



## ROLLER CHAIN PRODUCTS CATALOG

**TIMKEN**

# ROLLER CHAIN PRODUCTS CATALOG INDEX

OVERVIEW.....	2
<b>ENGINEERING</b>	
Horsepower Rating .....	6
Corrosion-Resistant Chain Product Selection Guide .....	10
Attachment Chain Selection Guide .....	13
Installation and Maintenance .....	18
Lubrication.....	20
Troubleshooting Guide.....	22
Chain Tools.....	23
Engineering Conversions .....	25
<b>PRECISION ROLLER CHAIN PRODUCTS</b>	
Roller Chain Features.....	28
ANSI Standard Chain .....	30
Roller Chain Dimensions and Horsepower Tables .....	32
<b>HEAVY-SERIES ROLLER CHAIN PRODUCTS</b>	
HR Riveted Series Chain – Case-Hardened Pins .....	60
HZ Riveted and Cottered Series Chain – Through-Hardened Pins .....	61
<b>PREMIUM OIL FIELD ROLLER CHAIN PRODUCTS</b>	
Premium Oil Field Roller Chain Products Features and Benefits .....	64
Oil Field Roller Chain Product Specifications .....	66
Power Tongs, Timken Specialty Chain, 50 WR Wrench Chain ..	69
Coil Tubing Injector Chain .....	70
<b>SPECIALTY CHAIN PRODUCTS</b>	
Caterpillar Drive Chain .....	72
Hollow Pin Chain .....	73
Coupling Chain .....	73
Extra Clearance EXC® Conveyor Chain .....	74
E-Series Chain.....	74
Extended Life CHP® Series Chain .....	75
Corrosion/Moisture-Resistant Chain .....	76
• Nickel Plated .....	78
• Silver Shield CR®.....	79
• Stainless Steel .....	80
<b>ATTACHMENT ROLLER CHAINS</b>	
Carbon Steel Attachment Chain .....	82
Silver Shield CR Attachment Chains .....	88
Stainless Steel Attachment Chain.....	94
GLOSSARY OF TERMS .....	101



## ***GROW STRONGER WITH TIMKEN***

Every day, people around the world count on the strength of Timken. Our expertise in metallurgy, friction management and mechanical power transmission helps them improve their productivity and uptime.

We supply products and services that can help keep your operations moving forward, whether you need drive train kits for commercial vehicles, durable housings for bearings in dirty environments, couplings that avoid metal-to-metal contact between motors and gearboxes, repair services for bearings and gearboxes, roller chain for dry, abrasive and high-moisture applications, steel for an aircraft engine shaft, or other products and services for your applications.

When you choose Timken, you receive more than high-quality products and services: you gain a worldwide team of highly trained and experienced Timken people committed to working collaboratively with you to improve your business.

Globally, our 20,000 people provide reliable answers for a wide range of operations in manufacturing, mining, medical equipment, aerospace, transportation, oil and gas – and other diverse industries.

## ***INCREASE YOUR EQUIPMENT UPTIME***

In addition to high-quality bearings, engineered steel and mechanical power transmission components, we provide valuable integrated products and services. For example, we offer repair services and equipment monitoring equipment that can alert you to problems before they impact your uptime.

Additionally, we offer a broad selection of seals, premium lubricants, lubricators, chain and couplings to help keep your operations moving smoothly.

Our 10 technology centers in the United States, Europe and Asia help pioneer tomorrow's innovations with extensive basic and applied scientific research programs. Through internal development and strategic acquisition of innovative companies, we continue to expand our portfolio of highly engineered bearings, steel and components.

## **ROLLER CHAIN ENGINEERED TO ENHANCE PERFORMANCE**

From corrosive environments to heavy shock loads, we engineer the optimum precision roller chain for your application to help increase uptime and reduce maintenance costs. Our entire range of American National Standards Institute (ANSI) standard roller chains, specialty chains and attachment chains meet or exceed ANSI/ASME standard B29.1 and our oil field chains meet or exceed the American Petroleum Institute's (API) 7F8 requirements. We are ISO 9001:2000 registered and are an API Quality registered firm.

Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most current version of the Roller Chain Products Catalog.

### **DISCLAIMER**

*This catalog is provided solely to give you analysis tools and data to assist you in your product selection. Product performance is affected by many factors beyond the control of Timken. Therefore, the suitability and feasibility of all products selected must be validated by you for your applications.*

*Timken Drives products are sold subject to Timken Drives LLC is terms and conditions of sale, including its limited warranty and remedy.*

*Please contact your Timken Drives representative for more information and assistance.*

*Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.*



### **For More Information:**

Phone: 1-800-435-0782

Fax: 1-815-589-4420

[www.timken.com/drives](http://www.timken.com/drives)

Chain manufactured in Fulton, Illinois, USA

**⚠ WARNING**

***Failure to observe the following warnings could create a risk of death or serious injury.***

Proper maintenance and handling practices are critical.  
Always follow installation instructions and maintain proper lubrication.

**CAUTION**

***Failure to follow these cautions may result in property damage.***

Use only new subassemblies for assembling chain strands.  
Do not use individual chain components and do not mix subassemblies from different chain manufacturers.  
Do not reuse sections from damaged chains. Damage from overloading or yielding may be present though not apparent.  
Do not use worn chain or install new chain on worn sprockets.

**Warnings for this product line are included in this catalog and posted on <http://www.timken.com/en-us/products/warnings/Pages/default.aspx>.**

***ENGINEERING***

This section contains information on chain selection. Please contact your Timken Drives representative with questions.



## HORSEPOWER RATING

The horsepower rating in fig. 1 on page 7 is based on the following conditions:

- Chains are operated under ordinary conditions. The ambient temperature range must be between 15° F and 140° F. They should not be used in an atmosphere in which abrasive dust or corrosive gas is present or where the humidity is high.
- Two transmission shafts are in a horizontal position and the chains are properly installed.
- Suggested lubrication system and oil are used.
- Load does not change significantly during transmission. The service factors given in table 2 on page 7 should be taken into account when the chains are used under various operating conditions. The load conditions will affect the life of the chain.
- To estimate the service life of a multiple-strand chain, the multiple-strand factor given in table 1 must be used. When the chain length is 100 pitches and the above conditions are met, a service life of approximately 15,000 hours can be expected.

## PROCEDURES FOR SELECTING ROLLER CHAIN

1. The following factors must be considered when selecting roller chain:
  - Source of input power.
  - Drive machine type of driven equipment.
  - Horsepower to be transmitted.
  - Revolutions per minute (RPM) of driving and driven shafts.
  - Diameter of driving and driven shafts.
  - Center distance of the shafts.
2. Use table 2 on page 7 to obtain the service factor.
3. Multiply the horsepower value by the service factor to obtain the design horsepower value.
4. Use fig. 1 on page 7 and the horsepower tables to obtain the appropriate chain number of teeth for small sprockets. Refer to the number of revolutions of the high-speed shaft (the driving shaft when the speed is reduced; the driven shaft when the speed is increased) and the design horsepower value. For smoother chain drive, a small pitch chain is suggested. If a single-strand chain does not satisfy the transmission requirements, use a multiple-strand chain. If there are space limitations, a multiple-strand roller chain with a smaller pitch may be used.

5. After determining the number of teeth necessary for the small sprocket, be sure the sprocket diameter satisfies the space limitations.
6. The number of teeth for the large sprocket is determined by multiplying the number of teeth for the small sprocket by the speed ratio. More than 15 teeth on the small sprocket is suggested. The number of teeth for the large sprocket should be less than 120. By reducing the number of teeth for the small sprocket, the number of teeth for the large sprocket can be reduced.

## BASIC FORMULA FOR CHAIN DRIVE

### CHAIN SPEED: S

$$S = \frac{P_c \times N \times n}{12} \text{ (ft./min.)}$$

Where:

$P_c$  = Chain pitch (in.)

$N$  = Number of teeth of sprocket

$n$  = RPM

### CHAIN TENSION: T

$$T = \frac{33,000 \times \text{HP}}{S} \text{ (lbs.)}$$

Where:

$S$  = Chain speed (ft./min.)

HP = Horsepower to be transmitted (HP)

### NUMBER OF PITCHES OF CHAIN: L

$$L = \frac{N_1 + N_2}{S} + 2C + \frac{\left(\frac{N_2 - N_1}{6.28}\right)^2}{C}$$

Where:

$N_1$  = Number of teeth (small sprocket)

$N_2$  = Number of teeth (large sprocket)

$C$  = Center distance in pitches

<sup>(1)</sup>Any fraction of L is counted as one pitch.

TABLE 1. MULTIPLE-STRAND FACTOR

Number of Roller Chain Strands	Multiple-Strand Factor
2	1.7
3	2.5
4	3.3
5	3.9
6	4.6

TABLE 2. SERVICE FACTORS FOR ROLLER CHAIN DRIVES

Types of Driven Load	Load Classifications	Type of Input Power		
		Internal Combustion Engine with Hydraulic Drive	Electric Drive Motor	Internal Combustion Engine with Mechanical Drive
Smooth Load	Agitators – Pure liquid	1.0	1.0	1.2
	Conveyors – Uniformly loaded or fed (apron, assembly, belt, flight, oven, screw)			
	Fans – Centrifugal and light, small diameter			
	Machines – All types with uniform, non-reversing loads			
Moderate Shock	Clay-Working Machinery – Pug mills	1.2	1.3	1.4
	Conveyors – Heavy duty and NOT uniformly loaded (apron, assembly, belt, flight, oven, screw)			
	Food Industry – Beet slicers, dough mixers, meat grinders			
	Grinding Machine – All types with moderate shock and non-reversing loads			
	Textile Industry – Calendars, dyeing machinery, mangles, nappers, soapers, spinners, tenter frames			
Heavy Shock	Clay-Working Machinery – Brick press, briquetting machinery	1.4	1.5	1.7
	Conveyors – Reciprocating and shaker			
	Hammer Mills			
	Machine Tools – Punch press, shears, plate planers			
	Mills (Rotary Type) – Ball, cement kilns, rod mills, tumbling mills			
	Textile Industry – Carding machinery			

## SELECTION OF CHAIN AND SMALL SPROCKET

### CHAIN PITCH

The smallest applicable pitch is desirable for quiet operation and high speed.

