



Rexnord chains and quality philosophy

Rexnord quality criteria



FATIGUE LIMIT

The fatigue limit is defined as the value of the repeated operational pulsating loads, imposed by the sprocket polygon effect or changing loads, that the chain can withstand without suffering failure from metal fatigue (endurance failure = fatigue failure).

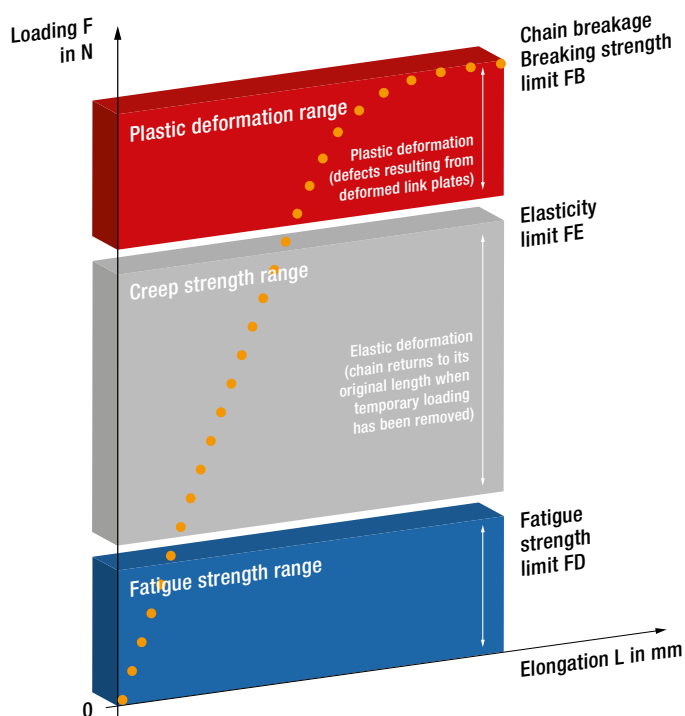
- Determination of breaking strength has great significance for the achievement of high fatigue strength
- Breaking strength that is too high can be a disadvantage, as it can reduce toughness and
- Fatigue strength decreases when breaking strength exceeds a certain value

BREAKING STRENGTH

- Permanent distortion of the chain occurs before the breaking strength limit is reached – after the elasticity limit has been passed – so the breaking strength level is only of secondary importance
- Breaking strength defines the limit beyond which the chain will break
- Chain functionality begins to deteriorate as soon as the elasticity limit has been exceeded

ELASTICITY LIMIT

- The elasticity limit represents the loading zone in which there is not yet any plastic deformation
- Operational loading and shocks below this limit result in elastic deformation that only persists for as long as the loading or shock itself
- The elasticity limit is highly significant, as all loads above this level result in lasting and permanent distortion that renders the chain unserviceable



Please note:

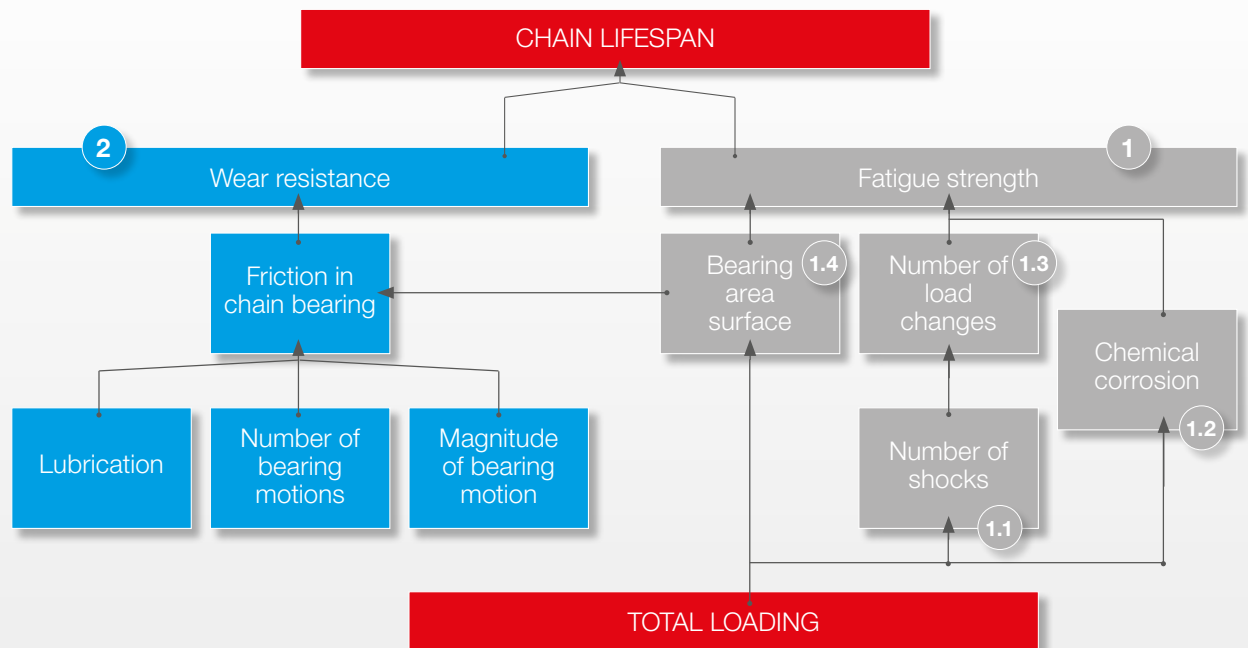
Only the elasticity and fatigue strength values are relevant for technical configuration. Please contact Rexnord if you require details of these values. All breaking strength parameters for roller, leaf and rotary chains correspond to the minimum requirements of the respective DIN standard and are only of secondary relevance for chain functionality.

