



**solutions**  
**drive success**

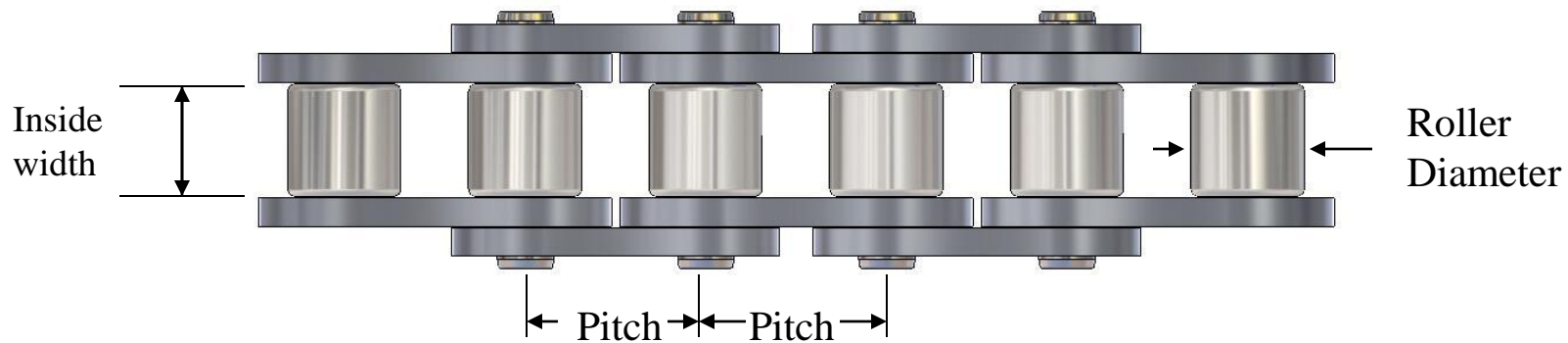


# Roller Chain



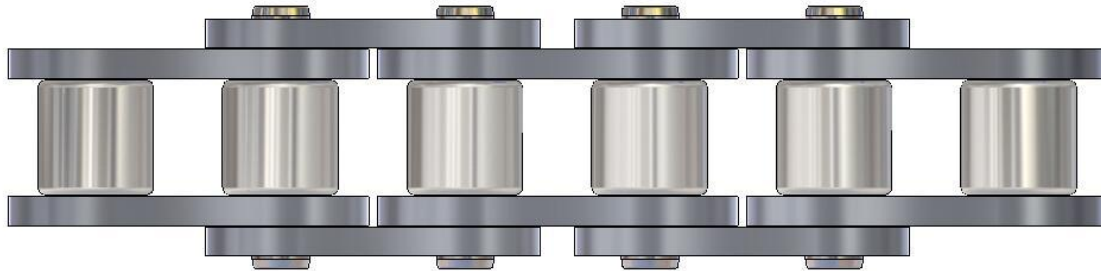
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# Primary Chain Dimensions