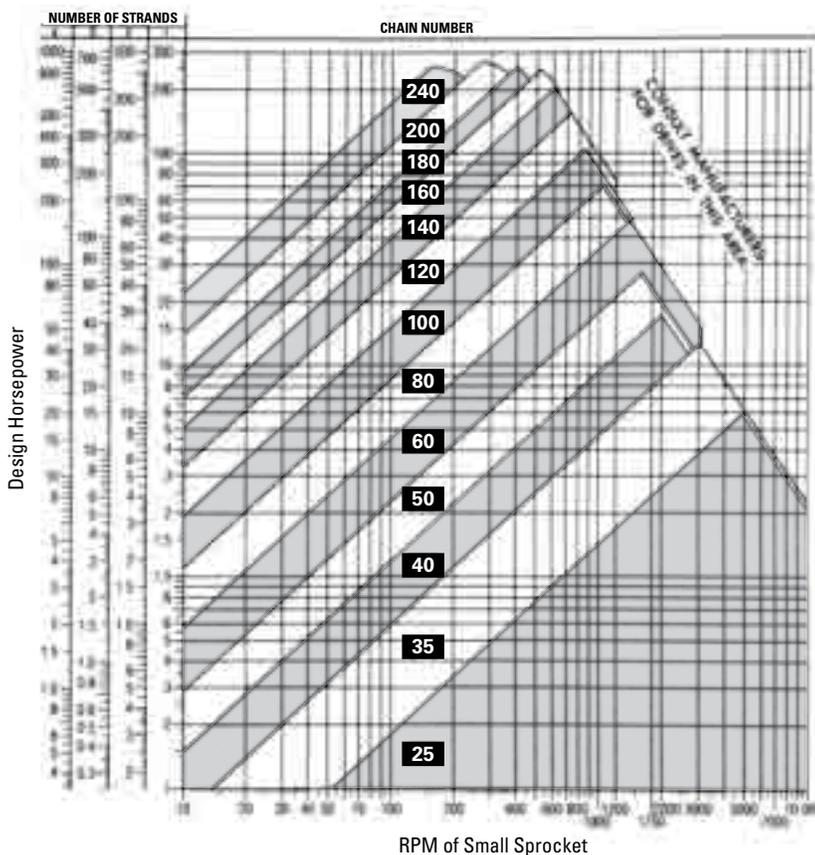
### NUMBER OF SPROCKET TEETH

For a given chain pitch and shaft to transmit a given horsepower, the effect of increasing the number of teeth in the sprocket is to increase the chain linear speed and decrease the chain pull proportionally. This results in a decrease of the chordal action, which results in a quiet drive with less impact.

Usually, large sprockets should not exceed 120 teeth although many successful drives use sprockets with 150 teeth and more.

### SELECTION OF LARGE SPROCKET

After the small sprocket has been selected, the number of teeth in the large sprocket is determined by the specified ratio of the shaft speeds.



NOTE: The maximum horsepower rating specified in each of the strand columns is not limiting for chain drives. Consult your Timken Drives representative on those applications that are above the horsepower range of the chart.

Fig. 1. Roller chain pitch selection.

## DRIVE SELECTION PROCEDURE

### Selection Example (1)

**Question 1:** A conveyor with 50HP is driven by a 100 RPM electric motor. How should you select the chain and sprockets?

**Answer:**

1. Seek the service factor, 1.0, from table 2 on page 7.

$$\text{Power to be transmitted} \times \text{service factor} = \text{design horsepower}$$

$$50\text{HP} \times 1.0 = 50\text{HP}$$

2. Refer to fig. 1 for 100 RPM 50HP and 160 chain with sprocket 18T to 22T is obtained.
3. Check horsepower tables for chain 160, and as you see, the horsepower ratings of 160-19T with speed of 100 RPM is 50.48HP, which is satisfactory.
4. The following are selected:

Chain no. 160 small sprocket 160-19T.

### Selection Example (2)

**Question 2:** The number of revolutions for a drive is 500 RPM and the power to be transmitted is 13HP. The RPM is reduced to 125 (1/4). The center distance should be 11.00 in. with a space limitation of 19.00 in., and a uniform load. How should you select the chain and sprocket for this application?

**Answer:**

1. Design horsepower is computed as follows:

$$\text{Design horsepower: } 13\text{HP} \times 1.0 = 13\text{HP}$$

2. Select the chain and the number of teeth for the sprocket by referring to fig. 1.

60-18T has been selected.

3. Speed reduction ratio is  $0.25 = \frac{125 \text{ RPM}}{500 \text{ RPM}}$

Therefore, the number of teeth in the large sprocket is

$$72T = \frac{18 T}{0.25}$$

4. The outside diameter of the 18T is 4.685 in. and the 72T is 17.60 in.

The space required for this arrangement is:

$$\frac{4.685 \text{ in.} + 17.60 \text{ in.}}{2} + 11 \text{ in.} = 22.14 \text{ in.}$$

which can not be contained in the 19 in.

5. Multiple-strand chain is selected. 50-2 16T to 20T is selected using table 1.

$$\frac{10\text{HP} \times 1.0}{1.7} = 5.88\text{HP}$$

(1.7 is multiple strand factor)

Refer to the horsepower tables. 50-2, 18T is obtained.

It's outside diameter is 3.90 in. The large sprocket is:

$$72T = \frac{18 T}{0.25} \text{ outside diameter } 14.69 \text{ in.}$$

However, this selection cannot be contained in the space.

6. Triple-strand chain is selected in the same manner as above. 50-3, 13T and 52T are obtained. The outside diameter of sprockets is 2.87 in., and 10.67 in. respectively.

$$\frac{2.87 \text{ in.} + 10.67 \text{ in.}}{2} + 11 \text{ in.} = 17.77 \text{ in.}$$

can be contained in the space required.

The chain and sprockets selected are 50-3, 13T and 52T.

## SLOW SPEED CALCULATION

Please consult your Timken Drives representative for applications 160 ft./min. or less.

## SELECTION OF HIGH TEMPERATURES

Our chains are made from heat-treated carbon steel. When exposed to high temperatures, the mechanical properties of the heat-treated chain components are impaired.

1. The hardness and, therefore, the wear resistance of pins and bushings is reduced.
2. At temperatures above 390° F, the rollers and plates may lose some of their hardness and strength.

Standard roller chains can be used up to 500° F with the adjustments shown in table 3.

**TABLE 3. TEMPERATURE EFFECT ON CHAINS**

Temperature	Percentage of Catalog Capacity Rating
Up to 340° F	100 percent
390° F	75 percent
500° F	50 percent

## ***CORROSION-RESISTANT CHAIN PRODUCT SELECTION GUIDE***

### **STAINLESS STEEL MATERIAL SELECTION**

#### **304 STAINLESS STEEL SERIES (PS)**

The primary use of 304 stainless steel chains is in corrosive and/or high-temperature environments, which shorten the life of standard carbon steel roller chains. The 304 stainless steel chains give excellent resistance to corrosion and high temperatures. 304 stainless steel is generally considered non-magnetic.

#### **316 STAINLESS STEEL SERIES (NS)**

The primary use of 316 and 317 stainless steel chains is in highly corrosive and/or extreme temperatures, which shorten the life of 304 stainless steel chains.

**TABLE 4. MATERIALS OF COMPONENT PARTS**

Abbrev.	Material	Link Plate	Pin	Bushing	Roller
PS	304 Series	AISI 304	AISI 304	AISI 304	AISI 304
NS	316 Series	AISI 316	AISI 316	AISI 316	AISI 316
AS	600 Series	AISI 300	600 PH <sup>(1)</sup>	600 PH <sup>(1)</sup>	600 PH <sup>(1)</sup>

<sup>(1)</sup>PH: precipitation hardened.

#### **600 STAINLESS STEEL SERIES (AS)**

The primary use of 600 stainless steel chains is in corrosive and/or high temperature environments, which shortens the life of standard carbon steel chains. The 600 stainless steel chains have less corrosion resistance than 304 stainless steel, but the hardened round parts are designed to provide for better wear life than 304 stainless steel chains.

**TABLE 5. PERFORMANCE OF ANTI-CORROSIVE CHAINS**

Abbrev.	Chain	Corrosion Resistance	Temperature Resistance	Magnetism	Wear Resistance
NP	NP Chain	Acceptable for outdoor and decorative applications	14° F - 140° F (Never use below -4° F or above 300° F)	Magnetic	Excellent
CR®	Silver Shield	Acceptable for wet outdoor environments including seawater	14° F - 140° F (Never use below -4° F or above 300° F)	Magnetic	Excellent
AS	600 Series	Good for general acid, alkali and water	-40° F ~ 750° F <sup>(1)</sup> (Never use above 930° F)	Magnetic	Very Good
PS	304 Series	Good for general acid, alkali and water	-40° F ~ 750° F <sup>(1)</sup> (Never use below -270° F or above 1300° F)	Non-magnetic	Fair
NS	316 Series	Superior to the other stainless material	-40° F ~ 750° F <sup>(1)</sup> (Never use below -270° F or above 1500° F)	Non-magnetic	Fair

<sup>(1)</sup>Contact your Timken Drives representative for temperatures below -20° F or above 500° F.

## CHAIN SELECTION

General selection is based on bearing pressure between the pin and bushing. Anti-corrosive roller chains are normally intended to be used at slow speed without lubrication. Chain selection should be made based on the bearing pressure, as shown below.

**TABLE 6. ALLOWABLE BEARING PRESSURE**

Chain	Max. Allowable Bearing Pressure Between Pin and Bushing	Maximum Operating Speed
304 and 316 Chain	1,420 psi	230 ft./min.
600 Chain	2,130 psi	230 ft./min.

The chain's maximum allowable load can be obtained by the formula:

$$\text{Maximum allowable load} = \text{Maximum allowable bearing pressure} \times \text{Bearing area between pin and bushing}$$

**TABLE 7. SERVICE FACTOR**

Type of Impact	Service Factor
Smooth transmission	1.0
Transmission with some impact	1.3
Transmission with large impact	1.5

**TABLE 8. SPEED COEFFICIENT**

Chain Speed	Speed Coefficient
0 ~ 50 ft./min.	1.0
50 ~ 100 ft./min.	1.2
100 ~ 160 ft./min.	1.4
160 ~ 230 ft./min.	1.6

**TABLE 9. MAXIMUM ALLOWABLE LOAD**

Chain	304 and 316 Series	600 Series
40	100 lbs.	155 lbs.
50	165 lbs.	230 lbs.
60	231 lbs.	350 lbs.
80	396 lbs.	600 lbs.
100	568 lbs.	850 lbs.
120	850 lbs.	1,278 lbs.
140	1,005 lbs.	1,535 lbs.
160	1,400 lbs.	2,100 lbs.
2040	100 lbs.	155 lbs.
2050	165 lbs.	230 lbs.
2060H	250 lbs.	375 lbs.
2080H	415 lbs.	625 lbs.
2100H	600 lbs.	900 lbs.
2120H	895 lbs.	1,340 lbs.
2160H	1,450 lbs.	2,170 lbs.

**TABLE 10. TEMPERATURE FACTOR**

Temperature	304 Series	316 Series	600 Series
~ -270° F	X	X	X
-270° F ~ -40° F	1.0	1.0	X
-40° F ~ 750° F	1.0	1.0	1.0
750° F ~ 930° F	1.2	1.0	1.8
930° F ~ 1,100° F	1.5	1.2	X
1,100° F ~ 1,300° F	1.8	1.5	X
1,300° F ~ 1,500° F	X	2.0	X
1,500° F ~	X	X	X

X = Not suggested.

Chain selection can be made using the following formula:

$$\boxed{\text{Maximum Chain Tension}} \times \boxed{\text{Service Factor}} \times \boxed{\text{Speed Coefficient}} \times \boxed{\text{Temperature Factor}} \leq \boxed{\text{Maximum Allowable Load}}$$

Maximum allowable load or maximum bearing pressure as shown above can be doubled only when the chain is used in group A of the Corrosion-Resistance Guide on page 12 and properly lubricated.

