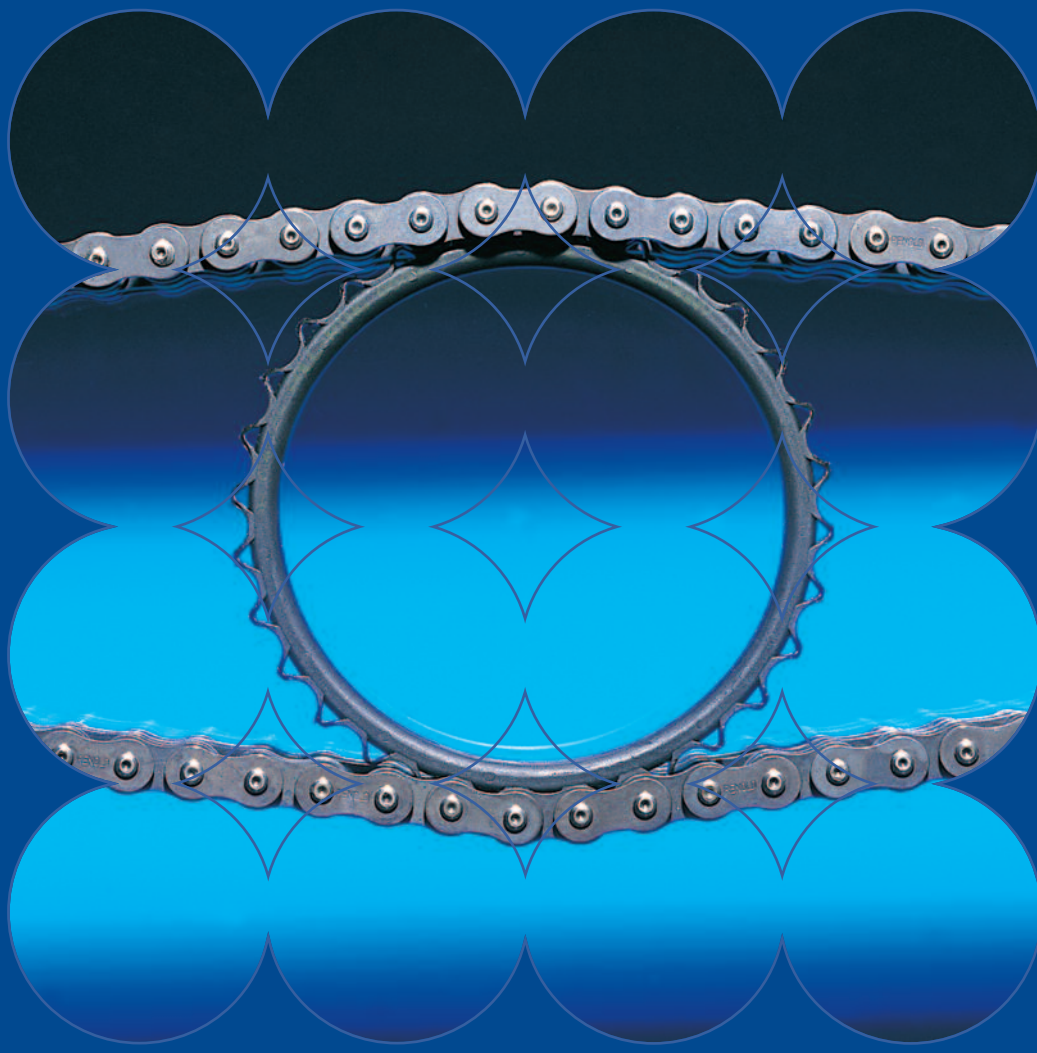
ROLL-RING®

Self adjusting chain tensioner



RENOLD

Superior Chain Technology

ROLL-RING®

Leading edge technology

Renold provides practical cost effective solutions, with a commitment of value through quality. This is achieved by continuous investment in people, process technology and manufacturing.

