

Comparison Table of Maximum Allowable Load

ANSI	Competitor (kN)	HITACHI (kN)
35	2.16	2.48
40	3.63	4.17
50	6.37	7.22
60	8.83	10.7
80	14.70	19.1
100	22.60	29.4
120	30.40	39.5
140	40.20	52.3
160	53.00	69.0
180	60.80	79.0
200	71.60	93.0
240	99.00	129.0

BS	Competitor (kN)	HITACHI (kN)
08B	N/A*	3.14
10B	N/A*	4.90
12B	N/A*	7.06
16B	12.6	16.40
20B	19.6	25.50
24B	27.5	35.70
28B	34.3	44.50
32B	39.2	51.00

30% UP!

*NOTE : Published Date is not available.

30% UP!

Fundamental Structure of Hitachi Solid Bushing & Roller Chain

Outstanding longer wear life

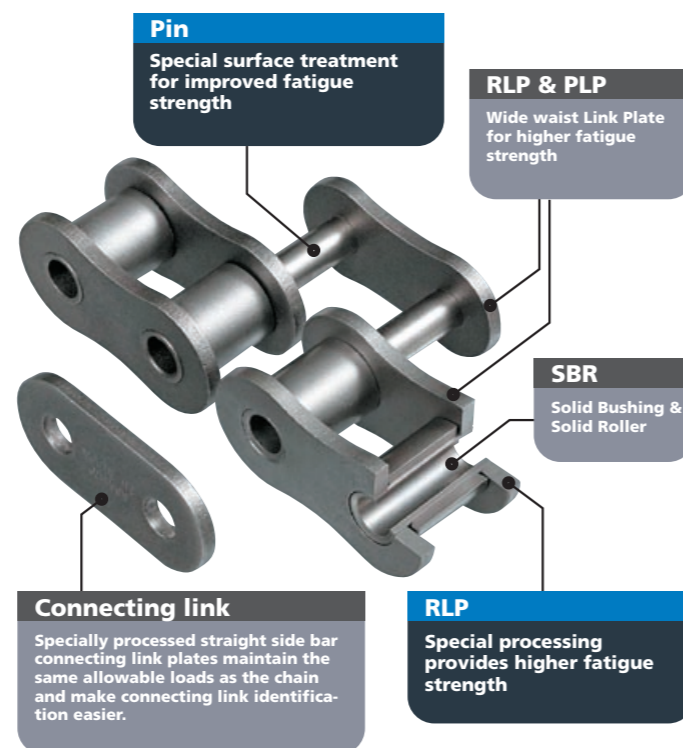
Conventional split bushings deform into a barrel shape when side plates are pressed on, leaving only two-point contact area. SBR (Solid Bushing & Roller) chain has extremely cylindrical inside and outside bushing walls resulting in full contact to disperse bearing pressure. Less pressure ensures excellent wear resistance.

Up to 2-3 times longer wear life over curled bushings

The curled, split bushings have a seam where tiny space allows lubricant leakage resulting in shorter wear life. SBR has no seam resulting in lower bearing pressure allowing the bushings to retain lubrication resulting in much longer wear life.

Reliable performance

SBR is cold-forged from steel rod. Cold-forming process also works with the molecular structure (grain) of the steel running lengthwise in the bushings thereby increasing fatigue strength as well as preventing bushings from breakage, Hitachi SBR chain improves performance of transmission with minimizing elongation for long period of time.



Powerful Performance

+30%

SBR-PRIME ROLLER CHAIN

Hitachi Solid Bushing & Roller Chain

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Distributor

Hitachi SBR outperforms competitors for over 20 years

SBR Chain (Solid Bushing & Roller Chain)

Before Assembly After Assembly

Solid bushings with tapered ends assure near perfectly straight ID surface after assembly. The ends collapse due to press fit resulting in ultra straight bearing surfaces.