On the other hand, if mean or maximum values are given, it is not possible to interpret these figures reliably.

Such figures would only be of use if unavoidable deviations (tolerance ranges) were specified at the same time. The German Standards Committee DIN requires the declaration of breaking strength values as a minimum figure; all Rexnord products comply with this requirement as a matter of course.

Decisive factors

in determining chain lifespan



TOTAL LOADING

1. Fatigue resistance

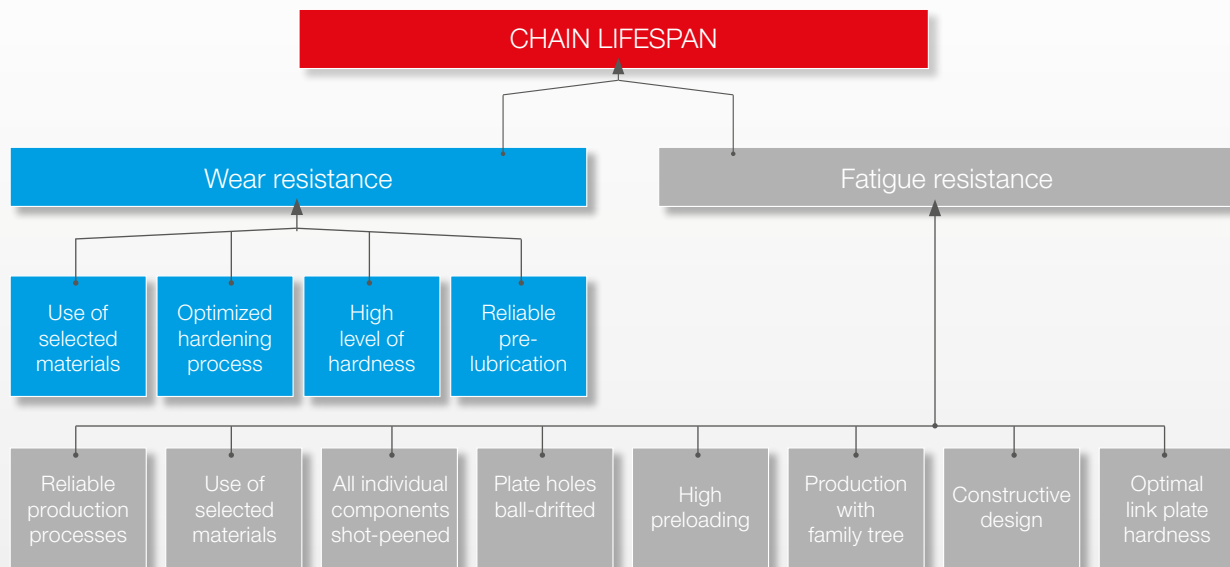
- 1.1 Number of shocks
- 1.2 Influence of acid on materials (wear caused by acid or other corrosives)
- 1.3 Bearing motion
- 1.4 Tension in chain bearing

2. Wear resistance

- 2.1 The greater the angle, the greater the wear.
- 2.2 The more bearing motion, the higher the wear.
- 2.3 Lubrication has a major influence on wear
- 2.4 Friction originates in the chain bearing

Rexnord manufacturing processes

For optimization of the chain lifespan



Optimal Plate Design

The plate of the inner link is the specific part of a roller chain which determines the fatigue resistance and in consequence the operational safety of the complete roller chain. Only a chain with the highest fatigue resistance guarantees a trouble free working life.