**TABLE 11. CORROSION-RESISTANCE GUIDE FOR STAINLESS STEEL**

Substance	Concentration	Temp. °F	600 SS	400 SS	304 SS	316 SS
Acetic Acid	10%	68	A	A	A	A
Acetone		68	A	C	A	A
Alcohol		68	A	A	A	A
Aluminum Sulfate	Saturation	68	D	D	A	A
Ammonia Water		68	A	A	A	A
Ammonium Nitrate		68	A	A	A	A
Ammonium Sulfate	Saturation	Boiling	B	B	A	A
Beer		68	A	A	A	A
Benzene		68	A	A	A	A
Boric Acid	50%	Boiling	A	A	A	A
Butyric Acid		68	A	A	A	A
Calcium Chloride	Saturation	68	D	D	B	A
Calcium Hydroxide	20%	Boiling	A	A	A	A
Calcium Hypochlorite	11 – 14%	68	C	C	A	A
Carbon Tetrachlorite		68	A	A	A	A
Chlorinated Water			D	D	D	A
Chlorine Gas		68	D	D	D	B
Chromic Acid	5%	68	B	B	A	A
Citric Acid	50%	68	A	A	A	A
Coffee		Boiling	A	A	A	A
Creosote		68	A	A	A	A
Detergent – Synthetic			A	A	A	A
Developing Solution		68	B	B	A	A
Ethyl Ether		68	A	A	A	A
Ferric Acid	50%	68	A	A	A	A
Ferric Chloride	5%	68	D	D	B	B
Formalin	40%	68	A	A	A	A
Formic Acid	100%	Boiling	C	C	C	A
Fruit Juice		68	B	B	A	A
Gasoline		68	A	A	A	A
Glycerol		68	A	A	A	A
Heavy Nitric Acid	85%	68	D	D	A	A
Heavy Nitric Acid	65%	68	D	D	B	B
Honey			A	A	A	A
Hydrogen Peroxide	30%	68	B	B	A	A
Hydrogen Sulfide (dry)			A	A	A	A
Hydrogen Sulfide (wet)			D	D	D	D
Hydroxibenzene		68	A	A	A	A
Kerosene		68	A	A	A	A
Ketchup		68	A	A	A	A
Lactic Acid	10%	68	B	B	A	A
Lard			A	A	A	A
Linseed Oil	100%	68	B	A	A	A
Malic Acid	50%	Boiling	A	A	A	A
Mayonnaise		68	B	B	A	A
Milk		68	A	A	A	A
Nitric Acid	Saturation	Boiling	B	B	A	A

Substance	Concentration	Temp. °F	600 SS	400 SS	304 SS	316 SS
Oil (Plant, Mineral)		68	A	A	A	A
Oleic Acid		68	A	A	A	A
Oxalic Acid	10%	68	B	B	A	A
Paraffin		68	A	A	A	A
Petroleum		68	A	A	A	A
Phosphate			A	A	A	A
Phosphoric Acid	5%	68	B	B	A	A
Phosphoric Acid	10%	68	B	B	B	B
Picric Acid	Saturation	68	A	A	A	A
Potassium Bichromate	10%	68	A	A	A	A
Potassium Chloride	Saturation	68	B	A	A	A
Potassium Hydroxide	20%	68	A	A	A	A
Potassium Nitrate	25%	68	A	A	A	A
Potassium Nitrate	25%	Boiling	D	D	A	A
Potassium Permanganate	Saturation	68	A	A	A	A
Sal Ammoniac	50%	Boiling	C	D	B	A
Seawater		68	C	C	B	A
Soap and Water Solution		68	A	A	A	A
Sodium Carbonate	Saturation	Boiling	A	A	A	A
Sodium Chloride	5%	68	B	B	A	A
Sodium Cyanide		68	–	–	A	A
Sodium Hydrocarbonate		68	A	A	A	A
Sodium Hydroxide	25%	68	A	A	A	A
Sodium Hypochlorite	10%	68	D	D	D	A
Sodium Perchlorate	10%	Boiling	D	D	A	A
Sodium Sulfate	Saturation	68	A	A	A	A
Sodium Thiosulfate	25%	Boiling	A	A	A	A
Soft Drink		68	A	A	A	A
Sugar Solution		68	A	A	A	A
Sulfur Dioxide		68	C	C	A	A
Sulfuric Acid	5%	68	D	D	D	A
Syrup			A	A	A	A
Tartaric Acid	6%	68	A	A	A	A
Turpentine		95	A	A	A	A
Varnish			A	A	A	A
Vegetable Juice		68	A	A	A	A
Vinegar		68	C	C	B	A
Water			A	A	A	A
Whiskey		68	A	A	A	A
Wine		68	A	A	A	A
Zinc Chloride	50%	68	D	D	B	B
Zinc Sulfate	25%	68	A	A	A	A

A = High resistance  
 B = Partial resistance  
 C = Satisfactory resistance  
 D = Not suggested

## ATTACHMENT CHAIN SELECTION GUIDE

The ANSI single- and double-pitch roller chain is widely used for conveyor service.

The following procedure is useful for economical and quick chain selection.

**STEP 1:** Confirm the operating conditions of the conveyor.

**STEP 2:** Tentatively select the chain size.

**STEP 3:** Calculate the design chain tension (actual chain tension).

**STEP 4:** Calculate the required power.

**STEP 5:** Verify the chain load.

**STEP 6:** Verify the allowable roller load.

### STEP 1: CONFIRM THE OPERATING CONDITIONS OF THE CONVEYOR

The following information is needed to design a chain conveyor.

- Type of conveyor (slat conveyor, bucket elevator, etc.).
- Method of chain travel (horizontal, inclined or vertical conveyor).
- Type, weight and size of materials to be conveyed.
- Weight of materials to be transported per foot of conveyor length.
- Conveyor speed.
- Conveyor length.
- Lubrication.
- Considerations for special environments.

### STEP 2: TENTATIVELY SELECT THE CHAIN SIZE

To tentatively select the chain size, estimate the chain tension (P) by the following formula. A chain with an allowable load equal to or over the below calculated chain tension may be tentatively selected.

$$P \text{ (lbs.)} = M_T \times f \times k_1$$

Where:

$M_T$  = Total weight of material conveyed (lbs.)

$f$  = Coefficient of friction, sliding and/or rolling  
( $f$ ,  $f_s$  tables 12, 13 or 14)

$k_1$  = Chain speed coefficient (table 16)

### STEP 3: CALCULATE DESIGN CHAIN TENSION

Next, the chain tension should be calculated using the actual weight of the conveyor chain and material conveyed.

#### CONVEYOR CHAIN PULL FORMULAS

##### Horizontal

###### Material Carried

$$P = (2.1W + M) f_r C \quad (\text{Slat})$$

###### Material Sliding

$$P = (2.1 W f_s + M f_s) C + J \quad (\text{Drag or Scraper Conveyor})$$

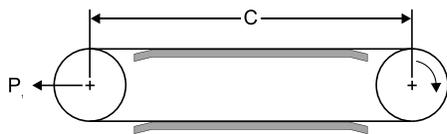


Fig. 2. Horizontal - return side supported illustration.

##### Vertical

###### Material Carried

$$P = (M + W) C + P_1 / 2$$

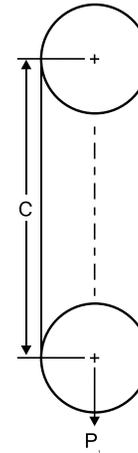


Fig. 3. Vertical.

##### Inclined

###### Material Carried

$$P = [(M + W) f_r \text{COS}a + (M + W)\text{SIN}a] C + (W f_r \text{COS}a - W \text{SIN}a) C \quad (\text{Slat})$$

###### Material Sliding

$$P = [(M f_s + W f_s) \text{COS}a + (M + W) \text{SIN}a] + J \quad (\text{Scraper Conveyor})$$

NOTE: When  $(W f_r \text{COS}a - W \text{SIN}a) C$  is positive, multiply quantity by 1.1 to account for tail shaft friction.

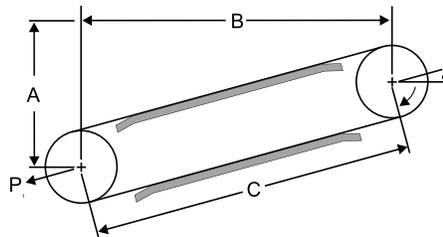


Fig. 4. Inclined - return side supported illustration.

Where:

P = Total conveyor pull (lbs.)

P<sub>1</sub> = Take-up force (lbs.)

W = Weight of chains, attachments, slats, etc., and other moving elements of the conveyor per ft. (lbs./ft.)

M = Weight of material per ft. on the conveyor (lbs./ft.)

f<sub>r</sub> = Friction coefficient of chain rolling on support rail (table 12)

f<sub>s</sub> = Sliding friction coefficient of material or chain sliding (tables 13 and 14)

C = Center distance (ft.)

J = Pull (lbs.) caused by sideboard sliding friction (table 15)

**TABLE 12. COEFFICIENT OF ROLLING FRICTION ( $f_R$ )**

Type of Roller	Dry	Lubricated
Oversized Roller	0.12	0.08
Standard Roller	0.21	0.14

**TABLE 14. COEFFICIENT OF SLIDING FRICTION ( $f_s$ )**

Material	Coefficient	
	Dry	Lubricated
Steel on steel	0.33	0.20
Cast iron or cast steel on same surface	0.50	0.40
Steel on bronze	–	0.15
Steel on hardwood	0.35	0.25
Cast iron or cast steel on hardwood	0.44	–

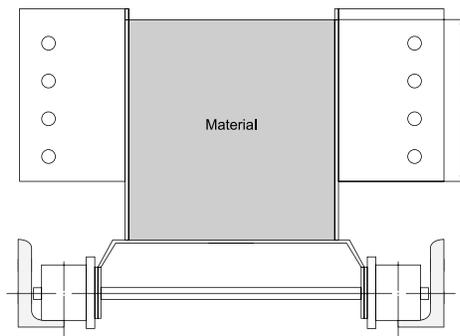
**TABLE 13. COEFFICIENT OF SLIDING FRICTION OF CONVEYED MATERIAL ( $f_s$ )**

Material	Coefficient	
	Dry	Lubricated
Coal on steel	0.55	–
Crushed stone or sand on steel	0.70	–
Cement on steel	0.80	–
Wood on wood	0.55	–
Corn on steel	0.30	–
Soybeans on steel	0.41	–
Oats on steel	0.35	–
Wheat on steel	0.43	–
Salt on steel	0.70	–

**Additional pull on conveyor (J) material sliding against sideboards**

**TABLE 15. VARIABLE FACTOR FOR DIFFERENT MATERIALS**

Material	R
Coal	14.0
Coke	35.0
Limestone	7.5
Gravel	7.0
Sand	5.5
Ashes	35.0



$J = Ch^2/R$

Where:

h = Height of material in inches

R = Variable factor for different materials (see table 15)

C = Length of conveyor in feet

## STEP 4: CALCULATE THE REQUIRED POWER

Calculate the required power to drive the conveyor from the following formula.

### HORIZONTAL AND/OR INCLINED CONVEYOR

$$HP = \frac{P \times S}{33,000}$$

### VERTICAL CONVEYOR

$$HP = \frac{M \times C \times S}{33,000}$$

Where:  $S = \frac{P_c \times N \times n}{12}$  (ft./min.)

