



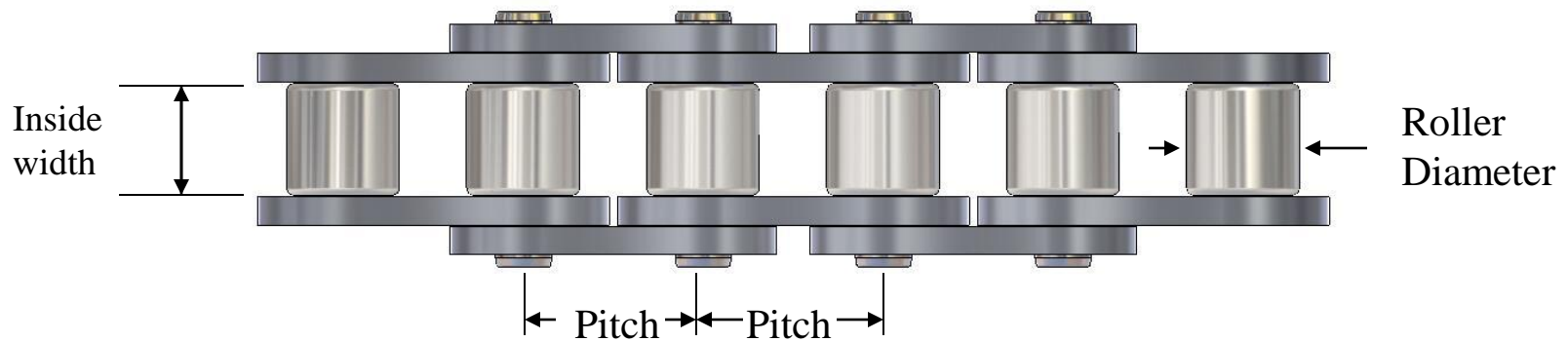
solutions drive success



Roller Chain

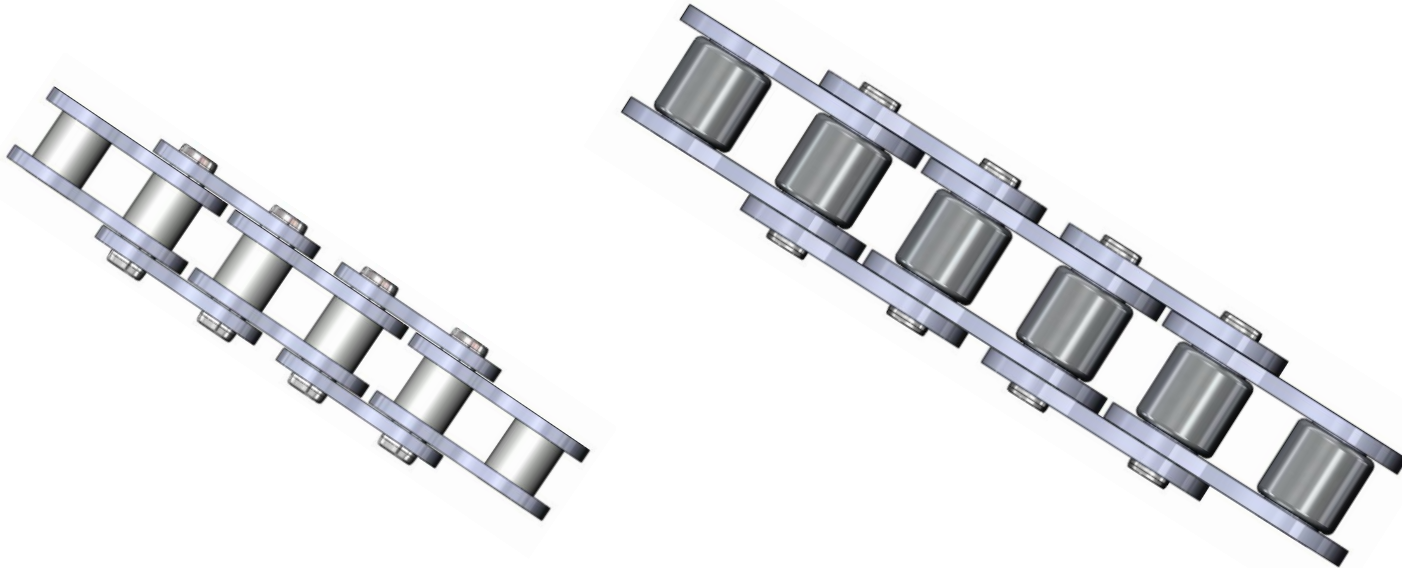


Primary Chain Dimensions



Roller Chain Nomenclature

35 or 80 Chain



3 = 3/8 = 0.375 Inch Pitch
5 = Rollerless

8 = 8/8 = 1 Inch Pitch