FEATURE

- Maximum inner plate height
- High material thickness
- Optimum plate design
- Dynamic loading durability
- Static loading durability
- High chain friction area

BENEFIT

- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost
- Low maintenance cost



Roller chains



Leaf chains



High quality materials

Material quality is the base of good product quality. Friction elements; chain pin and bush, need to have high geometric accuracy and surface hardness. Loading elements; side plates and rollers, need to have limited carbon contents compared to standard material and capability for high material hardness and good elasticity.

FEATURE

- Exclusive use of “noble” steel
- Material specifications to exact Rexnord standards
- Only certified, tested and reliable suppliers are used
- All materials supplied must be accompanied by a certificate and certified analysis
- Limited carbon contents compared with standard materials
- Limited tolerances regarding dimensions and hardness

BENEFIT

- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost
- Increased Wear resistance
- Long wear life
- Excellent wear resistance even on high loads
- Low overall life time cost
- Low maintenance cost



Roller chains



Leaf chains



Cold formed rollers and bushes

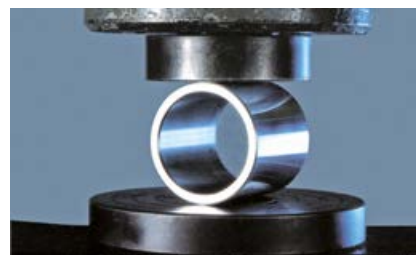
The seam-free surface bushes and rollers guarantees an outstanding load-bearing area and smooth, quiet running.

FEATURE

- High quality materials
- Stable material quality
- Tight dimensional tolerances

BENEFIT

- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost
- Increased Wear resistance
- Long wear life
- Excellent wear resistance even on high loads
- Low overall life time cost



Roller chains



Leaf chains

Ball calibrated holes

Ball-drifting of the plate holes serves to achieve strain-hardening of the material. All punching flutes and sharp edges are simultaneously removed. The resulting effect is a significant improvement in the press fits and the fatigue strength.

FEATURE

- Ball calibrated holes
- Cylindrical holes
- Excellent hole surface quality

BENEFIT

- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost



Roller chains



Leaf chains



High case hardness

The pins and bushes that make up the chain-bearing area are furnished with an optimally deep hardness layer. This layer is mainly responsible for increasing, i.e. lengthening the working life. Specially selected high performance steels enable absolute and uniform, 1st class product characteristics.

FEATURE

- Material hardness 60HRC
- Optimum hardness depth to ensure stable chain elongation up to 3%.

BENEFIT

- Increased Wear resistance
- Long wear life
- Excellent wear resistance even on high loads
- Low overall life time cost
- Low maintenance cost



Roller chains



Leaf chains



Optimum material hardness

Loading elements; side plates and rollers, need to have limited carbon contents compared to standard material and capability for high material hardness and good elasticity.

FEATURE

- Optimum material hardness with combination of good elasticity and dynamic load resistance

BENEFIT

- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost



Roller chains



Leaf chains



Intensive shot peening

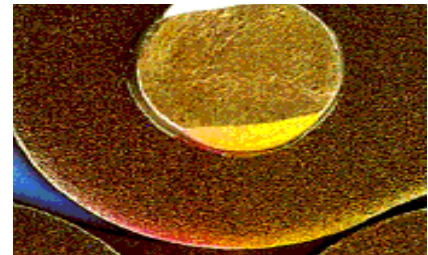
All pins, plates, bushes and rollers are shot-peened to further improve the fatigue strength. This effective cold-working additionally consolidates the surface and increases the load-bearing characteristics. Such parts have a build-in tension and therefore higher resistance against loading.

FEATURE

- Cold-work components
- Increased surface area
- Build-in tension

BENEFIT

- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost



Roller chains



Leaf chains



High preloading

Rexnord chains are “pre-run-in” under high load. Customer chain run-in elongation is thereby minimized and expensive tensions in application avoided. All chains are subjected to a serve length control. High pre-loading enhances their load-bearing property.

FEATURE

- Chain preloading up to 70% from standard breaking load
- Chain runs during preloading several sprockets
- Pre-loading process right after chain assembly process

BENEFIT

- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost
- Increased Wear resistance
- Long wear life
- Excellent wear resistance even on high loads
- Low overall life time cost
- Low maintenance cost



Roller chains



Leaf chains



Reliable factory lubrication

Rexnord offers broad range of different Ex Works factory lubrication alternatives. On standard, a result of drastically increased demands for increased environmental compatibility, Rexnord uses the newly-developed chain preservation RexPro - VSK 001 on nearly all chains supplied to customers.