# Roller Chain Nomenclature

## 80 or 35 Chain



**8 = 8/8 = 1 Inch Pitch**

**3 = 3/8 = 0.375 Inch Pitch**

**0 = With Roller**

**5 = Rollerless**



# Multi-Strand Nomenclature

## 80-4 Chain

**8 = 8/8 = 1 Inch Pitch**

**0 = With Roller**

**4 = Strand width**



# Double Pitch Chain Nomenclature

## C2062H



**C = Conveyor Chain**

**2 = Double Pitch**

**06 = Standard Chain Size (60 Chain)**

**Last "2" = Oversize Roller (as shown)**

**H = Heavy Side Plate**



# Double Pitch Chain Nomenclature

**C2100H**



**C = Conveyor Chain**

**2 = Double Pitch**

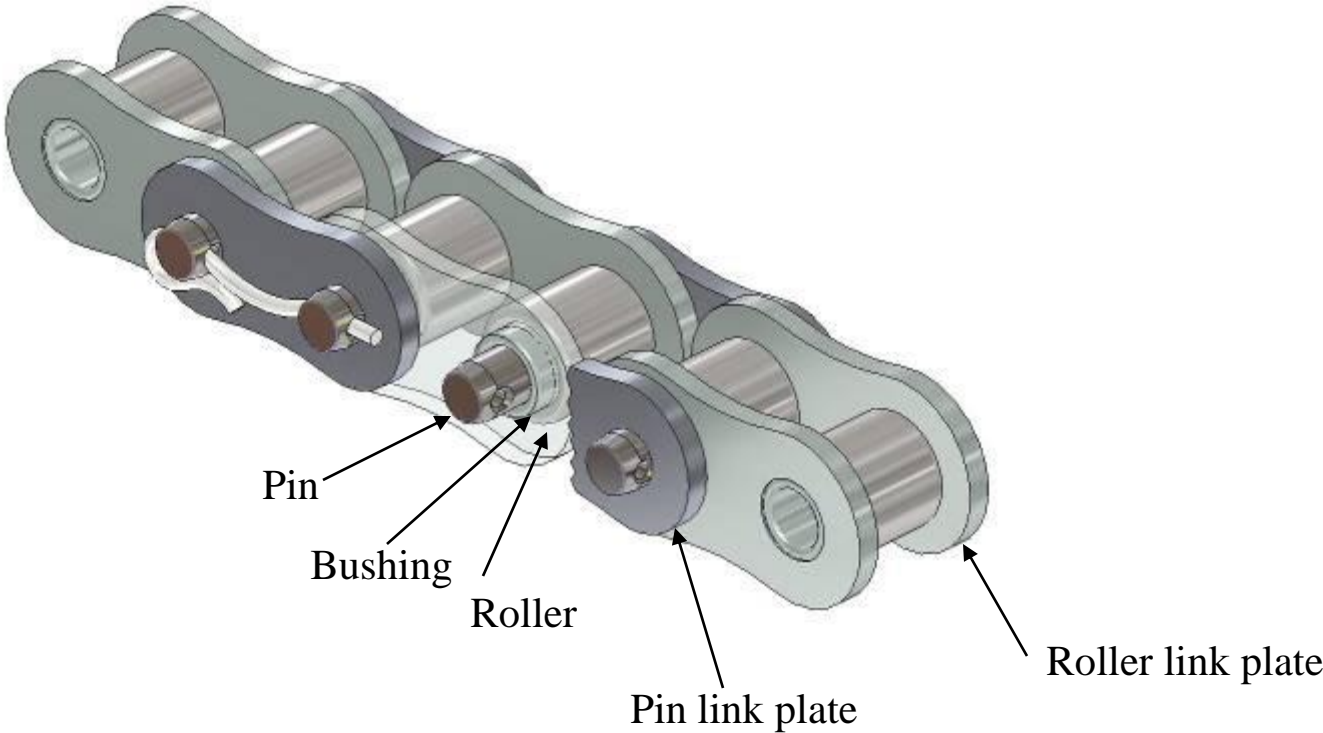
**10 = Standard Chain Size (100 Chain)**