Consistent reliability

Renold's 130 years of experience in the design and manufacture of power transmission products, to the highest specifications, with proven performance in diverse industries worldwide, underwrites the guaranteed quality and the assurance of reliability.

Package solutions

One stop for your drive systems, including roller and conveyor chain, gears, motors, couplings, variators and fabricated bases.

Service excellence and care

Renold offers a unique level of service excellence and customer care. Our experienced applications engineers will select the optimum solution with the aid of the latest computer and design technology. Renold is the name for service, care and peace of mind.

Special solutions and innovations

Renold is recognised throughout the industry for its capability to create specific solutions to customers' unique requirements. International companies and industries from steel to food processing to escalators to textile machinery have chosen Renold to solve their problems.

Local and international availability

The Renold organisation stretches world-wide.

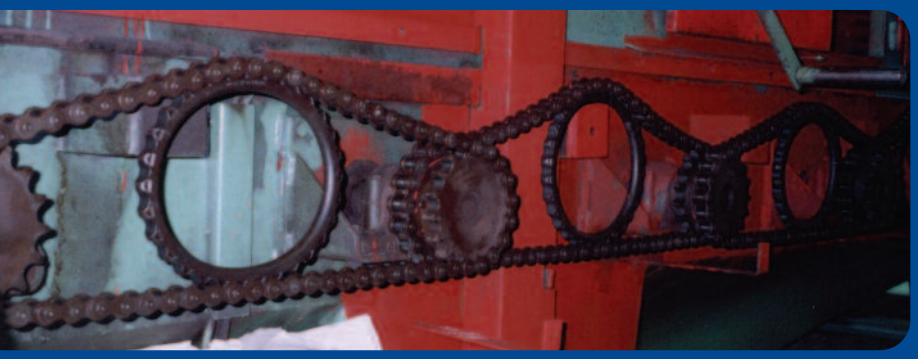
- 20 National Sales Companies
- Over 100 Overseas Distributors offering the comprehensive Renold range of power transmission products, directly or through local distributor networks

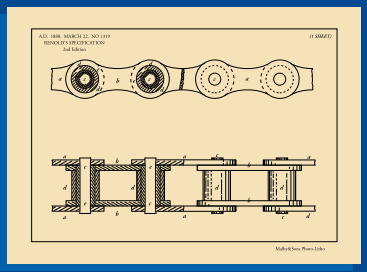
Approvals and Quality Assurance

Renold's chain factories have ISO 9001:2000 certification. The roller chain manufacturing sites also have ISO 14001:2004 certification.

The UK gear and coupling sites have ISO 9001:2008 accreditation.

We also manufacture to the specifications required by API and BAe.





Original patent drawing 1880 for bush roller chain

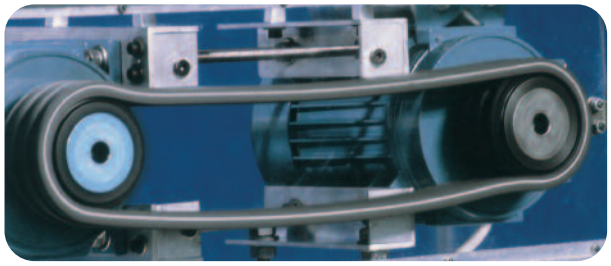
ROLL-RING®

Registered trademark 641 683 of Ebert Kettenspanntechnik GmbH

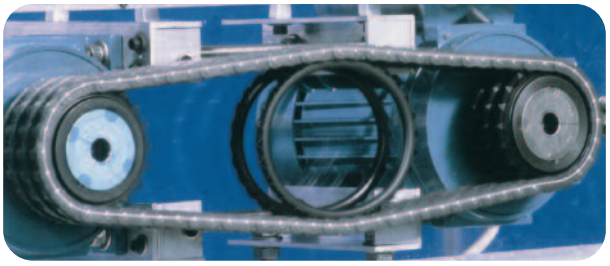
Roll-Ring is an innovative chain tensioner made from a specially formulated polymer. The unique design is based upon a toothed ring that can be fitted to horizontal, vertical or diagonal drives in a matter of seconds, simply by placing it in-between the two strands of chain.