FEATURE

- Considerably improved corrosion protection
- Improved wear protection characteristics
- Environmental compatibility corresponds to the strict prerequisites for the environmental management certificate acc. to DIN EN ISO 14001 and the environmental stipulations of leading manufacturers
- RexPro is registered by the NSF (National Sanitary Foundation) in the category H2
- RexPro conforms to RoHS
- Anti-drip security in surrounding temperatures of up to +50°C
- Application temperature range varies between ca. -30°C and +130°C
- Evenly-spread film thickness (less danger of over-lubrication, more even-wear and corrosion protection)
- No content of heavy metals

BENEFIT

- Environment
- Suitable for use in the food industry, where direct contact with the product is not permitted.
- Suitable for use in the electrical and electronics industry.
- Increased Wear resistance
- Long wear life
- Excellent wear resistance even on high loads
- Low overall life time cost
- Low maintenance cost



Roller chains



Leaf chains



Uniform quality

The uniform quality of Rexnord chains is not merely ensured by initial and final inspections, but also by in-process routine testing of the individual components. Chain component manufacturing process and material can be tracked based on production lot number on leaf chains and on roller chains by year and quarter-code.

FEATURE

- Material receiving quality control
- Dimensional check during component manufacturing
- Preliminary tool quality control and maintenance
- Material strength testing after heat treatment
- Automated Assembly Lines
- Pre-loading in assembly line
- Photo-optical final inspection

BENEFIT

- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost
- Increased Wear resistance
- Long wear life
- Excellent wear resistance even on high loads
- Low overall life time cost



Roller chains



Leaf chains



Competitive product quality

Rexnord has been manufacturing chains in many different designs since 1892. The experience gained in many decades as well as consistent research ensures products of an advanced design. Rexnord manufactures at 3 locations on 3 continents. A large number of patents confirm the innovation of Rexnord employees. Applications from low to extreme quality are required, Rexnord products are there, meeting the application demands.

FEATURE

- Environment resistance testing
- Wear resistance testing
- Dynamic load resistance testing
- Static load resistance testing
- Field tests
- Application engineering

BENEFIT

- Optimized chain selection
- Increased Fatigue resistance
- Dynamic loading durability
- Static loading durability
- Safe
- Long life
- Low overall life time cost
- Increased Wear resistance
- Long wear life
- Excellent wear resistance even on high loads
- Low overall life time cost
- Reduced maintenance
- Low overall life time cost



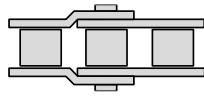
Roller chains



Leaf chains



Roller chains



RexPro stands for outstanding protection against corrosion and wear and provides unique protection against chain joint stiffness. RexPro is also renowned for its excellent eco-friendliness. RexPro is suitable for food industry applications (with NSF H2 certification).



RexCarbon means no more lubrication - ever! The chain features a high-tech thermoplastic sliding sleeve that makes it genuinely maintenance-free – with no reduction of the chain lifespan and no chain failure due to seized joints. RexCarbon offers fatigue-resistant high performance in all areas where regular relubrication is undesirable or impossible.



RexPlusCarbon is the first permanently maintenance-free chain that is also rust- and acid-proof. It combines the strengths of the expert chains RexPlus and RexCarbon. High wear resistance and optimized elasticity guaranteed long-term precision, reliability and safety, whatever the application.



Link-Belt – our subsidiary brand with the optimal cost-benefit ratio but no compromises.



RexAthletic is a durable, wear-resistant, low-maintenance roller chain with a specially designed chain joint. It is particularly suitable for applications with limited maintenance and lubrication possibilities e.g. paint shops, escalators or conveyor chains in hard to reach areas.



RexPlus is the tried and tested rust- and acid-proof roller chain that meets the strictest standards of quality, reliability and durability. The use of new materials and their continuous further development give RexPlus an unassailable advantage over market-standard stainless steel chains.

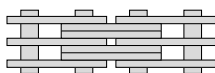


The RexHiPro roller chain is noted for its outstanding corrosion resistance, making it the ideal choice for difficult operating conditions. The highest corrosion resistance with the same high level of performance as RexPro.



RexPro-X is suitable for extremely high loads, as well as offering outstanding protection against corrosion and wear. Another distinguishing feature of RexPro-X roller chains are their long lifespan.

Leaf chains



RexPro stands for outstanding protection against corrosion and wear and provides unique protection against chain joint stiffness. RexPro is also renowned for its excellent eco-friendliness. RexPro is suitable for food industry applications (with NSF H2 certification).



RexAthletic is the new low-maintenance generation of leaf chains! Fitting RexAthletic chains prolongs relubrication intervals by a factor of five, as well as doubling wear lifespan! The result is a significant reduction of maintenance costs and lubricant consumption.



RexHiPro roller chains are noted for their outstanding corrosion resistance, making them the ideal choice for difficult operating conditions. The highest corrosion resistance with the same high level of performance as RexPro.



RexDL leaf chains are an excellent choice for standard applications, offering the optimum solution regarding quality and reliability.

