

# Analyzing the Poultry Process

## Bearing Application and Production Considerations

*Power Transmission Engineering* is collaborating with the Bearing Specialists Association (BSA) on a special section within the magazine. *Bearing Briefs* will present updated reports on bearing topics for each issue in 2016. Complimentary access to all BSA Bearing and Industry Briefs is available on the BSA website at [www.bsahome.org/tools](http://www.bsahome.org/tools).



*We build relationships*

### Reception

The receiving operation is a largely automated process in most poultry plants. After being removed from cages, a conveyor is used to transport the birds to the live hang area. The broilers are hung on an overhead chain conveyor which is powered by a low speed offset parallel gear motor. This chain conveyor conveys the broiler through the initial stages of the poultry process. Bearing applications include non-washdown mounted ball and roller bearings. This application is subjected to shock loads which require rugged cast iron construction pillow block and four bolt flanged bearings. Corrosion resistant bearings are usually not required at this stage of the process.

### Crate Washer

Corrosion resistant bearings should be considered here including the use of stainless steel where applicable.

### Water Bath

Each bird is exposed to an electrical charge and conveyed to the slaughter area. The circular blade used for

slaughter is powered by an electric or hydraulic washdown duty motor. Washdown or corrosion resistant bearings or stainless steel should be considered here. These bearings are subjected to high ambient temperatures and humidity and heavy chemical washdown cycles. Housing end covers and high performance synthetic grease are recommended.

### Scalding Tank

Birds are scalded by immersion in a scald tank for 1.5 to 3.5 minutes. Scalding facilitates feather removal. After scalding, the birds are conveyed quickly to the de-feathering process. For this process mounted roller bearings, tapered or spherical bearings should be considered. Using a specialty lubricant may also want to be considered.

### Picker

A key maintenance area where stainless steel radial ball bearings work well



with specialty lubricants replacing standard lubrication practices. Some bearing manufacturers are stocking replacement units for this application. Some poultry producers run this application to failure.

### Cutting Processes

Corrosion resistant housings with stainless steel inserts are recommended and end caps are always important to safety in the head and trachea removal process.

### Hoch Cutter

Very mechanized automated European equipment utilized to open up the bird. Bearing applications include stainless steel radial ball bearings ranging in sizes from 6202 to 6207. Specialty lubricants should be considered to replace standard greases in bearings. Consider the fact that there is a certain amount of "detergent creep" caused by the extreme temperature changes.



The receiving operation is a largely automated process where non-washdown mounted ball and roller bearings can be utilized.



The use of stainless steel radial ball bearings ranging in sizes from 6201 to 6205 can be utilized for the vent remover in the poultry process.

### Vent Remover

This unit is used to remove the ventricle out of the bird. Bearing applications include the use of stainless steel radial

ball bearings ranging in sizes from 6201 to 6205 sealed.

### Eviscerator

This unit removes the viscera from the bird and the viscera is typically hanging outside the bird for inspection. Bearing applications are typically inch and metric radial ball bearings, a strong consideration may want to be given to stainless steel. This may be recognized as a high maintenance area suggesting the use of top quality bearing products.

### Screw Chiller

This unit cools the bird following the Eviscerator process. Bearing applications include roller bearings for screw shaft support.

### Giblet Chiller

Application is used to retrieve all saleable internal parts. Standard ball bearing housed units are utilized and corrosion resistant housings may want to be considered.

### Breast Cap Cutter/Whole Wing Cutter

These machines are not considered to be high maintenance equipment. Stainless steel radial ball bearings are



Corrosion resistant bearings should be considered for the live bird crate washer.

# DieQua offers more gearboxes

## Are You Selecting The Right Technology?

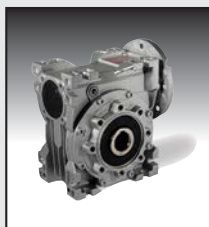
Whether your application is for precise motion control or for general power transmission, there are several gear technologies that can do the job. But which one does it best?

Only DieQua offers the widest range of gearmotors, speed reducers and servo gearheads along with the experience and expertise to help you select the optimal solution to satisfy your needs.

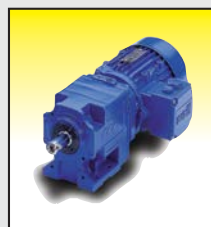
If you are using gearboxes,  
you should be talking to DieQua!

**DIEQUA**  
Corporation  
www.diequa.com 630-980-1133

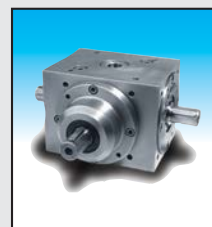
### Power Transmission Solutions



Worm Reducers



Helical Gearmotors



Spiral Bevel Gearboxes

### Motion Control Solutions



Planetary Gearheads



Servo Worm Gearheads



Precision Cycloidals

Poultry Process Area & Solutions Matrix

Plant Areas	Unmounted Ball & Roller Bearings	Mounted Ball & Roller Bearings	Corrosion Resistant Mounted Bearings	Corrosion Resistant Ball & Roller Bearings	Solid Lubrication	Seals	Automatic Lubricators	Alignment Tools	Condition Monitoring
Receiving									
Slaughter									
Scalding									
De-Feathering									
Evisceration									
Chilling									
Cutting									
Further Processing									
Packaging/Freezing									
Auxiliary Equipment									
Pallet Jacks									



www.circlegear.com

**Circle Gear and Machine**

1501 South 55th Ct. • Cicero, IL 60804  
Ph: 708-652-1000 • Fax: 708-652-1100



**EQUIPMENT PURCHASES**

- Luren LFG-8040 Verticle Gear Profile Grinder
- Gleason 463 spiral/hypoid gear tooth grinder

**FACILITY**

- Purchased 77,000 sq ft building, expanding to 122,000 sq ft

**STRATEGIC PLANS**

- Continued growth in spiral bevel/hypoid marketplace
- Expand gearbox service and overhaul business

LUREN PRECISION CO., LTD.



**GEARBOX REPAIR SPECIALISTS**

- Prompt, accurate quotations
- Competitive pricing
- Quality repairs/rebuilds



**Quality Reducer Service**

1501 South 55th Ct. ■ Cicero, IL 60804  
708-354-8080 | FAX: 708-652-1133

WE SERVICE ALL TYPES OF INDUSTRIAL GEARBOXES

www.qualityreducer.com

recommended for this area. These applications offer an opportunity to supply linear bearings. Stainless steel motors may want to considered.

**Inside/Outside Bird Washer**

Standard radial ball bearings in all areas; possibly consider stainless steel radial ball bearings in certain areas of the application. There is a high volume of water in this application. May want to consider a special grease that could be used in a very wet environment.

**Extended Maintenance Intervals for Bearings in Chilled Poultry Conveyor**

Hubs with deep groove ball bearings operated in a chilled (-15°C) environment. Due to frequent wash-downs and breathing in bearings during shut down, water ingress occurred shortening the service life. Sealed stainless-steel deep groove ball with food graded solid-oil (2RS1/W64F). Bearing life extended from one year to more two years maintenance-free operation. **PTE**

**For more information:**

Bearing Specialists Association (BSA)  
Phone: (630) 858-3838  
info@bsahome.org  
www.bsahome.org

For Related Articles Search

bearings

at www.powertransmission.com