When the drive is in use, the Roll-Ring deforms to an elliptical shape, due to the compression between the strands and completely absorbs any slack in the system. Roll-Ring performs the job of a tensioner and a damper in one, and is ideally suited to applications where maintenance is difficult or impossible.

Vibrations in an untensioned chain drive



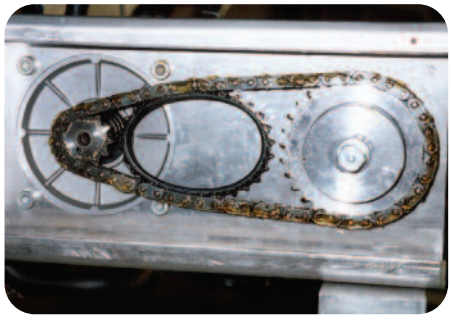
The ROLL-RING chain tensioner tensions and dampens



The Innovative Tensioner

The innovative prize winning Roll-Ring chain tensioner is based on new principles and represents a major advance in technology.

- Roll-Ring requires minimal technical effort
- All functions are integrated into a single component
- Roll-Ring utilises the hollow space of the associated chain drive system giving greater flexibility to designers and specifiers
- Automatic positioning and self lubricating



Benefits over other types of tensioner

- Free standing - no sprockets, bolts, plates, drilling or costly installation required
- The Roll-Ring is easily installed where space limitations prohibit the use of conventional chain tensioners
- The Roll-Ring is fitted in a matter of seconds
- No tools or tensioning equipment are required and the Roll-Ring is ready for use without further alignment or adjustment
- Fully effective in both vertical and diagonal drives
- Roll-Ring operates automatically, is maintenance free and self lubricating
- Suitable for dusty and dirty environments
- Chain tensioner and damper in one, thus reducing noise levels
- Roll-Ring works in reverse mode

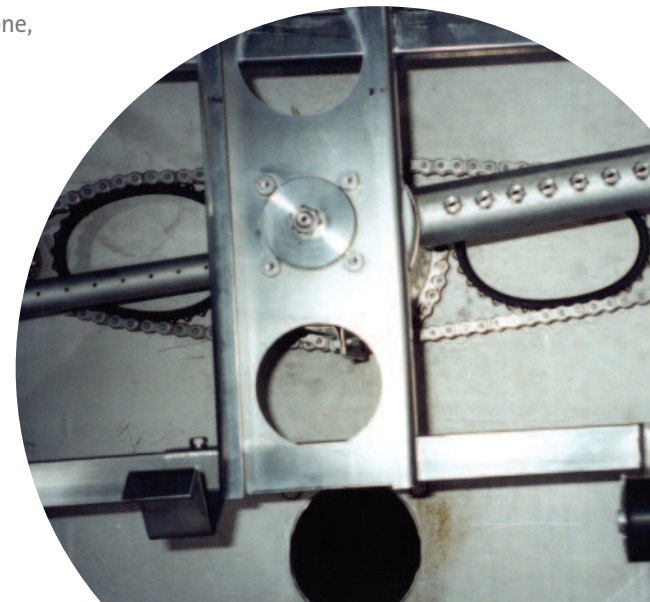
Tensioning Principles

Roll-Ring chain tensioners provide tensioning using

- Static tensioning force from the elastic ring
- Dynamic tensioning force from the damping of the working material

The Roll-Ring chain tensioners provide as much tension as necessary at low chain speeds and have reserves of tensioning and damping capacity for higher chain speeds.

They can be used up to maximum speed limits specified by the chain manufacturers for manual lubrication and for drip lubrication for high performance chains.



ROLL-RING®

Operating Environment

The material mixture and manufacturing technology give Roll-Ring a high chemical resistance, flexibility in cold temperatures, stability in warm temperatures and stability against ultra-violet radiation.