HP = Horsepower

S = Chain speed (ft./min.)

M = Material weight (lbs./ft.)

C = Sprocket center distance

n = Small sprocket speed (RPM)

N = Number of teeth – small sprocket

P<sub>c</sub> = Chain pitch (in.)

P = Chain tension (lbs.)

## STEP 5: VERIFY THE CHAIN

Multiply the chain tension (P) by the chain speed coefficient (k<sub>1</sub>) listed in table 16, and verify the following formula.

$$P \times k_1 \leq \text{Max. allowable load of the chain}$$

When the design chain tension (P x k<sub>1</sub>) is over the allowable load or much less than it, try the same steps again for the next bigger or smaller chain size to select a more suitable chain.

**TABLE 16. CHAIN SPEED COEFFICIENT (k<sub>1</sub>)**

Chain Speed Ft./Min.	Speed Factor (k <sub>1</sub> )
0 ~ 50	1.0
50 ~ 100	1.2
100 ~ 160	1.4
160 ~ 230	1.6
230 ~ 300	2.2
300 ~ 360	2.8
360 ~ 400	3.2

## STEP 6: VERIFY THE ALLOWABLE ROLLER LOAD

When the load is carried on the rollers, the total weight of the chain and load per roller should not exceed the allowable roller load shown in table 17.

**TABLE 17. ALLOWABLE ROLLER LOAD (LBS./ROLLER, CARBON STEEL ONLY)**

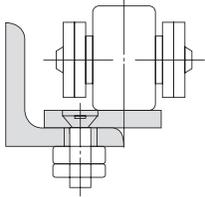
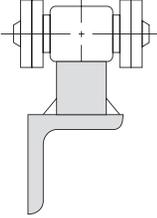
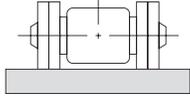
Chain	Size	Large Roller	Standard Roller
C2040	40	143	33
C2050	50	220	44
C2060H	60	350	66
C2080H	80	590	120
C2100H	100	880	180
C2120H	120	1320	260
C2160H	160	2160	430

NOTE: Large rollers are available only for double-pitch roller chains.

## POINTS TO CONSIDER

- For long conveyors, use take-up devices to eliminate chain slack.
  - Take-up stroke = (center distance between sprockets x 0.02) + catenary sag allowance
- Chain must always be engaged with at least three sprocket teeth.
- When two or more strands of conveyor chain operate together, all the sprocket teeth on the head shaft should be aligned. The chain may be matched at the factory for uniform length and attachment alignment for accurate multiple-strand operation.

**TABLE 18. CHAIN AND ROLLER FEATURES THAT MAY HELP IN SELECTION**

Oversize R Roller Type	Standard S Roller Type	
Chain Rolling (Horizontal or Vertical)	Chain Rolling	Chain Sliding (Double-Pitch Chain)
		
<ul style="list-style-type: none"> <li>• Heavy in chain weight</li> <li>• Greater allowable roller load</li> <li>• Less roller wear</li> <li>• Smooth operation</li> <li>• Less vibration</li> <li>• Lower friction and less power required</li> <li>• Generally used for:                             <ul style="list-style-type: none"> <li>• Conveyor lengths more than 35 ft.</li> <li>• Conveyor speeds more than 70 ft./min.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Lightweight</li> <li>• Lower allowable roller load</li> <li>• Generally used for:                             <ul style="list-style-type: none"> <li>• Conveyor lengths less than 35 ft.</li> <li>• Conveyor speeds less than 70 ft./min.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for impact and dirty conditions</li> <li>• Economical</li> <li>• Impact resistant</li> <li>• Greater power required</li> </ul>

## INSTALLATION AND MAINTENANCE

### SPEED RATIO AND CHAIN WRAP

The speed ratio of roller chain can range up to 7:1 under normal operating conditions. However, a speed ratio of 10:1 is possible if the speed is very slow. Chain wrap on the small sprocket must be at least 120 degrees.

### DISTANCE BETWEEN SHAFTS

Sprockets can be separated by any distance as long as their teeth do not touch. Optimum distance is 30 to 50 times the pitch of the chain being used except when there is a pulsating load. In such cases, the distance should be up to 20 times the pitch of the chain used.

### POSITION

Roller chains are ideally installed in a horizontal position. If the chain drive must be in a vertical position, the wear life of the chain will likely be reduced because of the effect of gravity.

### SLACK

Generally, the slack of a roller chain should be on the lower side (see fig. 5). Adequate slack (SS) is about 4 percent of the span for normal drives. In the following cases, the slack should be about 2 percent of the span:

- Vertical drive or close to vertical drive.
- Center distance between two shafts is greater than 3 ft.
- Chain is operated under heavy load and high frequency of on and off drive.
- Direction of the drive is often changed.

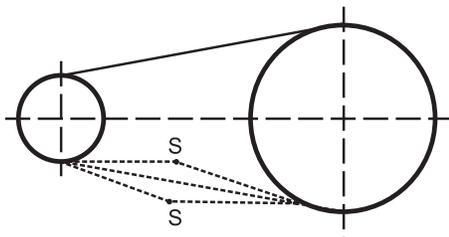


Fig. 5. Chain tension.

### POSITION OF SPROCKET

The two shafts should be parallel and preferably in a horizontal position. Sprockets should be firmly installed. See figs. 6 and 7.

Use a straight edge to check that the two sprockets are installed along the same horizontal plane.



Fig. 6. Aligning shaft.



Fig. 7. Aligning sprockets.

TABLE 19. SUGGESTED POSSIBLE MID-SPAN MOVEMENT

Drive Center-Line	Tangent Length Between Sprockets in in. (cm)					
	10 (25)	20 (51)	30 (76)	50 (127)	70 (178)	100 (254)
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
Horizontal to 45°	0.4-0.6 (10-15)	0.8-1.2 (20-30)	1.2-1.8 (30-46)	2.0-3.0 (51-76)	2.8-4.2 (71-107)	4.0-6.0 (102-152)
45° to vertical	0.2-0.3 (5-8)	0.4-0.6 (10-15)	0.6-0.9 (15-23)	1.0-1.5 (25-38)	1.4-2.1 (36-53)	2.0-3.0 (51-76)

ARRANGEMENTS

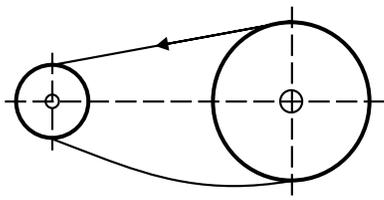


Fig. 8. Satisfactory arrangement for drives with short centers.

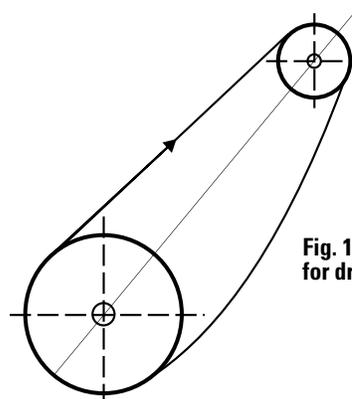


Fig. 11. Satisfactory arrangement for drives with short centers.

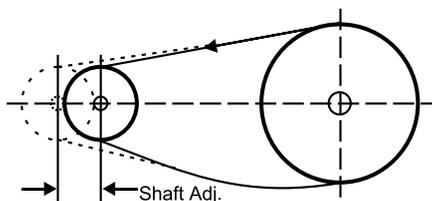


Fig. 9. It is best to have one shaft adjustable, as shown directly above, or use a chain tightener, as shown in lower arrangement.

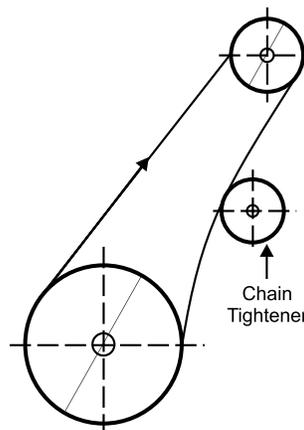


Fig. 12. When the slack side is on top, some means must be provided to adjust the slack-side tension.

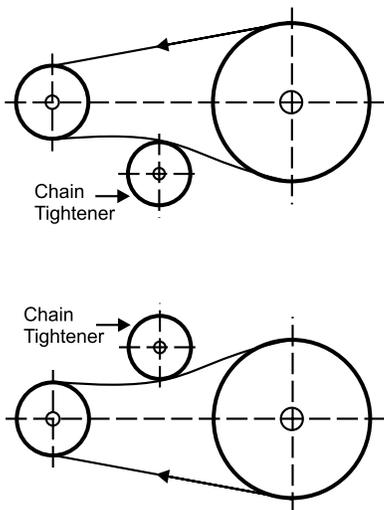


Fig. 10. When the slack side is on top, some means must be provided to adjust the slack-side tension.

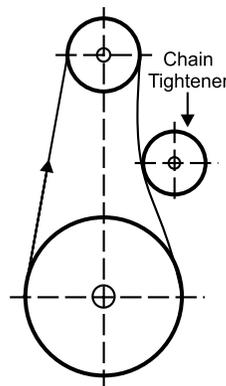


Fig. 13. The best arrangement for vertical drives where means for adjusting slack is possible.

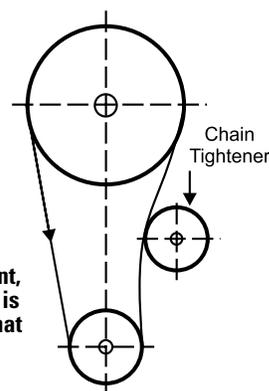


Fig. 14. This arrangement, while sometimes used, is not as satisfactory as that shown above.

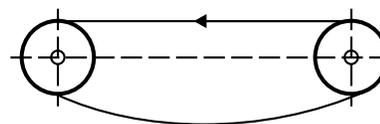


Fig. 15. Unsatisfactory arrangement (no adjustment is provided).

## LUBRICATION

One of the most important factors in getting the best possible performance out of your roller chain is proper lubrication. Each joint in a roller chain is a journal bearing, so it is essential that it receives an adequate amount of proper lubricant to achieve maximum wear life. No matter how well a transmission system is designed, if it is not properly lubricated, its service life will be shortened.

Wear between the pin and bushing causes the roller chain to elongate. These parts should, therefore, be well lubricated. The gap between the pin link plate and the roller link plate on the slack side of the chain should be filled with oil. This oil forms a film that reduces wear on the pin and bushing, thus increasing the chain's service life. It also reduces noise and acts as a coolant when the chain runs at high speeds.

## SUGGESTED LUBRICANTS

Only high-quality oil should be used to lubricate the roller chain. Neither heavy oil nor grease is suitable. The viscosity of the oil used will depend on the chain size, chain speed and ambient temperature. The lubricants suggested for specific temperature ranges are given in the table to the right

The number of supply holes should equal  $Z+1$  where  $Z$  is the number of strands of chain. The amount of oil supplied to each hole is constant.

Regardless of the lubricating system used, the roller chain must be cleaned periodically. Examine the pin and bushing after removing the chain. Any damage or reddish-brown color on their surfaces could indicate that the system is not being adequately lubricated.