**Last "0" = Standard roller**

**H = Heavy Side Plate**



# Roller Chain Construction



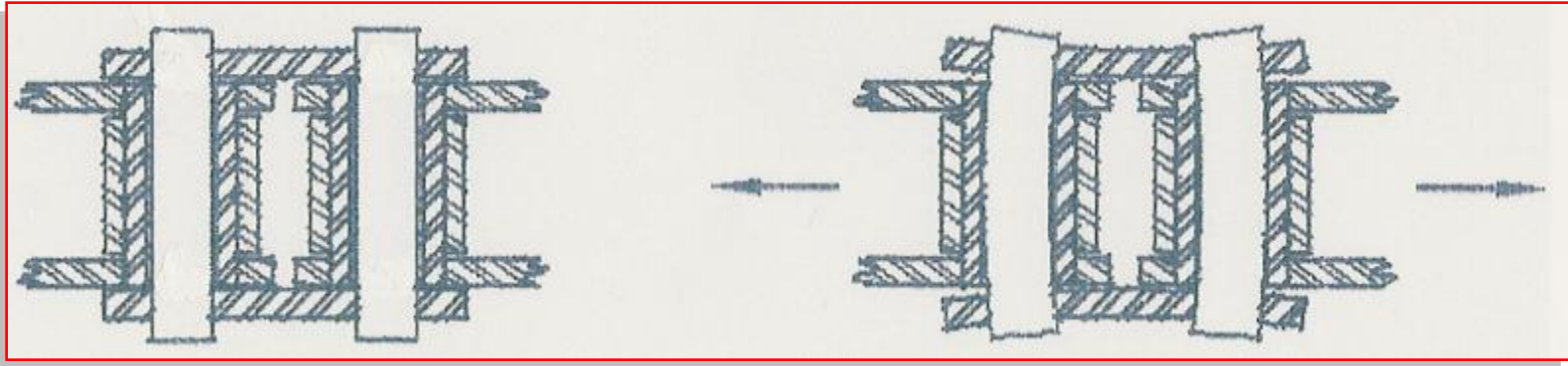
# Primary Features

## *Minimize Fatigue Breakage*

1. **WIDE WAIST:** Resists bending - Increases fatigue strength
2. **HOLE QUALITY:**
  - a. Compressive stress around hole
  - b. 95% plus contact between pin or bushing and the sidebars
3. **PRELOAD @ 50% OF TENSILE:**
  - a. Application can see shock load of 50% of tensile and not have the chain elongate immediately.
4. **HOOK COTTER:**
  - a. Easy to install hardened hook cotter assures pin retention and minimizes vibration during operation.
5. **HOT DIP LUBRICATION:**
  - a. Fully penetrates and coats the bearing surface between pin & bushing.



# Chain Under Load



**Unloaded**

**Loaded**



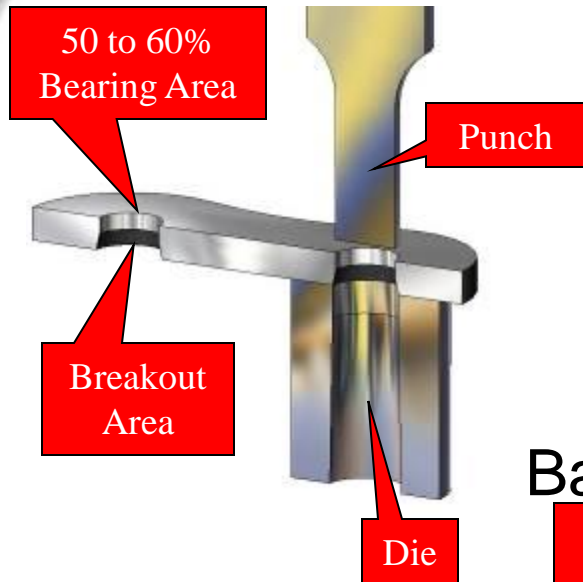
# Raw Material Selection & Wide Waist

- Highest Quality Domestic Steel
- In-House Designed Tooling to Optimize Chain Performance
- Wide-Waist link plates
- Resists bending results in higher fatigue strength