Roll-Rings ending with the code 01 are modified to the maximum permissible chain speed, wear period, chemical resistance and cold flexibility. They are therefore ideal for a wide spectrum of mechanical engineering.

Roll-Rings ending in the code 06 are modified to the requirements of higher operating temperatures, whilst Roll-Rings ending in code 08 reflect excellent cold temperature flexibility and intensified damping characteristics.

Roll-Rings with part numbers beginning with 8 or 1 are suitable for general mechanical engineering.

This series of Roll-Ring generates especially smooth chain operation at the start and in reverse mode and provides especially low chain wear in operation.

Wear

The Roll-Ring chain tensioners are extremely resistant to wear and tear, with evidence of products in demanding applications reflecting no measurable or visible wear and tear in over a year's continuous operation.

Applications

Roll-Ring chain tensioners can be applied in a wide variety of fields of mechanical engineering. Roll-Rings have been reliably operating in printing machines, confectionary production lines, luggage conveyor drives/transportation systems at airports, cleaning and filling systems in breweries, roller conveyors in aluminium pressing plants, in chain drives on vibratory plates in automatic sand blasting machines, and in agricultural machines with heavy duty chain drives.

*Roll-Rings have even been installed successfully on Quad bikes/buggies.

Installation

Roll-Ring chain tensioners are maintenance free and can be fitted to a wide variety of chain drives with no installation downtime.

The requirement is that

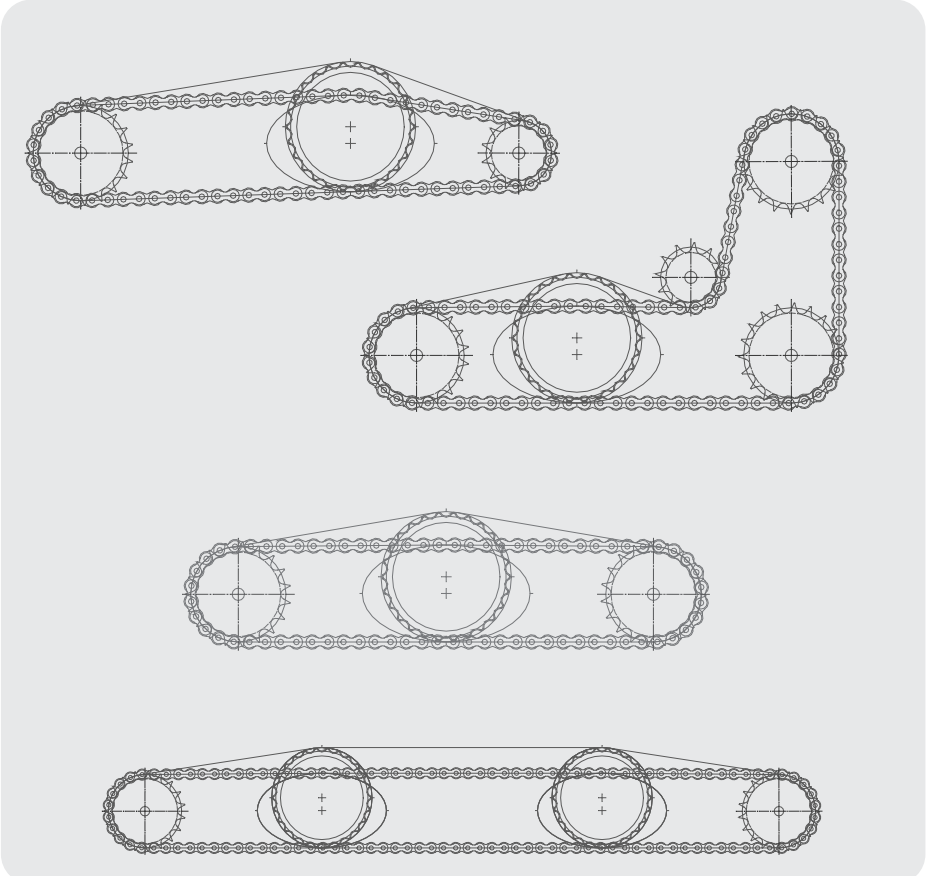
- There is a working gap between the chain strands which is smaller than the reference diameter of the chain tensioner
- There is a sufficient gap between the chain drive sprockets

For duplex chain, Roll-Rings should be placed parallel in both chain strands.

