

## Absolute Gray Code Encoder: Shaft Side Load Specifications

Electro Cam Gray Code encoders are built for rugged environments with heavy duty steel ball bearings. Below are guidelines for shaft side load to ensure maximum life of the bearings.

**Recommended Maximum Side Load:** 100 lbs. up to 1800 RPM / 200 lbs. up to 500 RPM

### Bearing Life

Bearing life is dependent on side load and speed. It is calculated using the L10 life Model with the load centered at the mid-point of the shaft extension. Below are examples of simple straight radial loads:

- Loads up to 100 pounds at speeds up to 1800 RPM  
Seven years + (non-stop) bearing life on all units.
- Loads up to 75 pounds at speeds up to 1000 RPM  
Ten years (non-stop) bearing life on all units.

Note: In all the above applications, non-stop is based on 8,766 hours per year, or 24 hours per day for 365.5 days per year.

**Contact the Factory:** For applications requiring the following conditions:

- Thrust components in excess of 100 pounds
- Combined loads of 50 pounds thrust and 100 pounds radial at speeds over 200 RPM

### Exceeding the Ratings

If the above ratings are exceeded, it could result in:

- Deflection of the enclosure
- Axial displacement or breakage of the shaft
- Significant shortening of the life expectancy of the ball bearings

*Pertains to all Encoder Models including:*

PS-4256-12-DDP-MLU, PS-4256-12-DDP, PS-4256-12-DDN, PS-4456-12-DDP-MLU, PS-4456-12-DDP, PS-4456-12-DDN, PS-4256-11-DDR, PS-4456-11-DDR