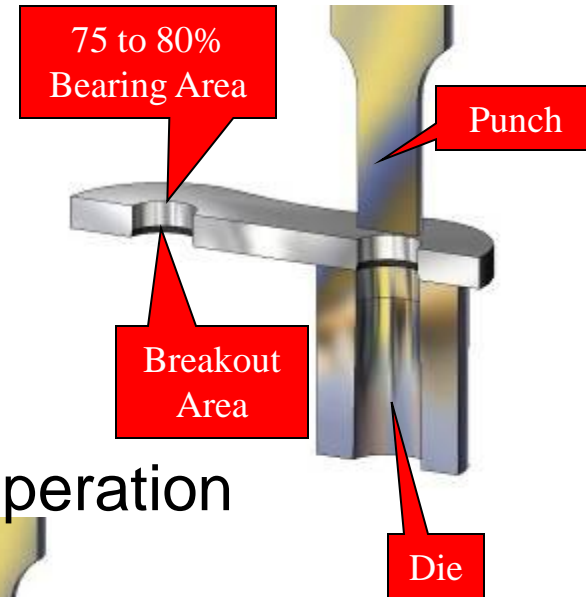


# Hole Quality - Before Heat Treatment

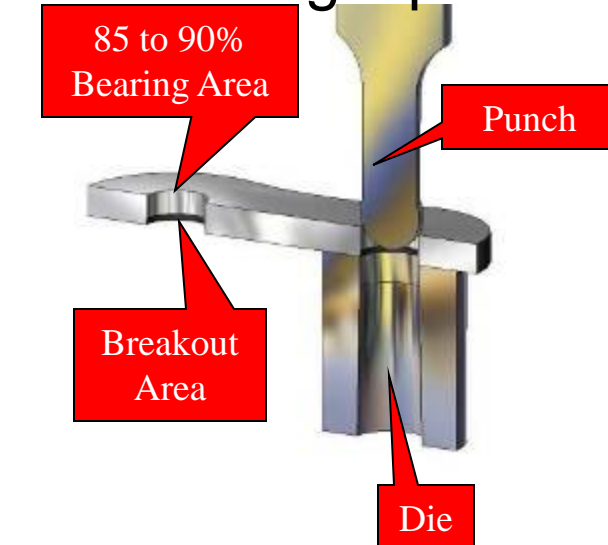
## Piercing Operation



## Shaving Operation



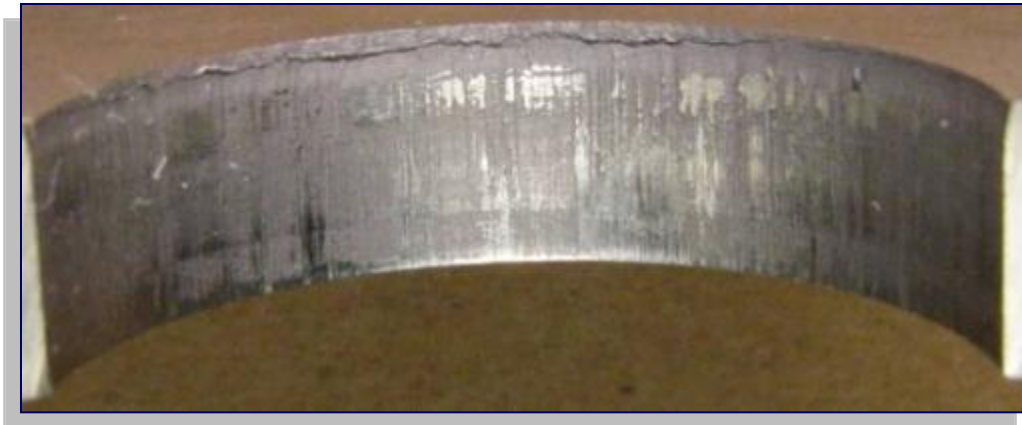
## Ball Drifting Operation



# Hole Quality – Before Heat Treatment

## Three Step Process

- First Pierce
- Shave
- Ball Drift



# Component Parts Heat Treated

State-of-the-art,  
in-house, Heat  
Treatment for all  
component parts



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# Shot Peening



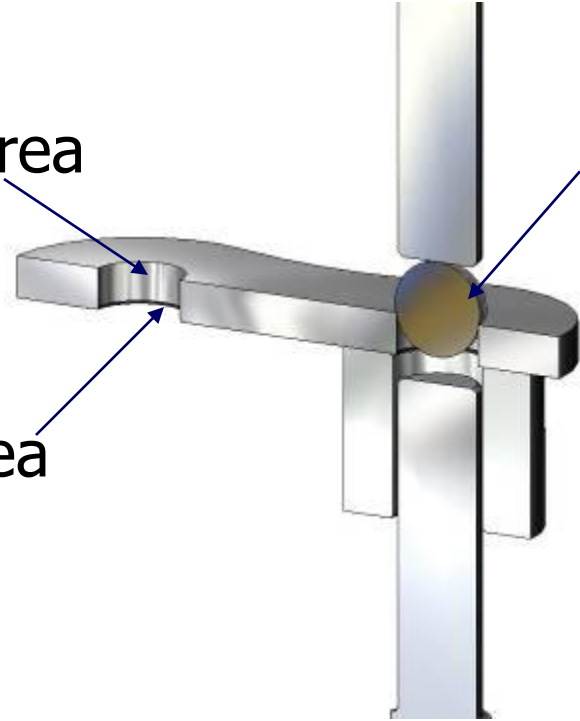