In triplex chain it is necessary only to tension strand 1 and strand 2 if chain drives with lower axial distance are used. If the weight of the slack strand is greater than the total tension of 2 Roll-Rings, then it is necessary to arrange 3 chain tensioners in parallel.

In multi-strand chain drives the Roll-Ring chain tensioners are arranged between the sprockets as in single strand chain drives.

Roll-Ring even has potential for use on motorcycle chain



ROLL-RING®

Roll-Ring® Selection

If you wish to select a Roll-Ring chain tensioner for an existing **ISO BS** series chain drive, independent of the transmission ratio, we recommend you complete the following steps:

Identify the ISO number of your chain e.g. 08B-1

Measure the inner width between sprockets in mm. This is dimension A*

Measure the maximum width between the chain strands in mm by pulling the chain apart, starting and ending the measurement at the centre of the pins. This is dimension D*

To identify the correct Roll-Ring for your drive, follow steps below:

Using Table A

1. Refer to the corresponding ISO number or range of numbers in table
2. On table refer to column D = do-s
3. Select Roll-Ring(s) where D* >D
4. Now check that D*<d_o
5. Go to column A
6. If A*>= to A the correct product has been determined.

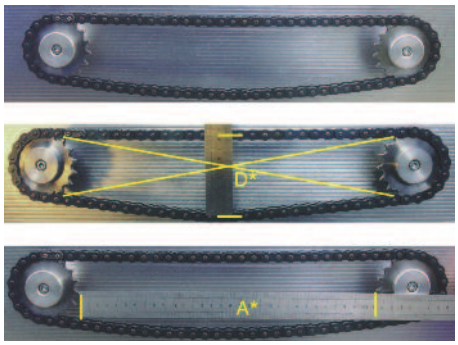
If several types of Roll-Ring meet the criteria, select the one with the maximum number of teeth.

For example if:
Chain ISO number is 08B-1
D* = 85mm
A* = 310mm

Then Roll-Ring 108 026 01 meets the criteria.

If you wish to select a Roll-Ring chain tensioner for an existing ANSI series chain drive, independent of the transmission ratio, follow the above steps but refer to **Table B.**

For example if:
Chain ANSI number is 40
D* = 3.347”
A* = 12.205”



Then Roll-Ring 108 026 01 meets the criteria.

If you require assistance selecting the correct Roll-Ring for your application, contact you local Renold National Sales Company – details on back of the brochure.

For more information – or to see the Roll-Ring in operation – visit our website www.renold.com and find Roll-Ring under roller chain products.

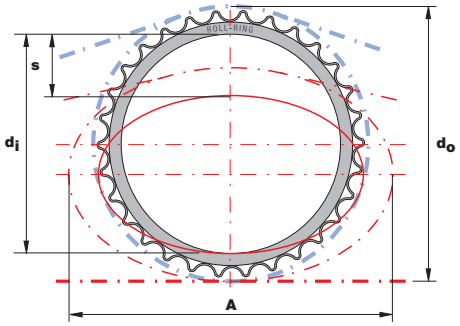


Table A: ISO BS series

D*>D and D*<d (self-holding restriction) and A*> = A (working area restriction)