0 = With Roller



Multi-Strand Nomenclature

80-4 Chain

8 = 8/8 = 1 Inch Pitch

0 = With Roller

4 = Strand width



Double Pitch Chain Nomenclature

C2100H



C = Conveyor Chain

2 = Double Pitch

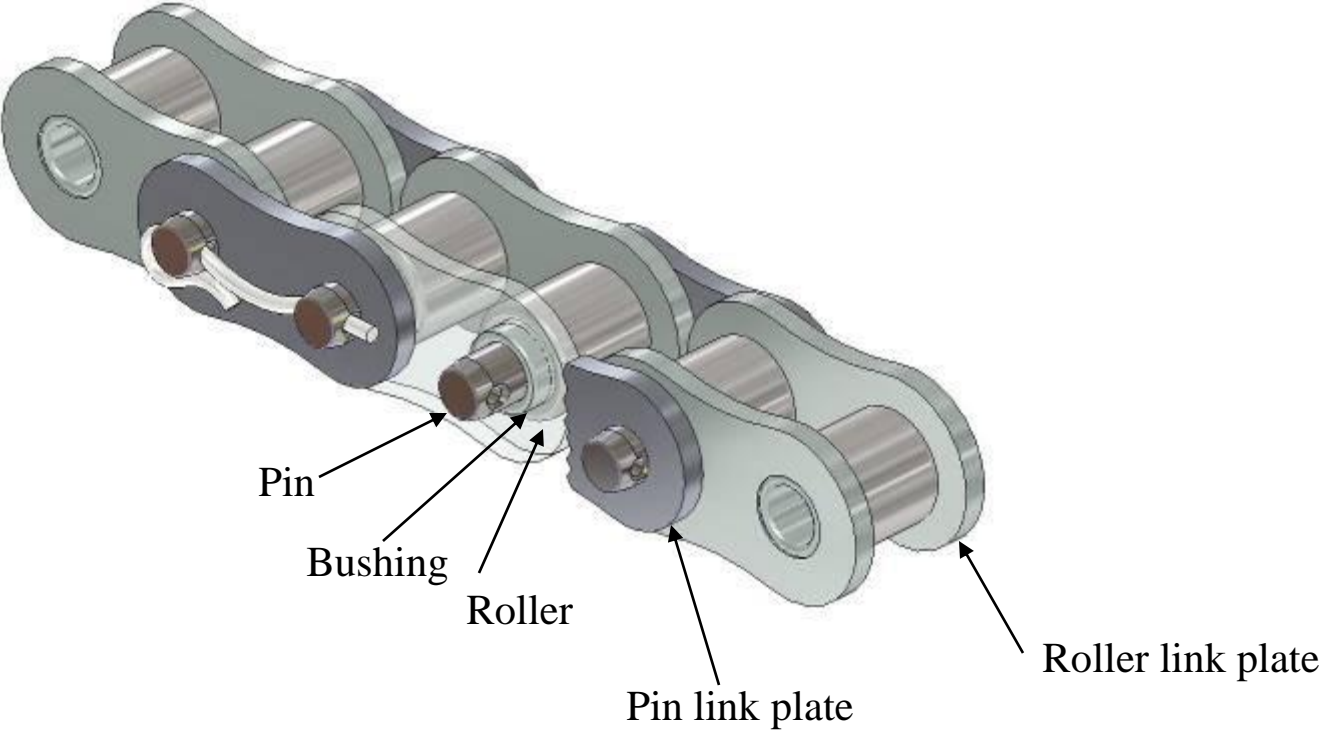
10 = Standard Chain Size (100 Chain)