- Pins
- Rollers
- Side plates



# Ballizing Operation After Heat Treatment

95% Bearing area

Breakout area



Tungsten Carbide Ball

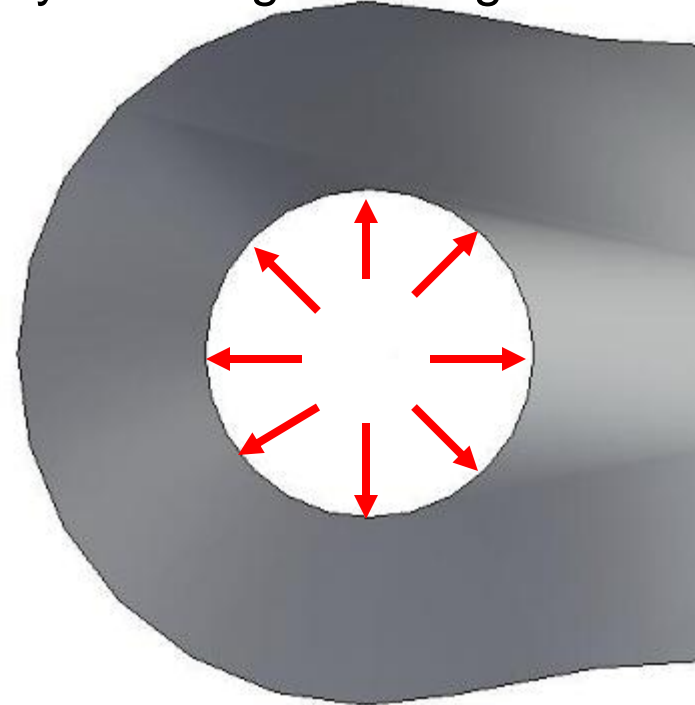
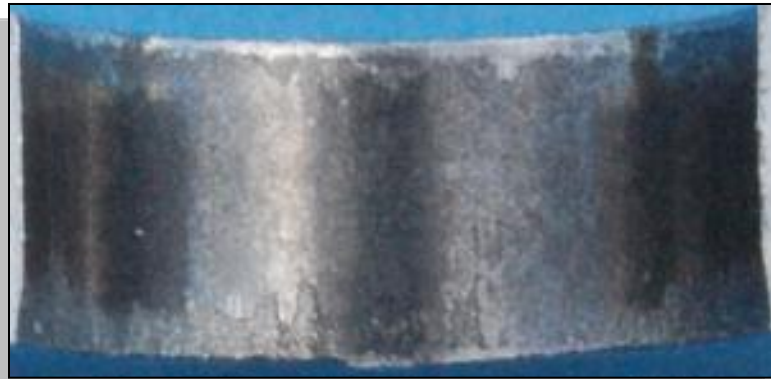
Link Plate

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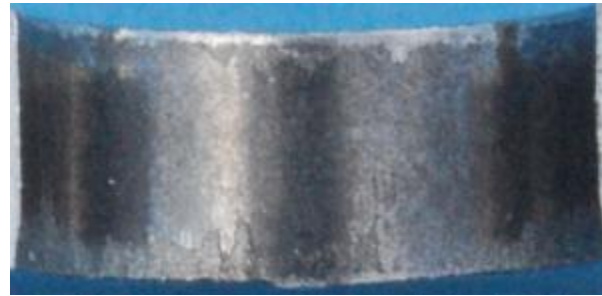


# Ballize Operation After Heat Treatment

- Link Plate hole has 95% bearing area
- Ballizing introduces residual compressive stresses
- Opposes the tensile stresses from loading
- Provides greater loading capacity and fatigue strength