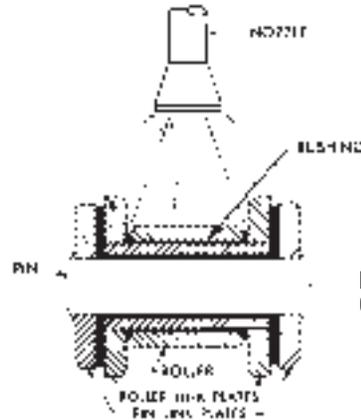


Fig. 16. Chain lubrication.

TABLE 20. TEMPERATURE AND LUBRICATION

Temperature Degrees °F	Suggested Lubricant
-20 – +20	SAE 10
20 – 40	SAE 20
40 – 100	SAE 30
100 – 120	SAE 40
120 – 140	SAE 50

TABLE 21. SPEED AND LUBRICATION

Chain Speed ft./min.	Chain Number			
	60 and under	80 – 100	120 – 140	160 and over
1,600 ~ 2,600	gal./min. 0.26	gal./min. 0.40	gal./min. 0.53	gal./min. 0.66
2,600 ~ 3,600	gal./min. 0.53	gal./min. 0.66	gal./min. 0.79	gal./min. 0.92
3,600 ~ 4,600	gal./min. 0.79	gal./min. 0.92	gal./min. 1.06	gal./min. 1.19

## LUBRICATION SYSTEMS

We recommend one of the following five lubricating systems:

### MANUAL LUBRICATION

Oil is applied with an oil filler or brush in the gap between the pin link and roller link on the slack side of the chain. It should be applied about every eight hours or as often as necessary to prevent the bearing area of the chain from becoming dry.



Fig. 17. Manual lubrication.

### DRIP LUBRICATION

Use a simple casing. The oil is supplied by drip feed. Each strand of chain should ordinarily receive five to 20 drops of oil per minute, according to increases in the chain speed.

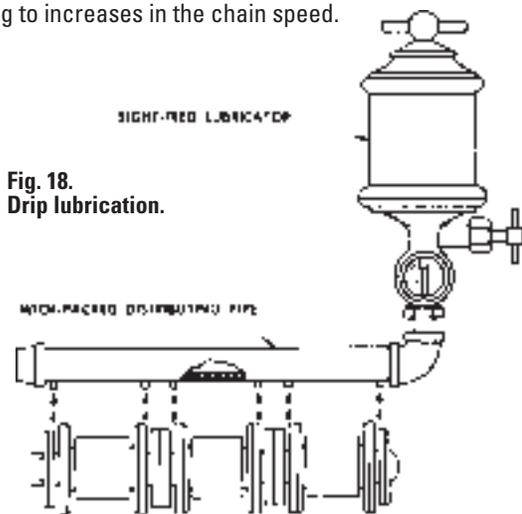


Fig. 18. Drip lubrication.

**⚠ WARNING**  
*Failure to observe the following warnings could create a risk of death or serious injury.*

Follow your lock-out tag-out and power off procedures before lubricating or servicing a chain system.

### OIL BATH LUBRICATION

Use a leak-proof casing. The chain dips into the oil at the bottom of the casing. The sprocket should dip into the oil approximately 1/2 in. If the sprocket is immersed more than 1/2 in., too much heat is generated.

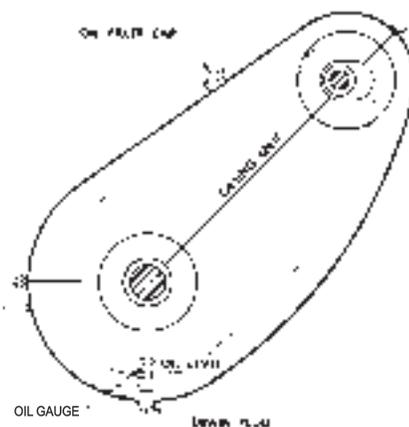


Fig. 19. Oil bath lubrication.

### LUBRICATION BY SLINGER DISC

Use a leak-proof casing. The chain does not need to dip into the oil at the bottom of the casing. The slinger disc should dip into the oil from 1/2 in. to 1 in.

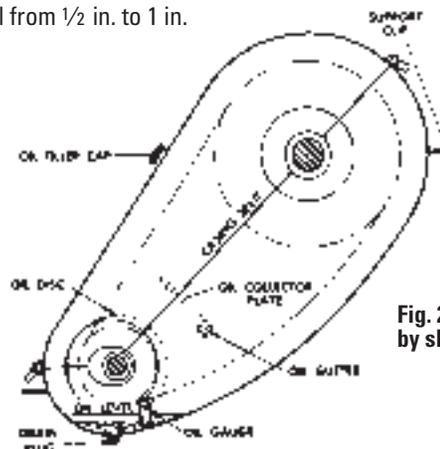


Fig. 20. Lubrication by slinger disc.

### LUBRICATION USING A PUMP

Use a leak-free casing. A pump is used to circulate the oil, which is then cooled. See table 21 on page 20 for lubrication supply holes.

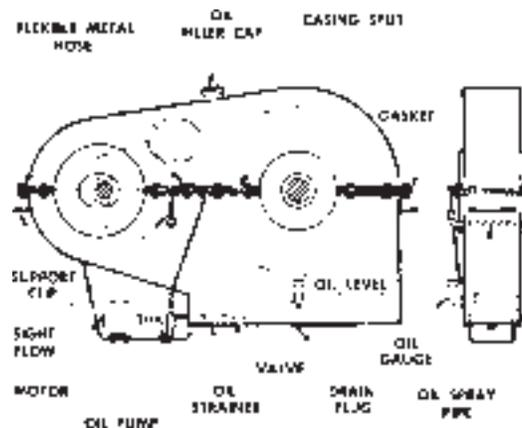


Fig. 21. Lubrication using a pump.

# TROUBLESHOOTING GUIDE

**TABLE 22. TROUBLESHOOTING GUIDE FOR CHAINS**

Problem	Possible Causes	What to Do
Excessive noise	<ul style="list-style-type: none"> <li>• Misalignment of sprockets</li> <li>• Loose casings or bearings</li> <li>• Too little or too much slack</li> <li>• Chain and/or sprocket wear</li> <li>• Inadequate lubrication or no lubrication</li> <li>• Chain pitch size too large</li> </ul>	<ul style="list-style-type: none"> <li>• Realign sprockets and shafts</li> <li>• Tighten set-bolts</li> <li>• Adjust centers or idler take-up</li> <li>• Replace chain and/or sprocket</li> <li>• Lubricate properly</li> <li>• Check chain drive selection</li> </ul>
Chain vibration	<ul style="list-style-type: none"> <li>• Resonance to the vibration cycle of machine to be installed</li> <li>• High load fluctuation</li> </ul>	<ul style="list-style-type: none"> <li>• Change vibration cycle of chain or machine</li> <li>• Use torque converter or fluid coupling</li> </ul>
Wear on inside of link plate and one side of sprocket teeth.	<ul style="list-style-type: none"> <li>• Misalignment</li> </ul>	<ul style="list-style-type: none"> <li>• Realign sprockets and shafts</li> </ul>
Chain climbs sprockets	<ul style="list-style-type: none"> <li>• Excessive chain wear</li> <li>• Excessive chain slack</li> <li>• Heavy overload</li> </ul>	<ul style="list-style-type: none"> <li>• Replace chain</li> <li>• Adjust centers or idler take-up</li> <li>• Reduce load or install stronger chain</li> </ul>
Broken pins, bushings or rollers	<ul style="list-style-type: none"> <li>• Chain speed is too high for pitch and sprocket size</li> <li>• Heavy shock or suddenly applied loads</li> <li>• Material build-up in sprocket tooth pockets</li> <li>• Inadequate lubrication</li> <li>• Chain or sprocket corrosion</li> </ul>	<ul style="list-style-type: none"> <li>• Use shorter pitch chain or install larger diameter sprockets</li> <li>• Reduce shock load or install stronger chain</li> <li>• Remove material build-up or install side-gashed sprockets (mud relief)</li> <li>• Lubricate properly</li> <li>• Install anti-corrosive chain or sprockets</li> </ul>
Chain clings to sprocket	<ul style="list-style-type: none"> <li>• Center distance too long or high load fluctuation</li> <li>• Excessive chain slack</li> <li>• Excessive chain wear</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust the center distance or install idler take-up</li> <li>• Replace chain</li> </ul>
Chain gets stiff	<ul style="list-style-type: none"> <li>• Misalignment</li> <li>• Inadequate lubrication</li> <li>• Corrosion</li> <li>• Excessive load</li> <li>• Material build-up in chain joint</li> <li>• Peening of link plate edges</li> </ul>	<ul style="list-style-type: none"> <li>• Realign sprockets and shafts</li> <li>• Lubricate properly</li> <li>• Replace with anti-corrosive chain</li> <li>• Reduce load or replace with chain of suitable strength</li> <li>• Shield drive from foreign matter</li> <li>• Check for chain interference</li> </ul>
Breakage of link plate	<ul style="list-style-type: none"> <li>• Subjected to shock load</li> <li>• Vibration</li> <li>• Moment of load inertia is too large</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce shock (e.g., install a shock absorber)</li> <li>• Install a device to absorb vibration (e.g., tensioner idler wheel)</li> <li>• Chain section should be checked (increase number of strands or select next larger size chain)</li> </ul>

## CHAIN TOOLS

### EZ BREAKER®

#### CUT YOUR CHAIN BREAKING JOBS DOWN TO SIZE

EZ BREAKER® is a compact, easy-to-use tool for cutting roller chain. This simple, rugged piece of equipment can stand up to the abuses of the shop, farm or industrial environment.

EZ BREAKER will cut ANSI roller chain sizes 35 through 100H, 40-2 through 80-2, 2040 through 2060H, and 550 through 557 with a simple pull of the handle. No more grinding off pin heads. No more hammers and punches.

EZ BREAKER uses powerful cam action to push both chain pins through the link plates with an easy pull of the handle. Breaking different chain sizes is easy.

Precision die sets for each chain size are easily interchangeable. Changing from one die set to another can be accomplished in a few seconds. The time-consuming, tedious job of breaking chain is now accomplished with a single pull of the handle. EZ BREAKER links price and value.

***EZ BREAKER has interchangeable die sets that make it easy to switch from one size chain to another.***



Fig. 22. EZ BREAKER®.

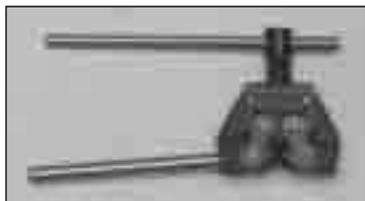


Fig. 23. Chain breakers.

TABLE 23. CHAIN BREAKERS

Part No.	1254	40952	40953
Chain No.	35 – 50	60 – 100	120 – 160

TABLE 24. CHAIN PULLERS

Part No.	36887
Chain No.	40 – 60

Replacement tips and screw assemblies available.



Fig. 24. Chain puller.

## EZ CHAIN WEAR GAUGE®

Accurately checks up to nine sizes of American Standard roller chains and up to seven sizes of British Standard roller chains. Quick and easy to use the go or no-go gauge system gives immediate feedback. Gauge will fit into limited spaces and quickly lets the user know if the chain is worn out.