Last "0" = Standard roller

H = Heavy Side Plate



Roller Chain Construction



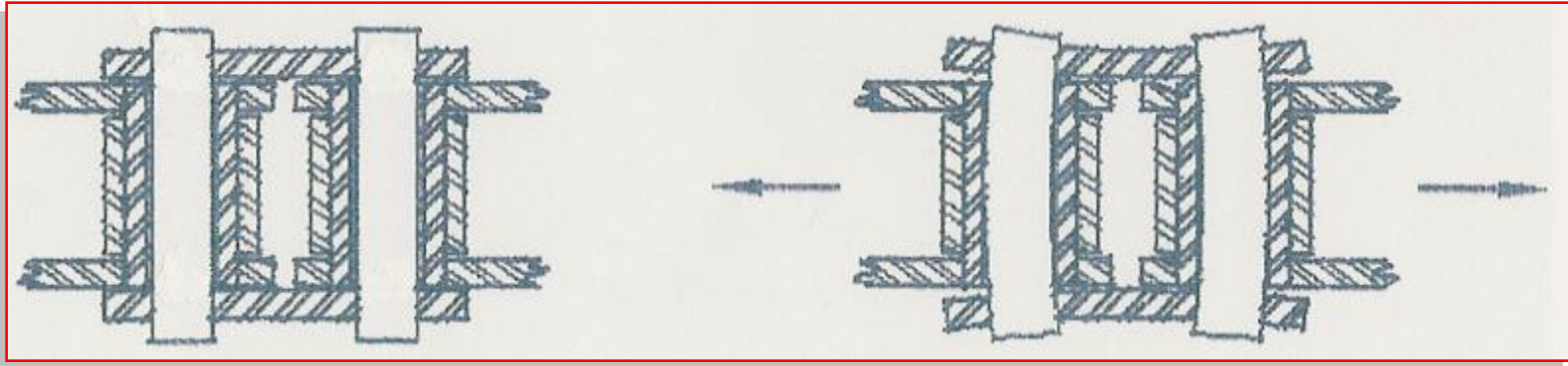
Primary Features

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

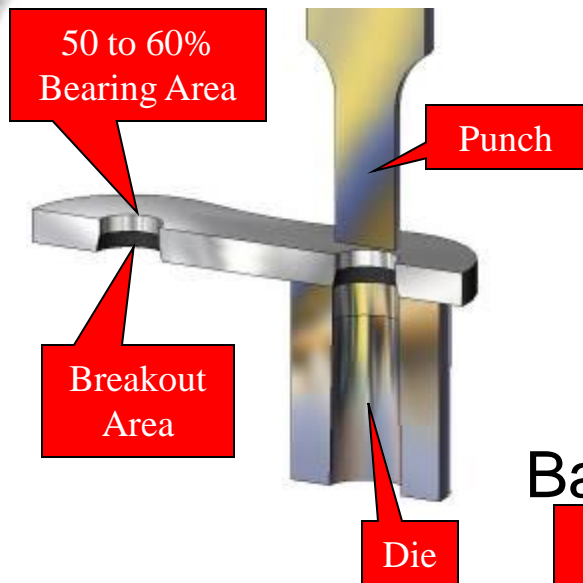
- Highest Quality Domestic Steel
- In-House Designed Tooling to Optimize Chain Performance
- Wide-Waist link plates
- Resists bending, resulting in higher fatigue strength