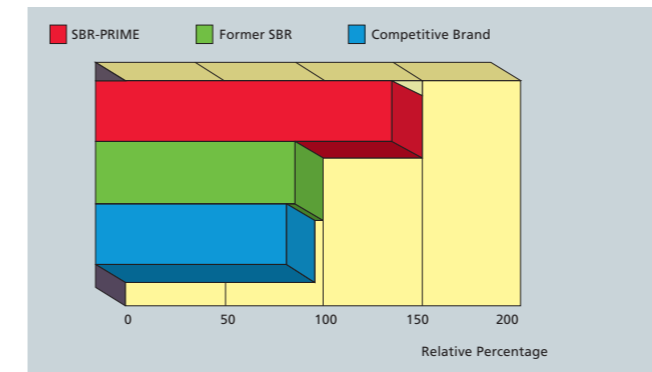
Conventional Chain

Before Assembly After Assembly

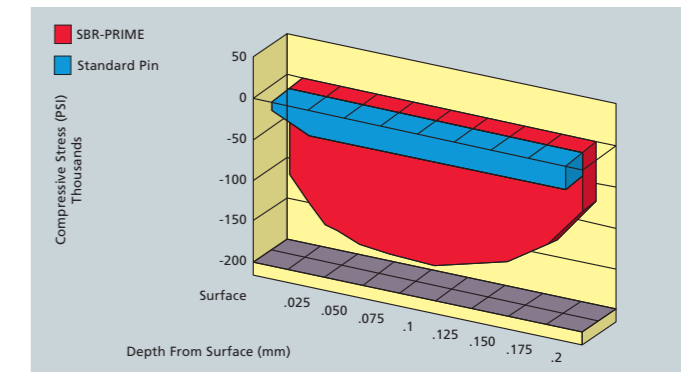
Bushing ID becomes barrel shaped as a result of press fit and makes uneven contact between pin and bushing.

In 2009 Hitachi went into full production of the new SBR-Prime series roller chain across the standard range. Hitachi once again were the front runner and introduced new innovations in manufacturing technologies and part processing which has led to the development of the New SBR-Prime series roller chains. Most of the competitors were still using a split bush roller chain or converting to a form of the SBR. The new Hitachi SBR-Prime chain now offers up to 30% increase in Maximum Allowable Load (M.A.L) compared with leading competitors.

Fatigue Strength



Compressive Residual Stress Measurements



Compressive Residual Stress Zones

Compressive stress has long been known to improve fatigue strength. Sources of compression in existing chain products include shot peening, high interference fits between pins, bushings and side plates, and the carburized zone found on pins and bushings.

Our unique patent pending "Hi-Energy Mechanical Process" imparts substantial compressive stresses to the chain components (see chart right) resulting in a 45%-50% increase in fatigue strength. Power rating as well as the rated working loads are the highest in the world.

Compressive stress measurements. The deeper trough of the SBR-Prime pin means that the part has more compressive residual stress and is therefore more resistant to fatigue failure. Link Plates, rollers and bushings undergo the same treatment with similar results.