- Precision-ground, pre-hardened tool steel.
- Convenient grip handle with pre-drilled holes for hanging, to keep you organized.
- Available in three chain gauge sizes:
  - #35 chain – #100 chain = Part #60637.
  - #06B chain – #24B chain = Part #61904.  
(Actual gauge dimensions:  
8.75 in. L x 0.625 in. W x 0.188 in. H)
  - #80 chain – #240 chain = Part #60638.  
(Actual gauge dimensions:  
18 in. L x 1.5 in. W x 0.250 in. H)
- Single chain size gauges are available upon request.



Fig. 25. EZ CHAIN WEAR GAUGE®.

## EZ CHAIN RACK®

Using the EZ CHAIN RACK® is simple. Learn how, in three easy steps, you can make it easy to store and cut our brand of precision roller chain. The EZ CHAIN RACK is versatile, allowing four positions to hold 50-foot reels of chain.

- High quality welded construction.
- Stand alone base.
- 31 in. x 31 in. x 51 in. (rough dimensions).
- Individually clutched to prevent chain from uncoiling.
- Four stations.
- Will hold two 50-foot reels of #40 or #50 chain per station.
- OR holds one 50-foot reel of #60, #60H or #80 chain per station.
- Allows easy switch from size to size.
- Rotates in both directions.



Fig. 26.  
EZ CHAIN RACK®.

### WARNING

*Failure to observe the following warnings could create a risk of death or serious injury.*

Follow your lock-out tag-out and power off procedures before lubricating or servicing a chain system.

U.S. Patent Number D598, 307 and 7,654,149, D596,512 and D665492.

**ENGINEERING CONVERSIONS****BUSHELs – bu**x 1.2445 = Cubic feet (ft.<sup>3</sup>)**CENTIMETRES – cm**

x 0.3937 = Inches (in.)

**CENTIMETRES PER SECOND – cm/s**

x 1.9685 = Feet per minute (ft./min.)

x 0.03291 = Feet per second (ft./s)

x 0.03600 = Kilometres per hour (km/h)

x 0.6000 = Metres per minute (m/min.)

x 0.02237 = Miles per hour (mph)

**CUBIC CENTIMETRES – cm<sup>3</sup>**x 3.5315 x 10<sup>-5</sup> = Cubic feet (ft.<sup>3</sup>)x 6.1024 x 10<sup>-2</sup> = Cubic inches (in.<sup>3</sup>)x 1.308 x 10<sup>-6</sup> = Cubic yards (yd.<sup>3</sup>)x 2.642 x 10<sup>-4</sup> = U.S. gallons (U.S. gal.)x 1.000 x 10<sup>-3</sup> = Litres (l)**CUBIC FEET – ft<sup>3</sup>**x 0.02832 = Cubic metres (m<sup>3</sup>)x 2.832 x 10<sup>4</sup> = Cubic centimetres (cm<sup>3</sup>)x 1728 = Cubic inches (in.<sup>3</sup>)x 0.03704 = Cubic yards (yd.<sup>3</sup>)

x 7.481 = U.S. gallons (U.S. gal.)

x 6.229 = Imperial gallons (imp gal)

x 28.32 = Litres (l)

**CUBIC INCHES – in.<sup>3</sup>**x 1.6387 x 10<sup>-5</sup> = Cubic metres (m<sup>3</sup>)x 16.387 = Cubic centimetres (cm<sup>3</sup>)

x 0.016387 = Litres (l)

x 5.787 x 10<sup>-4</sup> = Cubic feet (ft.<sup>3</sup>)x 2.143 x 10<sup>-5</sup> = Cubic yards (yd.<sup>3</sup>)x 4.329 x 10<sup>-3</sup> = U.S. gallons (U.S. gal.)x 3.605 x 10<sup>-3</sup> = Imperial gallons (imp gal)**CUBIC METRES – m<sup>3</sup>**

x 1000 = Litres (l)

x 35.315 = Cubic feet (ft.<sup>3</sup>)x 61.024 x 10<sup>3</sup> = Cubic inches (in.<sup>3</sup>)x 1.3080 = Cubic yards (yd.<sup>3</sup>)

x 264.2 = U.S. gallons (U.S. gal.)

**CUBIC YARDS – yd<sup>3</sup>**x 0.7646 = Cubic metres (m<sup>3</sup>)

x 764.6 = Litres (l)

x 7.646 x 10<sup>5</sup> = Cubic centimetres (cm<sup>3</sup>)x 27 = Cubic feet (ft.<sup>3</sup>)x 46.656 = Cubic inches (in.<sup>3</sup>)

x 201.97 = U.S. gallons (U.S. gal.)

**DEGREES, ANGULAR (°)**

x 0.017453 = Radians (rad)

x 60 = Minutes (')

x 3600 = Seconds (")

x 1.111 = Grade (gon)

**DEGREES PER SECOND, ANGULAR (°/s)**

x 0.017453 = Radians per second (rad/s)

x 0.16667 = Revolutions per minute (r/min.)

x 2.7778 x 10<sup>-3</sup> = Revolutions per second (r/s)**FEET – ft**

x 0.3048 = Metres (m)

x 30.480 = Centimetres (cm)

x 12 = Inches (in.)

x 0.3333 = Yards (yd.)

**FEET PER MINUTE – ft./min.**

x 0.5080 = Centimetres per second (cm/sec.)

x 0.01829 = Kilometres per hour (km/h)

x 0.3048 = Metres per minute (m/min.)

x 0.016667 = Feet per second (ft/sec.)

x 0.01136 = Miles per hour (mph)

**FOOT-POUNDS-FORCE – ft.-lbs.**

x 1.356 = Joules (J)

x 1.285 x 10<sup>-3</sup> = British thermal units (Btu)x 3.239 x 10<sup>-4</sup> = Kilocalories (kcal)

x 0.13825 = Kilogram-force-metres (kgf.m)

x 5.050 x 10<sup>-7</sup> = Horsepower-hours (hp.h)x 3.766 x 10<sup>-7</sup> = Kilowatt-hours (kW.h)**GALLONS, U.S. – U.S. gal.**x 3.785.4 = Cubic centimetres (cm<sup>3</sup>)

x 3.7854 = Litres (l)

x 3.7854 x 10<sup>-3</sup> = Cubic metres (m<sup>3</sup>)x 231 = Cubic inches (in.<sup>3</sup>)x 0.13368 = Cubic feet (ft.<sup>3</sup>)x 4.951 x 10<sup>-3</sup> = Cubic yards (yd.<sup>3</sup>)**GRAMS – g**

x 15.432 = Grains (gr)

x 0.035274 = Ounces (oz.) av.

x 0.032151 = Ounces (oz.) troy

x 2.2046 x 10<sup>-3</sup> = Pounds (lbs.)**GRAMS-FORCE – gf**x 9.807 x 10<sup>-3</sup> = Newtons (N)**HORSEPOWER – hp**

x 745.7 = Watts (W)

x 0.7457 = Kilowatts (kW)

x 1.0139 = Horsepower (metric)

### INCHES – in.

x 2.540	= Centimetres (cm)
x 25.4	= Millimetres (mm)

### KILOGRAMS – kg

x 2.2046	= Pounds (lbs.)
x 1.102 x 10 <sup>-3</sup>	= Tons (ton) short

### KILOGRAMS-FORCE – kgf

x 9.807	= Newtons (N)
x 2.205	= Pounds-force (lbf.)

### KILOWATTS – kW

x 1.3410	= Horsepower (hp)
----------	-------------------

### LITRES – l

x 1000	= Cubic centimetres (cm <sup>3</sup> )
x 0.035315	= Cubic feet (ft. <sup>3</sup> )
x 61.024	= Cubic inches (in. <sup>3</sup> )
x 1.308 x 10 <sup>-3</sup>	= Cubic yards (yd. <sup>3</sup> )
x 0.2642	= U.S. gallons (U.S. gal.)

### METRES – m

x 3.281	= Feet (ft.)
x 39.37	= Inches (in.)
x 1.0936	= Yards (yd.)

### METRES PER MINUTE – μm m/min.

x 1.6667	= Centimetres per second (cm/s)
x 3.281	= Feet per minute (ft/min)
x 0.05468	= Feet per second (ft/s)
x 0.03728	= Miles per hour (mph)

### MILES – mi.

x 1.6093 x 10 <sup>3</sup>	= Metres (m)
x 1.6093	= Kilometres (km)
x 5280	= Feet (ft.)
x 1760	= Yards (yd.)

### MILES PER HOUR – mph

x 44.70	= Centimetres per second (cm/s)
x 1.6093	= Kilometres per hour (km/h)
x 26.82	= Metres per minute (m/min.)
x 88	= Feet per minute (ft./min.)
x 1.4667	= Feet per second (ft./sec.)

### MILES PER MINUTE – mi/min.

x 1.6093	= Kilometres per minute (km/min)
x 2682	= Centimetres per second (cm/sec.)
x 88	= Feet per second (ft./sec.)
x 60	= Miles per hour (mph)

### MINUTES, ANGULAR – (')

x 2.909 x 10 <sup>-4</sup>	= Radians (rad)
----------------------------	-----------------

### NEWTONS – N

x 0.10197	= Kilograms-force (kgf)
x 0.2248	= Pounds-force (lbf.)

### POUNDS-FORCE – lbf av.

x 4.448	= Newton (N)
x 0.4536	= Kilograms-force (kgf)

### POUNDS – lbs. av.

x 453.6	= Grams (g)
---------	-------------

### RADIANS – rad

x 57.30	= Degrees (°) angular
---------	-----------------------

### TONS-MASS – tonm long

x 1016	= Kilograms (kg)
x 2240	= Pounds (lbs.) avg.
x 1.1200	= Tons (ton) short

### TONS – ton short

x 907.2	= Kilograms (kg)
x 0.9072	= Metric tons (t)
x 2000	= Pounds (lbs.) avg.
x 0.8929	= Tons (ton) long

***PRECISION  
ROLLER CHAIN  
PRODUCTS***

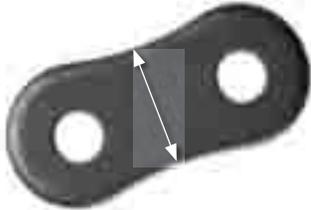
Our precision roller chain products are manufactured to meet or exceed ANSI standards. They excel in tough, high-performance applications. We can even custom manufacture product to your specifications.



### ROLLER CHAIN FEATURES

#### WIDE WAIST

The wide-waist design of 60H and larger chains are manufactured with maximized ball heights from special alloy steels for added strength. The wide link plate profile improves stress distribution, leading to improved fatigue resistance and enhanced performance.



#### SOLID ROLLERS

We utilize solid rollers on all carbon roller chains. The solid roller allows for smooth rotation on the bushing, reducing the impact load as the chain engages the sprocket tooth.



#### FACTORY PRELOADED AT 50 PERCENT MUTS

Our chains are preloaded to 50 percent of minimum ultimate tensile strength (MUTS), which is especially important for applications involving fixed center-to-center sprockets without take-ups. Applications can withstand shock loads up to 50 percent of the chain's MUTS without premature elongation.



#### HEAT TREATMENT

Rigorous process controls and state of the art heat-treating furnaces provide consistent quality in all our chain components. This results in optimum toughness and resistance to wear.