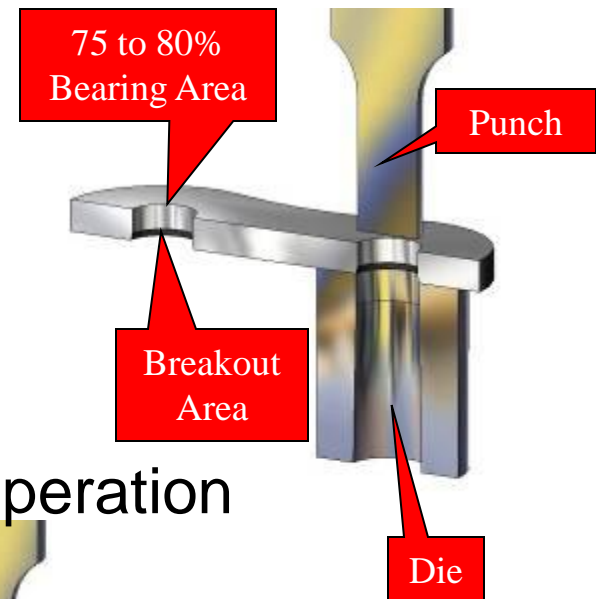
Hole Quality - Before Heat Treatment

3 Step Process

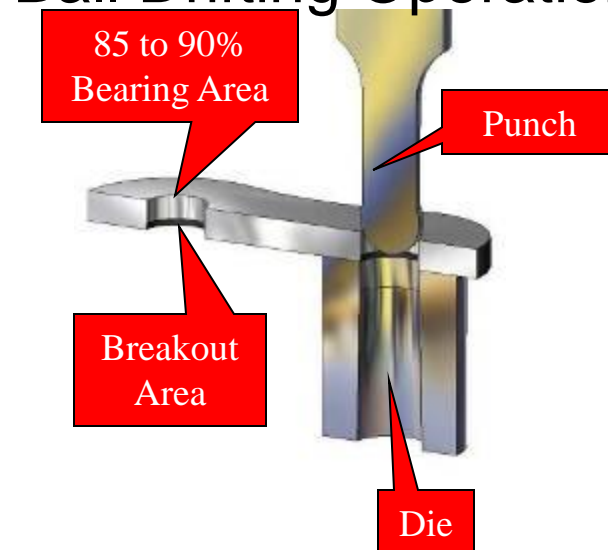
Piercing Operation



Shaving Operation



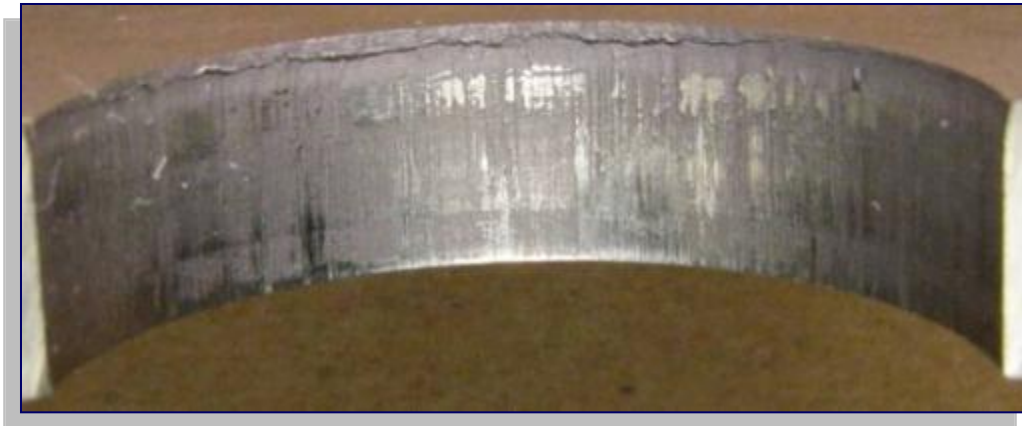
Ball Drifting Operation



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