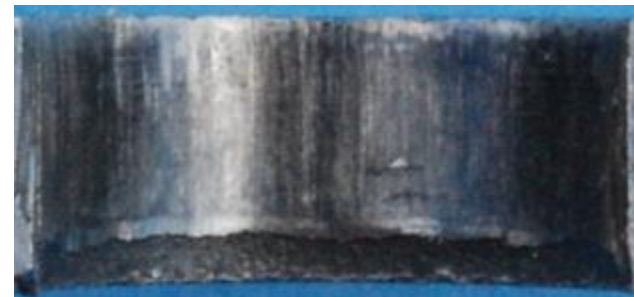
# Hole Quality – Comparison



Drives



USA Competitor



Japanese Competitor



# Bushings

## Solid



Case Hardened HRC 60

## Curled



Case Hardened HRC 60

Concentricity of the bushing is critical to optimize pin / bushing contact and minimize initial elongation.

Drives utilizes both solid and curled style bushings and, based on the size of the chain, selects the design which provides the best possible concentric bushing in the industry.



# Case Hardened vs. Through Hardened



Case HRC 60

Core HRC 40



HRC 50  
Throughout

**Wear:**

Excellent

Good

**Strength:**

Good

Excellent

**Applications:**

High Speed

Moderate Load

General Applications

#160H 58,000 Lbs.

Moderate Speed

High Loads

Lifting & Shock loads

#160H 72,800 Lbs.

**Tensile:**



# Rollers



Roll through impact and protect the bushing

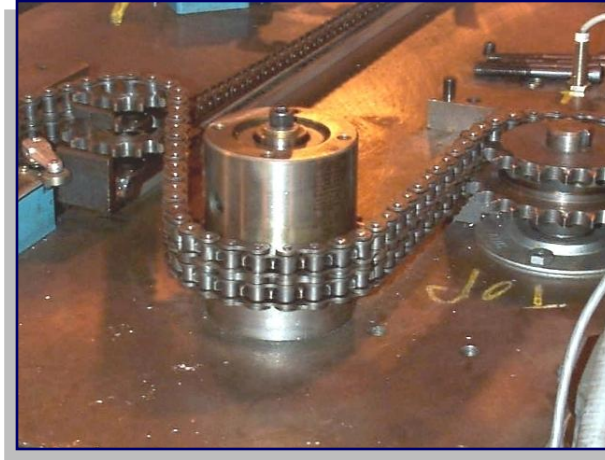
**SOLID vs. CURLED**

**Through Hardened HRC 50**

- Can handle loads without seam opening
- No seam to engage guides
- Grit cannot get stuck in seam
- Have excellent ability to roll through sprocket engagement and protect internal portions of chain
- Grain directionality is not important, because roller is free to roll (Does not load at same spot, like Bushing.)