#### PRELUBRICATION

After final assembly, we hot-dip the roller chains in a special lubricant. This process ensures that all the load-bearing surfaces are initially protected from metal-to-metal contact, improving the wear life of the chain.



#### AUTOMATED ASSEMBLY

Our roller chain assembly methods ensure consistent processes and proper assembly of chain components.



## SHOT PEENED PARTS

All precision roller chain rollers and link plates are shot peened for greater fatigue strength.

## CONNECTING LINKS

Standard connecting links are used when roller chains are operating under normal conditions. For severe applications, press fit connecting links are suggested. Spring-clip style connecting links are used for sizes 60H and smaller. Sizes 80 – 180H use a special hardened hook cotter. Coated T-pin is used on 200, 264 and 240.



Fig. 27. Spring clip.



Fig. 28. Hook cotter.



Fig. 29. Coated T-pins used on the connecting links.

## OFFSET LINKS

Offset links are used when the chain length is an odd number of pitches; however, their fatigue strength is lower than standard chain links. Using offsets should be avoided when possible.



Fig. 30. Offset link.

# ANSI STANDARD CHAIN

## CARBON STEEL

- Cut-to-length chain available.
- Chain size 80 and larger supplied with cottered connection links.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.

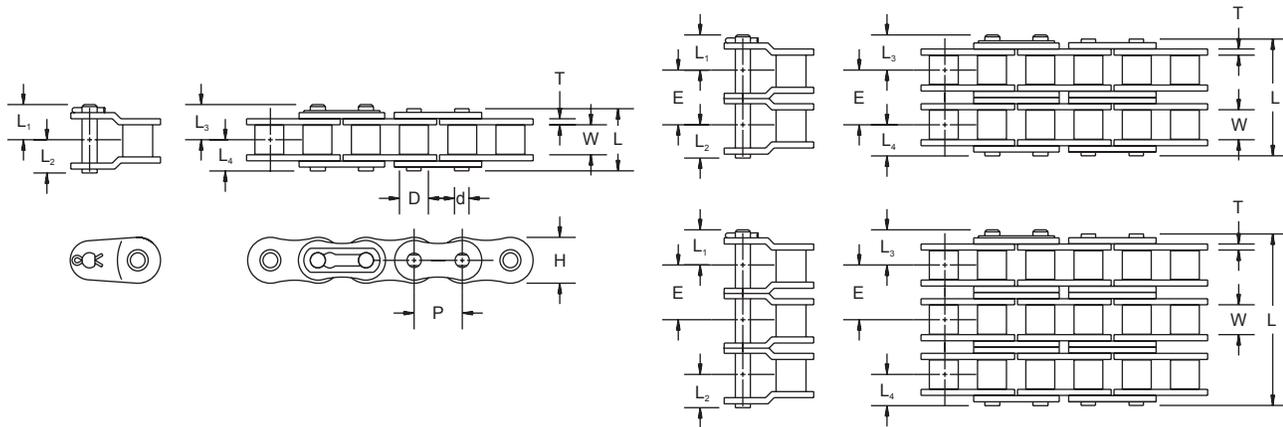


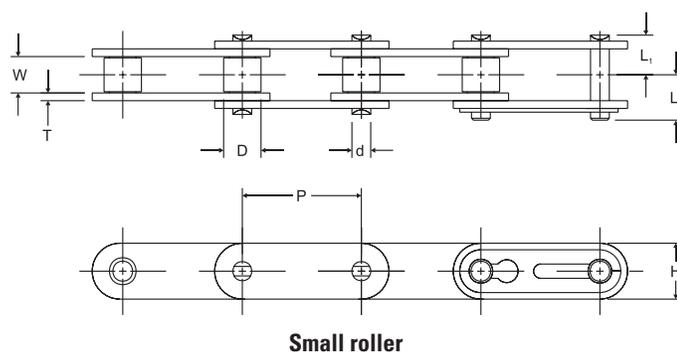
TABLE 25. CARBON STEEL CHAIN DIMENSIONS

Chain No.	Pitch P	Width Between L.P. W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Weight lbs./ft.	Riveted	Cottered
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>			
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		
35	0.375	0.189	0.200	0.355	0.049	0.141	0.398	0.461	0.264	0.252	0.264	0.240	0.210	STD	–
41	0.500	0.252	0.306	0.382	0.049	0.141	–	0.524	0.315	0.268	0.315	0.268	0.273	STD	–
40	0.500	0.313	0.313	0.472	0.060	0.156	0.867	0.630	0.404	0.317	0.377	0.315	0.420	STD	–
50	0.625	0.376	0.400	0.590	0.080	0.200	0.713	0.795	0.489	0.399	0.489	0.398	0.713	STD	–
60	0.750	0.500	0.469	0.705	0.094	0.234	0.898	0.996	0.600	0.498	0.648	0.498	1.067	STD	STD
80	1.000	0.627	0.625	0.943	0.125	0.313	1.155	1.283	0.768	0.638	0.857	0.642	1.868	STD	STD
100	1.250	0.755	0.750	1.180	0.156	0.375	1.411	1.595	0.908	0.785	0.912	0.785	2.801	STD	STD
120	1.500	1.000	0.875	1.425	0.187	0.437	1.289	1.955	1.119	1.071	1.119	0.989	4.135	STD	STD
140	1.750	1.000	1.000	1.663	0.220	0.500	1.924	2.136	1.253	1.150	1.253	1.068	5.136	STD	STD
160	2.000	1.250	1.125	1.899	0.250	0.562	2.305	2.538	1.454	1.370	1.454	1.269	6.603	STD	STD
180	2.250	1.400	1.406	2.132	0.281	0.687	2.592	2.780	1.561	1.390	1.561	1.390	9.100	STD	STD
200	2.500	1.490	1.562	2.312	0.312	0.781	2.817	3.088	1.889	1.544	1.889	1.544	10.900	STD	STD
240	3.000	1.864	1.875	2.812	0.375	0.937	3.458	3.708	2.212	1.854	2.212	1.854	16.400	STD	STD

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

NOTE: See pages 60-61, and table 86 on page 85 for available heavy series and double-pitch roller chain sizes.

NOTE: See pages 32-57 for multi-strand dimensions.



**TABLE 26. CARBON STEEL CHAIN DIMENSIONS**

Chain No.	Pitch P	Width Between L.P. W	Roller Dia. D	Link Plate		Pin Dia. d	Pin			Average Weight
				H	T		L	L <sub>1</sub>	L <sub>2</sub>	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs./ft.
A2040	1.000	0.312	0.312	0.472	0.060	0.156	0.638	0.319	0.382	0.270
A2050	1.250	0.376	0.400	0.590	0.080	0.200	0.795	0.398	0.489	0.450
A2060	1.500	0.500	0.469	0.705	0.094	0.234	0.996	0.498	0.648	0.630
C2040	1.000	0.312	0.312	0.472	0.060	0.156	0.638	0.319	0.382	0.340
C2050	1.250	0.376	0.400	0.591	0.079	0.200	0.795	0.409	0.477	0.580
C2060H	1.500	0.500	0.469	0.687	0.125	0.234	1.180	0.590	0.660	0.903
C2080H	2.000	0.625	0.625	0.950	0.156	0.312	1.490	0.745	0.845	1.204

NOTE: C series chains are available with carrier roller.

# ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

## 35 – 0.375 INCH PITCH

- Cut-to-length chain available.
- Available in riveted style.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.

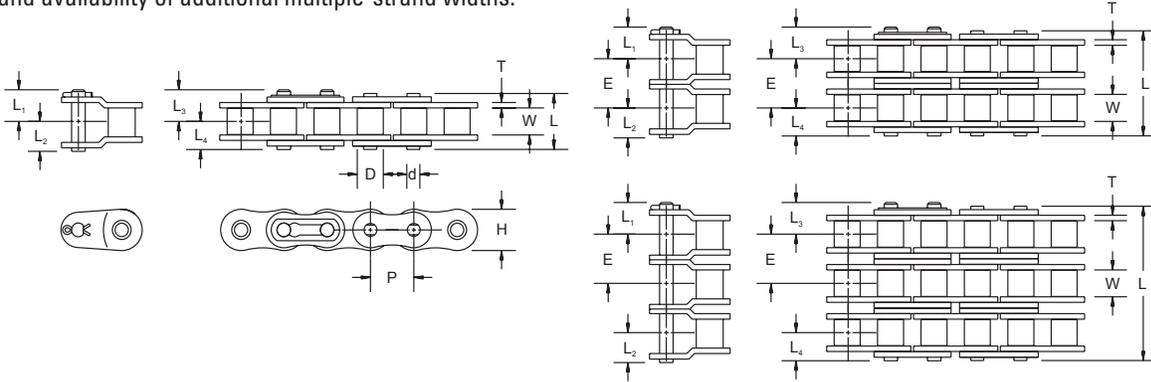


TABLE 27. 35 – 0.375 IN. PITCH CHAIN DIMENSIONS

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Weight lbs./ft.
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		
35-1	0.375	0.189	0.200	0.355	0.049	0.141	–	0.461	0.264	0.252	0.264	0.240	2,100	0.210
35-2	0.375	0.189	0.200	0.355	0.049	0.141	0.398	0.863	0.264	0.252	0.264	0.240	4,200	0.410
35-3	0.375	0.189	0.200	0.355	0.049	0.141	0.398	1.261	0.264	0.252	0.264	0.240	6,300	0.620