Shot Peening



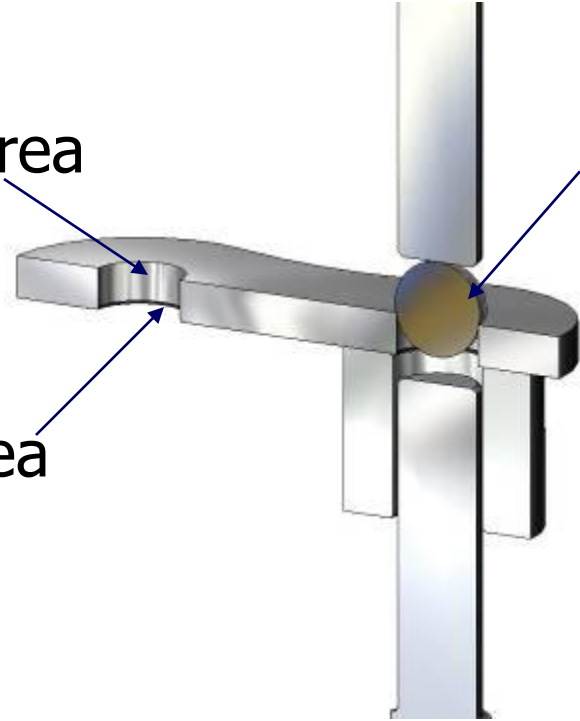
- Pins
- Rollers
- Side plates



Ballizing Operation After Heat Treatment

95% Bearing area

Breakout area



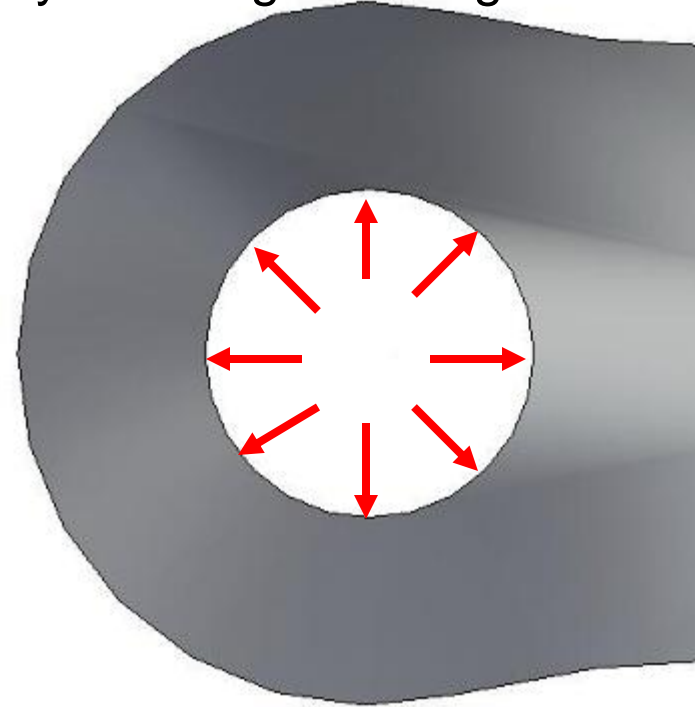
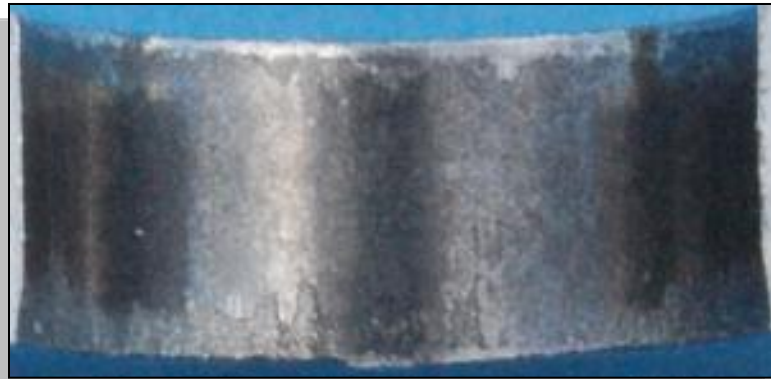
Tungsten Carbide Ball