# Preloading 50% of Tensile Strength

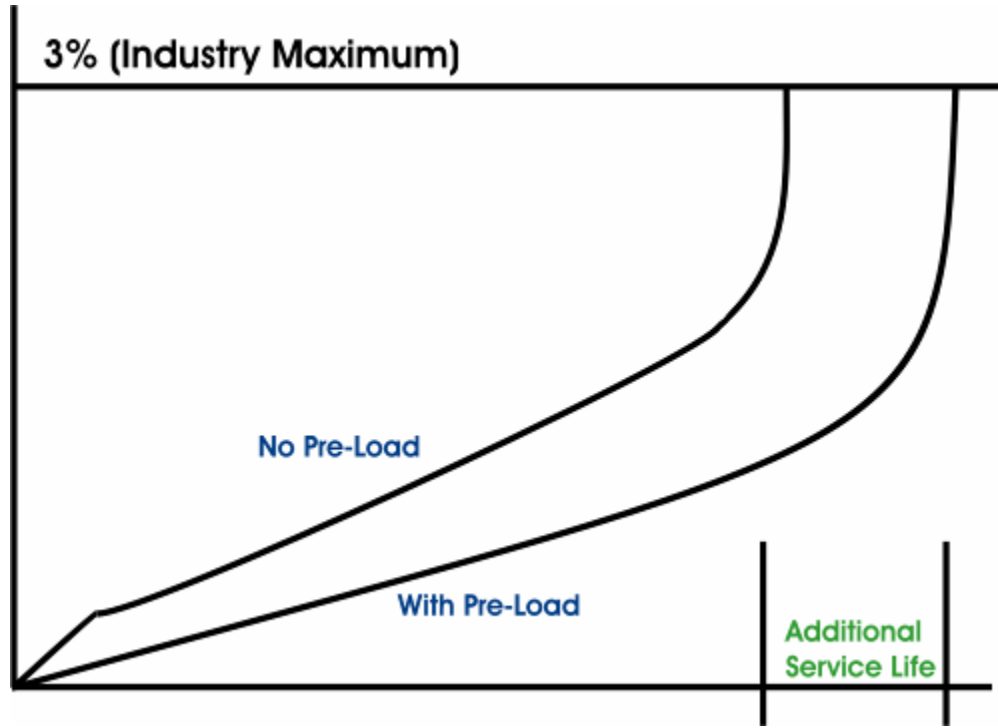


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# Pre-Loading

Aligns all parts for smoother operation - reduces early elongation and increases service life