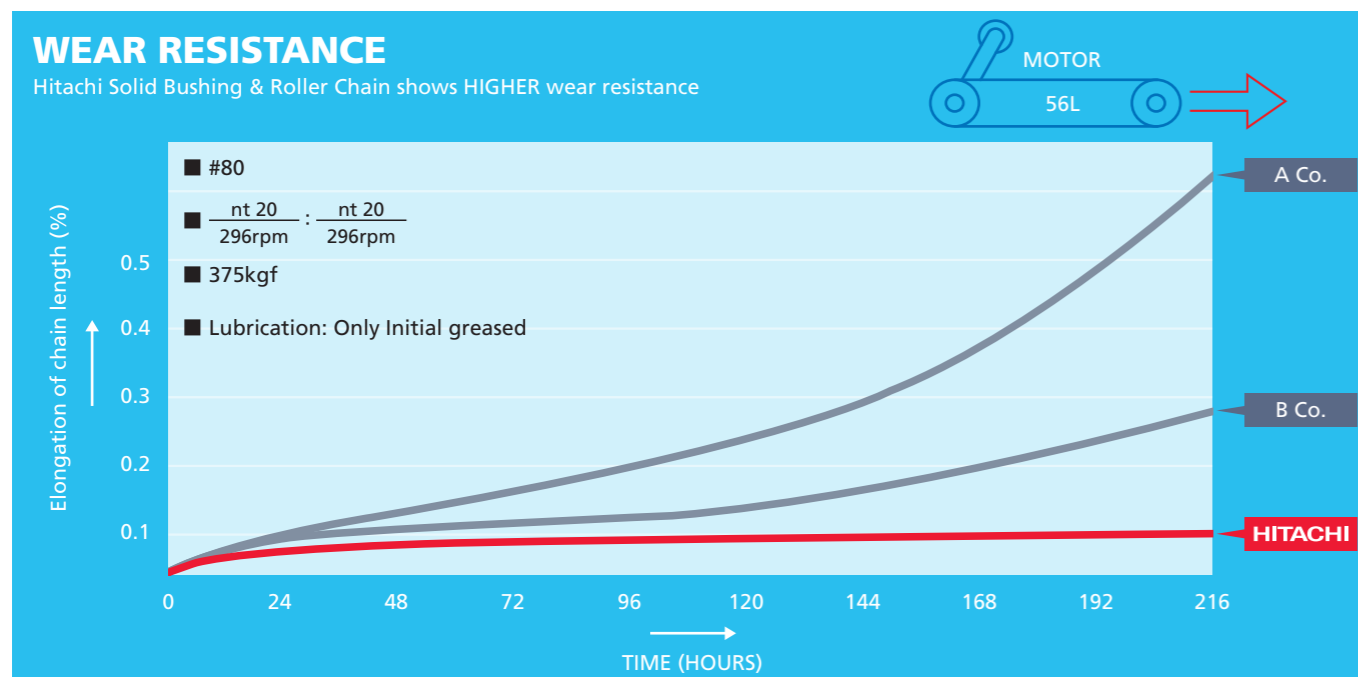
Stainless Steel Blast Treatment

Components of our new SBR-Prime roller chains are coated with a film of stainless steel achieved through a proprietary blast treatment. The film works with the high quality pre-lubricant to protect the chain from corrosive attack and extend life. The blast also gives the chain an enhanced silver color appearance.

Always Ahead of the Competition

In 1987, Hitachi introduced the first premium line of solid bushing/solid roller (SBR) industrial chain products. Cold forged solid steel parts replaced traditional curled components to increase the strength and extend chain life.

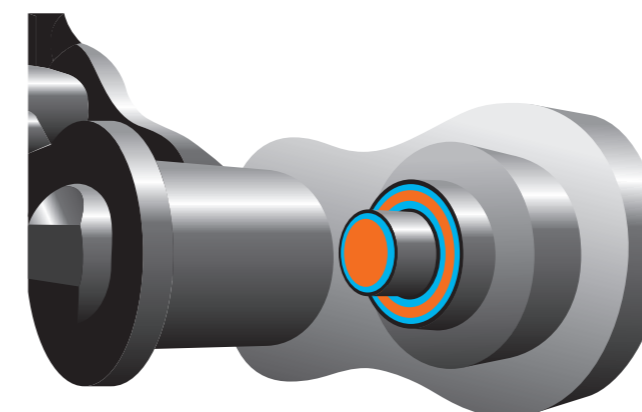
In 1997, Hitachi added a unique coating to pins and bushings and redesigned the connecting link. A market leading product was made better as Hitachi's design focus shifted to increasing the chain wear life and improving the endurance of the connecting link. The new coating assisted lubrication and protected against corrosion providing an additional 5%-10% increase in wear life.



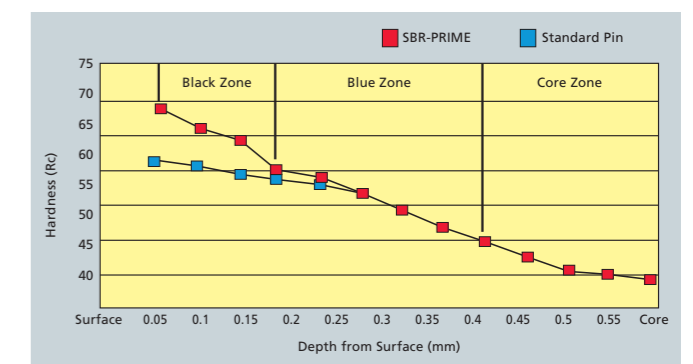
Triple Zone Hardness Wear Protection

A residual, but important benefit of Hitachi's new "Hi-Energy Mechanical Process" is that an ultra-high hardness shell is developed on the surface of carburized pins and bushings. This effectively gives these wearing components three layers of hardness protection:

1. Ultra-high hardness shell (Black Zone - See Below)
2. High hardness carburized case (Blue Zone- See Below)
3. Core Hardness (Orange Zone - See Below)



Micro Hardness Measurements



Micro hardness measurements of the pins and bushings reveal an ultra-hard shell which fights chain elongation far better than can be achieved with conventional carburized parts.