Link Plate

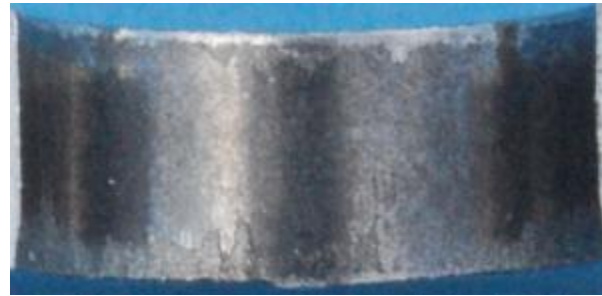


Ballize Operation After Heat Treatment

- 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



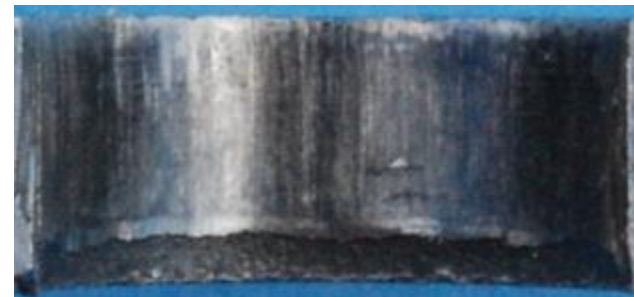
Hole Quality – Comparison



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:

Strength:

Applications:

Tensile:

Excellent

Good

High Speed

Moderate Load

General Applications

#160H 58,000 Lbs.

Good

Excellent

Moderate Speed

High Loads

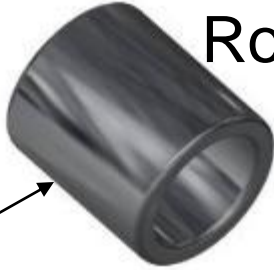
Lifting & Shock loads

#160H 72,800 Lbs.