**ELONGATION**



**TIME: Hours, Weeks, Months**

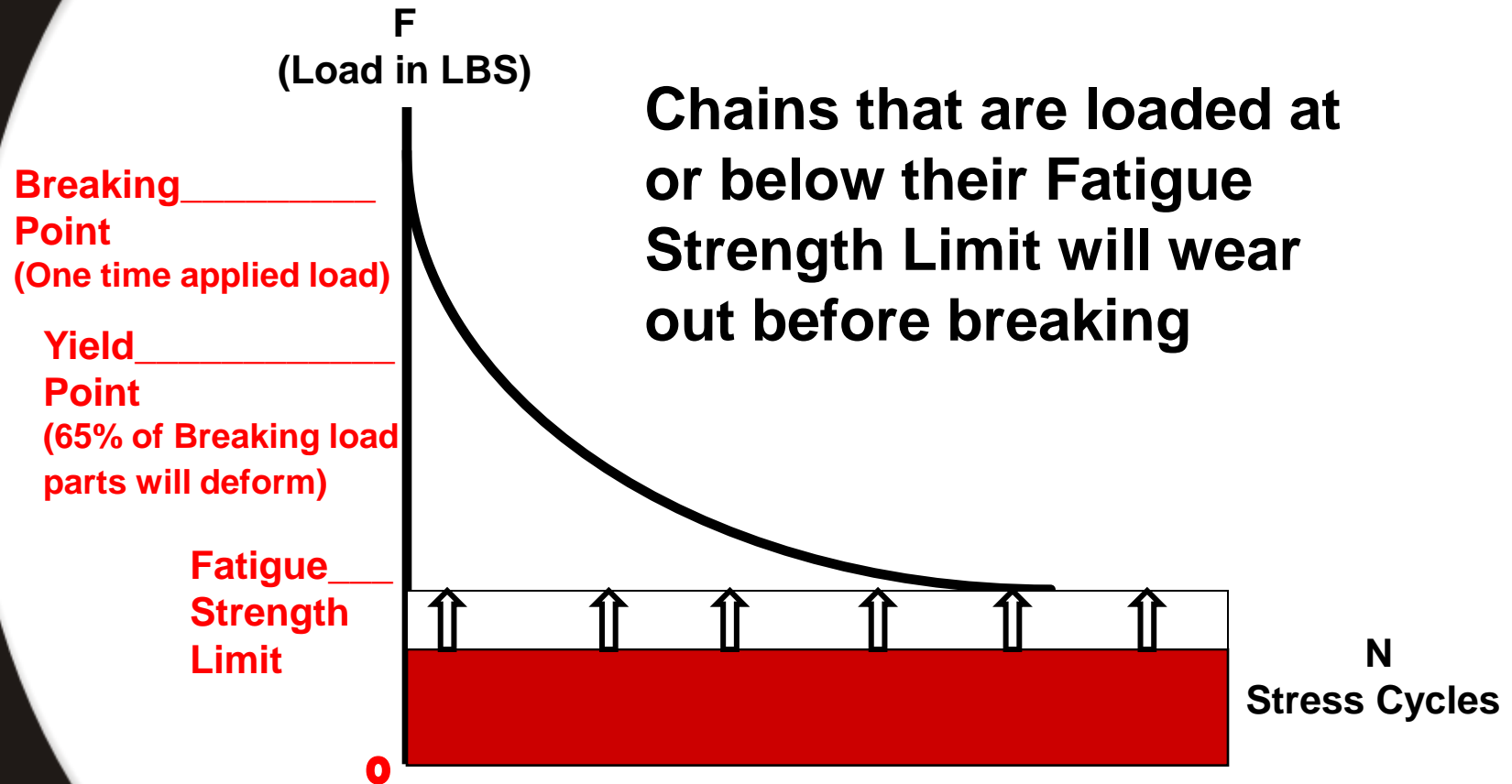


# Factory Hot-Dip Lubrication



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# Fatigue Strength



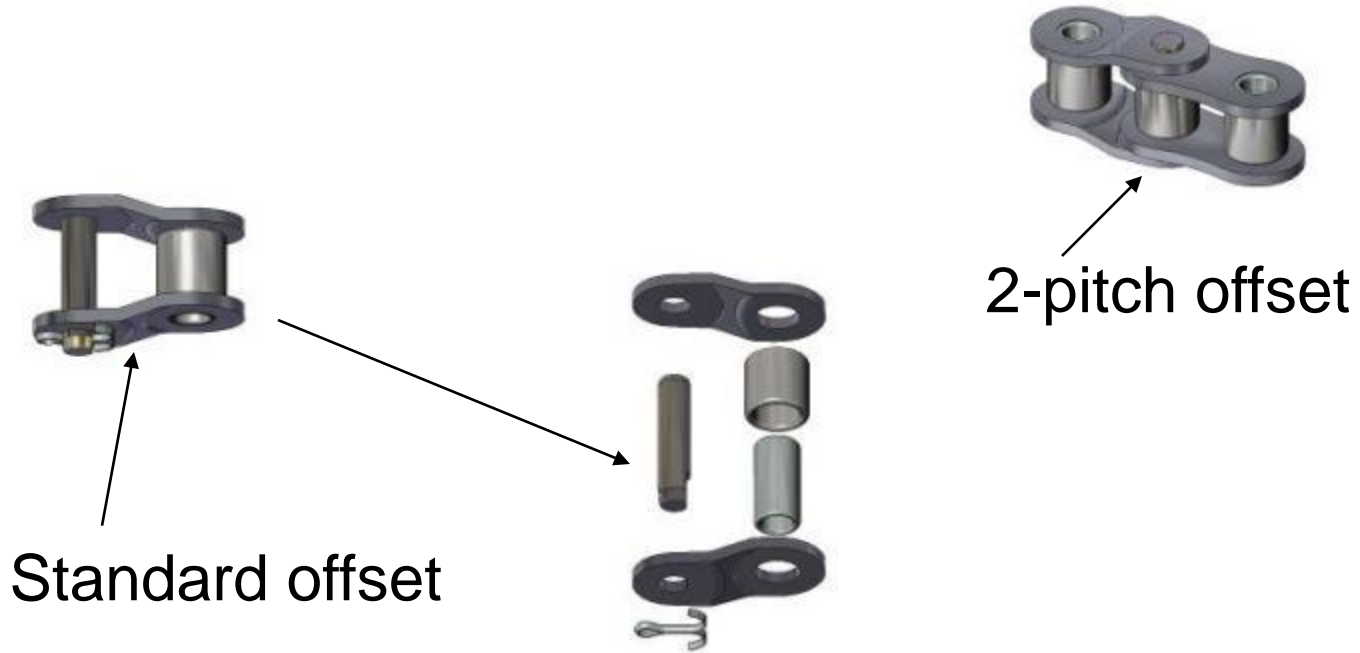
# Connecting Link



**Reduces fatigue strength by 10%**



# Offset Link



**Reduces fatigue strength by 30% to 50%**





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