

# PRODUCT INFORMATION

## REDUCERS

### High Speed Limitations on Reducers

Gear reducers which have input speeds over 1800rpm and run continuously at high speeds may experience the following:

1. Lack of lubrication at the high speed pinion gear.
2. Excessive heat generation in the reducer from oil churning.
3. Excessive noise from windage and gear/bearing noise.
4. Seal wear.

#### Lubrication

The problem of poor lubrication at the first gear stage is very minor on reducers where the pinion gear is small because the circumference speed is low. When the pinion gears get larger in diameter the circumference speed will also increase. With the speed increase the centrifugal forces will increase. The centrifugal forces will sling the oil away from the gears and create a vortex like condition. This could lead to lack of lubricant.

#### Heat Generation

The heavy churning of the oil creates a fair amount of heat which leads to a drop in viscosity.

#### Noise

Noise can also be a concern. Noise is vibration which is not only an audible nuisance but it can also damage bearings.

#### Seal Wear

When the shaft speed and the shaft diameter increase, an oil seal will see higher circumference speeds from the shaft on which the seal rides. When the speed increases the heat generated at the seal lip also increases. Heat could reduce the life of the seal and increase the wear on the lip. Excessive wear on the oil seal lip will result in oil leaking around the shaft into the motor or input housing.

As the result of the above, SEW-Eurodrive has put limitations on gearmotors operating with input speeds above 1800rpm.

1. Maximum horsepower for reducers with 2 pole motors is **7.5Hp**.
2. Maximum input speed for reducers with motor horsepower above 7.5 is **2700rpm**.

Any deviation from the above has to have the approval of the Application Engineering Department.