Rollers

Roll through impact and protect the bushing



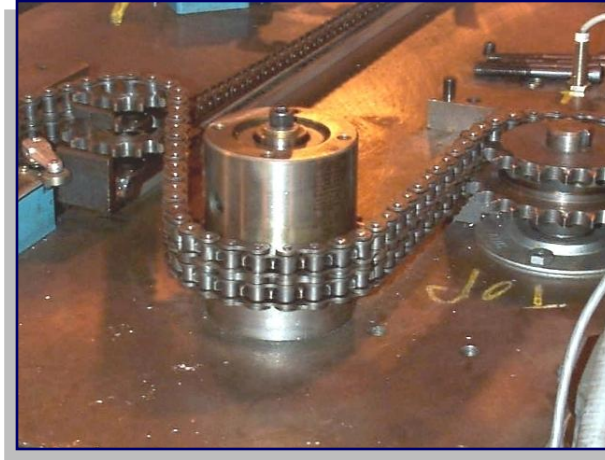
SOLID vs. CURLED

Through Hardened HRC 50

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



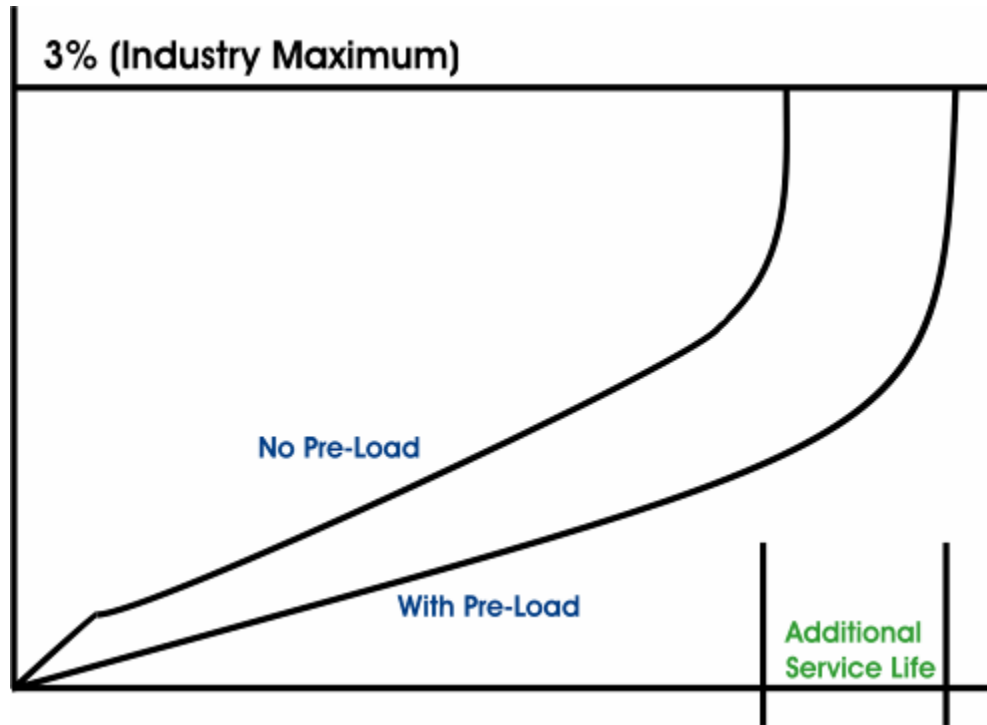
Preloading 50% of Tensile Strength



Pre-Loading

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

