Duty Ball Bearings
The heavy-duty ball bearings placed directly in the housing halves don’t require shimming, which drastically simplifies assembly. Any adapter can be easily attached without disturbing the gears or bearings in the gearbox. The gearbox can easily be split for servicing without removing the adapters.

### Product Details

#### Pump Pads
Durst pump pads do not contain bearing cups. The advantage of this approach is that pump pads can be removed without disrupting the internal workings and alignment of the bearings and gears inside the gearbox.

#### Drive Plates
Durst pump drives now use a four-disk drive plate. By using four thin disks, the drive plate becomes slightly wider and increases the rating. Thin disks are much more flexible. When put together, multiple disks absorb more engine vibrations than a single thick disk. The drive plate is no longer captured on the input shaft; instead, it is able to automatically adjust if any engine flywheel misalignment occurs, resulting in smoother operation and longer gearbox life.

#### Splines
Durst pump drives have a 29T-12/24 internal spline on the gears, allowing a spline adapter to be used on any SAE or DIN pump shaft. Since the pump shaft mating spline is not integral to the output gear, the mating pump shaft spline adapter can be replaced without the need to remove or replace the output gear. Plus the 29T-12/24 spline significantly reduces wear on both gears and spline adapters.

#### Oil Circulation
Durst pump drives feature special oil port locations and oil directing ribs that cause the oil to flow into the pump pad area, lubricating the spline adapters and bearings without the need for external pumps. Oil flows into the pump pad area, and then our patented cast-in recesses cause the oil to flow across the spline for wet spline operation.

### Single Pump Drive (Direct)

<table>
<thead>
<tr>
<th>Model</th>
<th>Ratio</th>
<th>Max HP</th>
<th>Max Input Torque (Nm)</th>
<th>Max Input Torque (FT-LB)</th>
<th>Input Gear</th>
<th>Flywheel Style</th>
<th>Ratio Inc. or Dec.</th>
<th>Pump Adapters</th>
<th>Pump Center Distance (mm)</th>
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### Single Pump Drive (Gearbox)

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<th>Pump Center Distance (mm)</th>
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### Four Pump Drive

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### Inline Four Pump Drive

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</table>
Benefits

High Rating — Gear geometry (AGMA class 10) and large cylindrical bearing design result in high horsepower and torque rating.

Simpler to Service — Does not require pressing shafts through housings and gears in order to assemble. Cylindrical bearings do not require special shimming in order to set end play. Input and output options can be easily changed without disturbing bearings.

Modular Design — Maximizes the use of common components with the Durst new generation pump drive line to reduce the number of parts to inventory and provide world-class delivery.

Availability — Commonality of parts and shorter assembly time result in quicker turnaround and ease of assembly.

Competitive Pricing — Result of fewer parts and less assembly time due to the modular design.

Accessories — Broad offering of options available for specific application needs.

• Construction
• Forestry
• Oil Field
• Railway Maintenance
• Agricultural
• Specialty Trucks

Features

Simplified Mounting — Symmetrical hole pattern provided on the sides of the gearbox perpendicular to the input/output positions.

Fewer Parts — Elimination of parts, such as covers, shims, screws, and sealing compound, provides a design simple to build and service. Potential leak paths have also been removed.

• Cast Iron and Aluminum Housing — Optional Inputs
• Mechanical (hydraulics), Yokes & Flanges (optional)
• Bearing (Helical, Spur)
• Optional Disconnects — Tapered Roller Bearings
• Optional Differentials — (Ball Bearings)

Transfer Cases

Durst transfer cases are heavy-duty and engineered to meet the rugged operational demands of a wide range of mobile off highway and specialty vehicle applications. Targeted toward mobile construction, agricultural, forestry and mining equipment, they excel at transferring between two-wheel and four-wheel drive and delivering mechanical power to auxiliary equipment in high and low ranges.

ON AND OFF ROAD — 50% Low Range—50% High Range Continuous (5000 HRS)

ON AND OFF ROAD — 25% Low Range—75% High Range Continuous (5000 HRS)

OFF ROAD — 75% Low Range—25% High Range Continuous (5000 HRS)
DURST HEAVY DUTY GEARBOX MODEL

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</tbody>
</table>

Weight Single Speed (lbs): 280
Weight Two Speed (lbs): 346

Size: 8.60 x 11.54
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Standard • Modified • Custom

Pump Drives and Heavy Duty Transfer Cases