ISO No.	Article	d_0	d_1	s	A	D = do-s
05-B	105 030 01	76.500	65.000	20.000	104.000	56.500
06-B	106 030 01	91.100	73.000	25.000	122.000	66.100
06-B	106 036 01	109.000	89.000	25.000	143.000	84.000
08-B	108 026 01	105.500	87.500	27.000	135.000	78.500
08-B	108 030 01	121.500	101.600	30.000	161.600	91.500
08-B	108 034 01	137.500	115.400	30.000	165.000	107.500
08-B	108 430 01	121.500	101.600	30.000	161.600	91.500
10-B	110 026 01	128.400	105.000	28.000	153.000	100.400
10-B	110 030 01	148.000	124.600	33.000	177.000	115.000
10-B	110 034 01	170.000	141.000	38.000	217.000	132.000
12-B	112 026 01	155.000	127.600	35.000	209.500	120.000
12-B	112 030 01	182.200	153.100	45.000	242.000	137.200
12-B	112 034 01	207.500	169.500	45.000	265.000	162.500
16-B	116 026 01	207.000	167.000	45.000	269.000	162.000
16-B	116 030 01	245.800	202.000	50.000	306.000	195.800
20-B	120 030 01	303.700	256.400	65.000	390.000	238.700

Table B: ANSI series

D*>D and D*<d (self-holding restriction) and A*> = A (working area restriction)

ANSI No.	Article	d_0	d_1	s	A	D = do-s
35	806 030 01	3.539	3.024	1.063	4.449	2.476
40	108 026 01	4.154	3.445	1.063	5.346	3.091
40	108 030 01	4.783	4.000	1.181	6.362	3.602
40	108 034 01	5.413	4.543	1.181	6.496	4.232
40	108 430 01	4.783	4.000	1.181	6.362	3.602
50	110 026 01	5.055	4.134	1.102	6.024	3.953
50	110 030 01	5.827	4.906	1.299	6.969	4.528
50	110 034 01	6.693	5.551	1.496	8.543	5.197
60	112 026 01	6.102	5.024	1.378	8.248	4.724
60	112 030 01	7.173	6.028	1.772	9.528	5.401
60	112 034 01	8.169	6.673	1.772	10.433	6.397
80	116 026 01	8.150	6.575	1.772	10.591	6.378
80	816 030 01	9.528	7.874	1.969	12.402	7.559
100	120 030 01	11.957	10.094	2.560	15.354	9.397

ROLL-RING® BS data

Technical details

Article No. 01	Dimensions	ISO Chain No.	Chain Dimension	Teeth	Max Static Expansive Force	Maximum Chain Speed	Ambient Temperature	Weight
			p x b1 - inches		N **	m/s	°C	kg
105 030 01	05 B 30	ISO 05	8mm x 1/8	30	2.900	5.000	-20 to +70	0.002
106 030 01	06 B 30	ISO 06	3/8 x 7/32	30	15.200	5.200	-20 to +70	0.006
106 036 01	06 B 36	ISO 06	3/8 x 7/32	36	28.500	5.200	-20 to +70	0.017
108 026 01	08 B 26	ISO 08	1/2 x 5/16	26	13.400	7.500	-20 to +70	0.012
108 030 01	08 B 30	ISO 08	1/2 x 5/16	30	14.200	8.600	-20 to +70	0.015
108 034 01	08 B 34	ISO 08	1/2 x 5/16	34	22.000	8.800	-20 to +70	0.024
108 430 01	*	*	1/2 x 3/4/6mm	30	16.800	7.500	-20 to +70	0.016
110 026 01	10 B 26	ISO 10	5/8 x 3/8	26	28.200	4.200	-20 to +70	0.025
110 030 01	10 B 30	ISO 10	5/8 x 3/8	30	23.000	8.800	-20 to +70	0.030
110 034 01	10 B 34	ISO 10	5/8 x 3/8	34	45.100	8.800	-20 to +70	0.055
112 026 01	12 B 26	ISO 12	3/4 x 7/16	26	39.200	5.400	-20 to +70	0.045
112 030 01	12 B 30	ISO 12	3/4 x 7/16	30	32.200	6.200	-20 to +70	0.052
112 034 01	12 B 34	ISO 12	3/4 x 7/16	34	70.500	6.400	-20 to +70	0.096
116 026 01	16 B 26	ISO 16	1" x 17mm	26	95.700	5.700	-20 to +70	0.115
116 030 01	16 B 30	ISO 16	1" x 17mm	30	108.500	6.200	-20 to +70	0.178
120 030 01	20 B 30	ISO 20	1 1/4 x 3/4	30	80.500	7.000	-4 to +40	0.233