ELONGATION



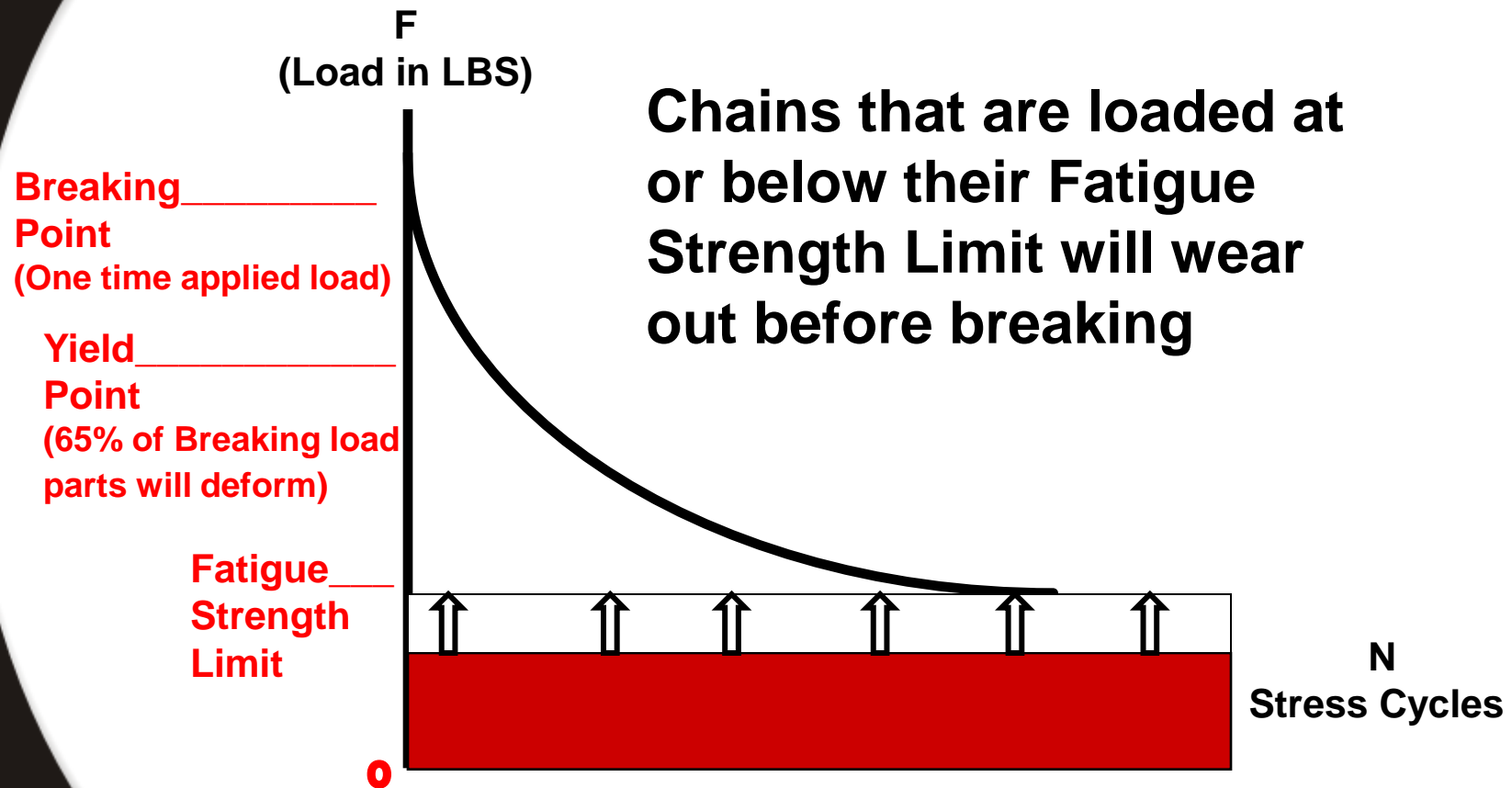
TIME: Hours, Weeks, Months



Factory Hot-Dip Lubrication



Fatigue Strength



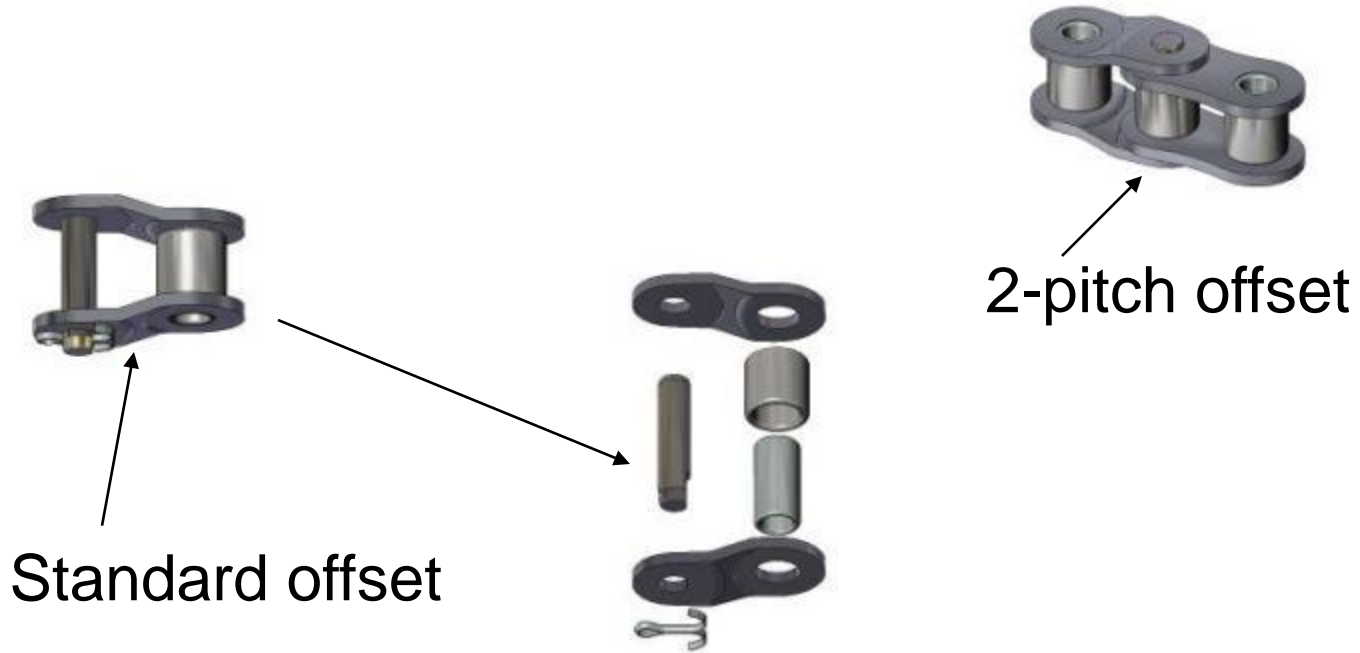
Connecting Link



Reduces fatigue strength by 10%



Offset Link



Reduces fatigue strength by 30% to 50%





solutions drive success