Technical details

Article No. 06	Dimensions	ISO Chain No.	Chain Dimension	Teeth	Max Static Expansive Force	Maximum Chain Speed	Ambient Temperature	Weight
			p x b1 - inches		N **	m/s	°C	kg
106 030 06	06 B 30	ISO 06	3/8 x 7/32	30	20.300	4.500	-8 to +80	0.006
108 026 06	08 B 26	ISO 08	1/2 x 5/16	26	24.100	5.100	-8 to +80	0.012
108 030 06	08 B 30	ISO 08	1/2 x 5/16	30	33.800	5.800	-8 to +80	0.015
108 430 06	*	*	1/2 x 3/4/6/mm	30	26.200	5.100	-8 to +80	0.016
110 026 06	10 B 26	ISO 10	5/8 x 3/8	26	38.500	3.700	-8 to +80	0.025
110 030 06	10 B 30	ISO 10	5/8 x 3/8	30	34.200	5.600	-8 to +80	0.030
112 026 06	12 B 26	ISO 12	3/4 x 1/2	26	44.900	3.500	-8 to +80	0.045
112 030 06	12 B 30	ISO 12	3/4 x 7/16	30	60.200	4.000	-8 to +80	0.052
116 026 06	16 B 26	ISO 16	1" x 17mm	26	139.800	3.500	-8 to +80	0.115
116 030 06	16 B 30	ISO 16	1" x 17mm	30	-	4.000	-8 to +80	0.178

Technical details

Article No. 08	Dimensions	ISO Chain No.	Chain Dimension	Teeth	Max Static Expansive Force	Maximum Chain Speed	Ambient Temperature	Weight
			p x b1 - inches		N **	m/s	°C	kg
106 030 08	06 B 30	ISO 06	3/8 x 7/32	30	11.400	7.400	-30 to +50	0.006
108 026 08	08 B 26	ISO 08	1/2 x 5/16	26	9.100	8.800	-30 to +50	0.012
108 030 08	08 B 30	ISO 08	1/2 x 5/16	30	12.800	10.200	-30 to +50	0.015
108 430 08	*	*	1/2 x 3/4/6mm	30	12.500	8.000	-30 to +50	0.016
110 026 08	10 B 26	ISO 10	5/8 x 3/8	26	15.700	4.600	-30 to +50	0.025
110 030 08	10 B 30	ISO 10	5/8 x 3/8	30	20.000	10.100	-30 to +50	0.030
112 026 08	12 B 26	ISO 12	3/4 x 7/16	26	33.500	5.500	-30 to +50	0.099
112 030 08	12 B 30	ISO 12	3/4 x 7/16	30	55.500	6.400	-30 to +50	0.052
116 026 08	16 B 26	ISO 16	1" x 17mm	26	54.400	6.700	-30 to +50	0.115
116 030 08	16 B 30	ISO 16	1" x 17mm	30	-	6.900	-30 to +50	0.178

* universal for chain width of 1/8" to 5/16"

** at 20°C and maximum tensioning deformation; without dynamic tensioning force proportional to the chain speed

ROLL-RING® ANSI data

Technical details

Article No. 01	Dimensions	ANSI Chain No.	Chain Dimension	Teeth	Max Static Expansive Force	Maximum Chain Speed	Ambient Temperature	Weight
			p x b1 - inches		lbs **	ft/min	°F	lbs
106 030 01	06 C 30	35	3/8 x 3/16	30	1.280	1024	-4 to +158	0.011
108 026 01	08 A 26	40	1/2 x 5/16	26	3.010	1476	-4 to +158	0.026
108 030 01	08 A 30	40	1/2 x 5/16	30	3.190	1693	-4 to +158	0.033
108 034 01	08 A 34	40	1/2 x 5/16	34	4.940	1732	-4 to +158	0.053
108 430 01	*	*	1/2 x 3/4/6mm	30	3.780	1476	-4 to +158	0.035
110 026 01	10 A 26	50	5/8 x 3/8	26	6.340	827	-4 to +158	0.055
110 030 01	10 A 30	50	5/8 x 3/8	30	5.170	1732	-4 to +158	0.066
110 034 01	10 A 34	50	5/8 x 3/8	34	10.140	1732	-4 to +158	0.121
112 026 01	12 A 26	60	3/4 x 1/2	26	8.810	1063	-4 to +158	0.099
112 030 01	12 A 30	60	3/4 x 1/2	30	7.240	1220	-4 to +158	0.115
112 034 01	12 A 34	60	3/4 x 1/2	34	15.840	1260	-4 to +158	0.212
116 026 01	16 A 26	80	1 x 5/8	26	21.510	1122	-4 to +158	0.254
116 030 01	16 A 30	80	1 x 5/8	30	23.150	1299	-4 to +158	0.348
120 030 01	20 A 30	100	1 1/4 x 3/4	30	18.090	1378	-4 to +140	0.514

Technical details

Article No. 06	Dimensions	ANSI Chain No.	Chain Dimension	Teeth	Max Static Expansive Force	Maximum Chain Speed	Ambient Temperature	Weight
			p x b1 - inches		lbs **	ft/min	°F	lbs
106 030 06	06 C 30	35	3/8 x 3/16	30	1.710	886	+18 to +176	0.011
108 026 06	08 A 26	40	1/2 x 5/16	26	5.420	1004	+18 to +176	0.026
108 030 06	08 A 30	40	1/2 x 5/16	30	7.600	1142	+18 to +176	0.033
108 430 06	*	*	1/2 x 3/4/6mm	30	5.890	1004	+18 to +176	0.035
110 026 06	10 A 26	50	5/8 x 3/8	26	8.650	728	+18 to +176	0.055
110 030 06	10 A 30	50	5/8 x 3/8	30	7.690	1102	+18 to +176	0.066
112 026 06	12 A 26	60	3/4 x 1/2	26	10.090	689	+18 to +176	0.099
112 030 06	12 A 30	60	3/4 x 1/2	30	13.530	787	+18 to +176	0.115
116 026 06	16 A 26	80	1 x 5/8	26	31.420	689	+18 to +176	0.254
116 030 06	16 A 30	80	1 x 5/8	30	26.520	827	+18 to +176	0.348

Technical details

Article No. 08	Dimensions	ANSI Chain No.	Chain Dimension	Teeth	Max Static Expansive Force	Maximum Chain Speed	Ambient Temperature	Weight
			p x b1 - inches		lbs **	ft/min	°F	lbs
106 030 08	06 C 30	35	3/8 x 3/16	30	0.760	1457	-22 to +122	0.011
108 026 08	08 A 26	40	1/2 x 5/16	26	2.050	1732	-22 to +122	0.026
108 030 08	08 A 30	40	1/2 x 5/16	30	2.880	2008	-22 to +122	0.033
108 430 08	*	*	1/2 x 3/4/6mm	30	2.810	1575	-22 to +122	0.035
110 026 08	10 A 26	50	5/8 x 3/8	26	3.530	906	-22 to +122	0.055
110 030 08	10 A 30	50	5/8 x 3/8	30	4.490	1988	-22 to +122	0.066
112 026 08	12 A 26	60	3/4 x 1/2	26	7.530	1083	-22 to +122	0.099
112 030 08	12 A 30	60	3/4 x 1/2	30	12.470	1260	-22 to +122	0.115
116 026 08	16 A 26	80	1 x 5/8	26	12.230	1319	-22 to +122	0.254
116 030 08	16 A 30	80	1 x 5/8	30	19.780	1339	-22 to +122	0.348

* universal for chain width of 1/8" to 5/16"

** at 20°C and maximum tensioning deformation; without dynamic tensioning force proportional to the chain speed

For more information or to contact your local sales team go to

www.renold.com

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