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

TABLE 28. 35 – 0.375 IN. PITCH HORSEPOWER TABLE

No. of Teeth	Revolutions Per Minute – Small Sprocket																									
	50	100	200	240	500	700	900	1200	1500	1800	2100	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	10000
11	0.11	0.22	0.42	0.50	1.02	1.41	1.80	2.37	2.93	3.49	4.05	3.86	2.94	2.33	1.91	1.60	1.37	1.18	1.04	0.92	0.82	0.74	0.67	0.62	0.57	0.48
12	0.12	0.24	0.46	0.55	1.11	1.54	1.96	2.58	3.20	3.81	4.42	4.40	3.35	2.66	2.17	1.82	1.56	1.35	1.18	1.05	0.94	0.85	0.77	0.70	0.64	0.55
13	0.13	0.26	0.50	0.60	1.21	1.67	2.12	2.80	3.47	4.13	4.79	4.96	3.77	3.00	2.45	2.05	1.75	1.52	1.33	1.18	1.06	0.95	0.87	0.79	0.73	0.62
14	0.14	0.28	0.54	0.64	1.30	1.80	2.29	3.01	3.73	4.45	5.15	5.55	4.22	3.35	2.74	2.30	1.96	1.70	1.49	1.32	1.18	1.07	0.97	0.88	0.81	0.10
15	0.15	0.30	0.58	0.69	1.39	1.92	2.45	3.23	4.00	4.76	5.52	6.15	4.68	3.71	3.04	2.55	2.17	1.88	1.65	1.47	1.31	1.18	1.07	0.98	0.90	0.00
16	0.16	0.32	0.62	0.73	1.49	2.05	2.61	3.44	4.26	5.08	5.89	6.77	5.15	4.09	3.35	2.81	2.40	2.08	1.82	1.62	1.45	1.30	1.18	1.08	0.44	0.00
17	0.17	0.34	0.65	0.78	1.58	2.18	2.77	3.66	4.53	5.40	6.26	7.40	5.64	4.48	3.67	3.07	2.62	2.27	2.00	1.77	1.58	1.43	1.30	1.02	0.00	
18	0.18	0.36	0.69	0.83	1.67	2.31	2.94	3.87	4.80	5.72	6.63	7.83	6.15	4.88	3.99	3.35	2.86	2.48	2.17	1.93	1.73	1.56	1.41	0.00		
19	0.19	0.38	0.73	0.87	1.76	2.44	3.10	4.09	5.06	6.03	7.00	8.27	6.67	5.29	4.33	3.63	3.10	2.69	2.36	2.09	1.87	1.69	0.05	0.00		
20	0.20	0.40	0.77	0.92	1.86	2.56	3.26	4.30	5.33	6.35	7.36	8.71	7.20	5.72	4.68	3.92	3.35	2.90	2.55	2.26	2.02	1.42	0.00			
21	0.21	0.42	0.81	0.96	1.95	2.69	3.43	4.52	5.60	6.67	7.73	9.14	7.75	6.15	5.03	4.22	3.60	3.12	2.74	2.43	2.17	0.00				
22	0.22	0.44	0.85	1.01	2.04	2.82	3.59	4.73	5.86	6.99	8.10	9.58	8.31	6.59	5.40	4.52	3.86	3.35	2.94	2.61	1.42	0.00				
23	0.23	0.46	0.89	1.06	2.14	2.95	3.75	4.95	6.13	7.30	8.47	10.01	8.88	7.05	5.77	4.83	4.13	3.58	3.14	2.79	0.00					
24	0.24	0.48	0.92	1.10	2.23	3.08	3.92	5.16	6.40	7.62	8.84	10.45	9.47	7.51	6.15	5.15	4.40	3.81	3.35	2.04	0.00					
25	0.25	0.50	0.96	1.15	2.32	3.21	4.08	5.38	6.66	7.94	9.20	10.88	10.07	7.99	6.54	5.48	4.68	4.05	3.56	0.12	0.00					
26	0.26	0.51	1.00	1.19	2.41	3.33	4.24	5.59	6.93	8.26	9.57	11.32	10.68	8.47	6.93	5.81	4.96	4.30	3.40	0.00						
28	0.29	0.55	1.08	1.28	2.60	3.59	4.57	6.02	7.46	8.89	10.31	12.19	11.93	9.47	7.75	6.49	5.55	4.81	0.00							
30	0.31	0.59	1.16	1.38	2.79	3.85	4.90	6.45	8.00	9.53	11.05	13.06	13.23	10.50	8.59	7.20	6.15	2.24	0.00							
32	0.33	0.63	1.23	1.47	2.97	4.10	5.22	6.88	8.53	10.16	11.78	13.93	14.58	11.57	9.47	7.93	5.76	0.00								
35	0.36	0.69	1.35	1.61	3.25	4.49	5.71	7.53	9.33	11.11	12.89	15.23	16.67	13.23	10.83	8.85	0.34	0.00								
40	0.41	0.79	1.54	1.84	3.71	5.13	6.53	8.61	10.66	12.70	14.73	17.41	20.37	16.17	11.04	0.34	0.00									
45	0.46	0.89	1.73	2.07	4.18	5.77	7.35	9.68	11.99	14.29	16.57	19.59	23.33	15.56	3.11	0.00										
	Type I Manual or Drip Lubrication				Type II Bath or Disc Lubrication							Type III Oil Stream Lubrication														

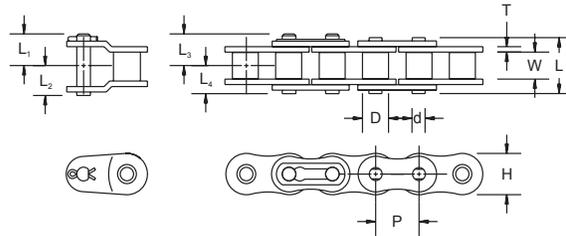
NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 29. SPROCKET INFORMATION FOR 35 – 3/8 IN. PITCH

No. of Teeth	35 – 3/8 in. Pitch		No. of Teeth	35 – 3/8 in. Pitch		No. of Teeth	35 – 3/8 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	1.096	1.256	49	5.853	6.066	89	10.626	10.844
10	1.214	1.380	50	5.972	6.186	90	10.745	10.964
11	1.331	1.502	51	6.091	6.305	91	10.864	11.083
12	1.449	1.625	52	6.211	6.425	92	10.984	11.202
13	1.567	1.747	53	6.330	6.544	93	11.103	11.322
14	1.685	1.868	54	6.449	6.664	94	11.223	11.441
15	1.804	1.990	55	6.569	6.783	95	11.342	11.561
16	1.922	2.111	56	6.688	6.903	96	11.461	11.680
17	2.041	2.231	57	6.807	7.022	97	11.581	11.799
18	2.159	2.352	58	6.927	7.142	98	11.700	11.919
19	2.278	2.473	59	7.046	7.261	99	11.819	12.038
20	2.397	2.593	60	7.165	7.381	100	11.939	12.158
21	2.516	2.713	61	7.284	7.500	101	12.058	12.277
22	2.635	2.833	62	7.404	7.619	102	12.177	12.396
23	2.754	2.954	63	7.523	7.739	103	12.297	12.516
24	2.873	3.074	64	7.642	7.858	104	12.416	12.635
25	2.992	3.194	65	7.762	7.978	105	12.535	12.755
26	3.111	3.314	66	7.881	8.097	106	12.655	12.874
27	3.230	3.434	67	8.000	8.217	107	12.774	12.994
28	3.349	3.554	68	8.120	8.336	108	12.893	13.113
29	3.468	3.673	69	8.239	8.456	109	13.013	13.232
30	3.588	3.793	70	8.358	8.575	110	13.132	13.352
31	3.707	3.913	71	8.478	8.694	111	13.251	13.471
32	3.826	4.033	72	8.597	8.814	112	13.371	13.591
33	3.945	4.152	73	8.716	8.933	113	13.490	13.710
34	4.064	4.272	74	8.836	9.053	114	13.609	13.830
35	4.183	4.392	75	8.955	9.172	115	13.729	13.948
36	4.303	4.511	76	9.074	9.292	116	13.848	14.068
37	4.422	4.631	77	9.194	9.411	117	13.968	14.187
38	4.541	4.751	78	9.313	9.531	118	14.087	14.307
39	4.660	4.871	79	9.432	9.650	119	14.206	14.427
40	4.780	4.990	80	9.552	9.770	120	14.326	14.545
41	4.899	5.110	81	9.671	9.889			
42	5.018	5.229	82	9.790	10.008			
43	5.137	5.349	83	9.190	10.128			
44	5.257	5.468	84	10.029	10.247			
45	5.376	5.588	85	10.148	10.367			
46	5.495	5.708	86	10.268	10.486			
47	5.614	5.827	87	10.387	10.605			
48	5.734	5.947	88	10.506	10.725			

### 41 – 0.500 INCH PITCH

- Cut-to-length chain available.
- Available in riveted style.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 30. 41 – 0.500 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Weight lbs./ft.
				H	T		L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		
41-1	0.500	0.252	0.306	0.382	0.049	0.141	0.524	0.315	0.268	0.315	0.268	2,400	0.273

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 31. 41 – 0.500 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																											
	10	25	50	100	180	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	5000	6000	7000	8000		
11	0.03	0.07	0.15	0.28	0.50	0.55	0.81	1.07	1.33	1.84	2.34	2.25	1.71	1.36	1.11	0.93	0.74	0.61	0.51	0.43	0.34	0.28	0.20	0.15	0.12	0.10		
12	0.03	0.08	0.16	0.31	0.54	0.60	0.89	1.17	1.45	2.00	2.55	2.57	1.95	1.55	1.27	1.06	0.84	0.69	0.58	0.49	0.39	0.32	0.23	0.17	0.14	0.11		
13	0.04	0.09	0.17	0.34	0.59	0.65	0.96	1.27	1.57	2.17	2.76	2.89	2.20	1.75	1.43	1.20	0.95	0.78	0.65	0.56	0.44	0.36	0.26	0.20	0.16	0.00		
14	0.04	0.10	0.19	0.36	0.63	0.70	1.04	1.37	1.69	2.34	2.97	3.23	2.46	1.95	1.60	1.34	1.06	0.87	0.73	0.62	0.49	0.40	0.29	0.22	0.17	0.00		
15	0.04	0.10	0.20	0.39	0.68	0.75	1.11	1.46	1.81	2.50	3.19	3.53	2.73	2.17	1.77	1.49	1.18	0.96	0.81	0.69	0.55	0.45	0.32	0.24	0.19	0.00		
16	0.05	0.11	0.21	0.41	0.73	0.80	1.18	1.56	1.93	2.67	3.40	3.76	3.01	2.39	1.95	1.64	1.30	1.06	0.89	0.76	0.60	0.49	0.35	0.27	0.00			
17	0.05	0.12	0.23	0.44	0.77	0.85	1.26	1.66	2.05	2.84	3.61	4.00	3.29	2.61	2.14	1.79	1.42	1.16	0.98	0.83	0.66	0.54	0.39	0.29	0.00			
18	0.05	0.12	0.24	0.46	0.82	0.90	1.33	1.76	2.18	3.00	3.82	4.23	3.59	2.85	2.33	1.95	1.55	1.27	1.06	0.91	0.72	0.59	0.42	0.32	0.00			
19	0.05	0.13	0.25	0.49	0.86	0.95	1.41	1.85	2.30	3.17	4.04	4.47	3.89	3.09	2.53	2.12	1.68	1.38	1.15	0.98	0.78	0.64	0.46	0.09	0.00			
20	0.06	0.14	0.27	0.52	0.91	1.00	1.48	1.95	2.42	3.34	4.25	4.70	4.20	3.33	2.73	2.29	1.81	1.49	1.24	1.06	0.84	0.69	0.49	0.00				
21	0.06	0.14	0.28	0.54	0.95	1.05	1.55	2.05	2.54	3.51	4.46	4.94	4.52	3.59	2.94	2.46	1.95	1.60	1.34	1.14	0.91	0.74	0.53	0.00				
22	0.06	0.15	0.29	0.57	1.00	1.10	1.63	2.15	2.66	3.67	4.67	5.17	4.85	3.85	3.15	2.64	2.09	1.71	1.44	1.23	0.97	0.80	0.57	0.00				
23	0.07	0.16	0.30	0.59	1.04	1.15	1.70	2.24	2.78	3.84	4.89	5.41	5.18	4.11	3.37	2.82	2.24	1.83	1.54	1.31	1.04	0.85	0.61	0.00				
24	0.07	0.16	0.32	0.62	1.09	1.20	1.78	2.34	2.90	4.01	5.10	5.64	5.52	4.38	3.59	3.01	2.39	1.95	1.64	1.40	1.11	0.91	0.65	0.00				
25	0.07	0.17	0.33	0.64	1.13	1.25	1.85	2.44	3.02	4.17	5.31	5.88	5.87	4.66	3.81	3.20	2.54	2.08	1.74	1.49	1.18	0.96	0.00					
26	0.07	0.18	0.34	0.67	1.18	1.30	1.92	2.54	3.14	4.34	5.52	6.11	6.23	4.94	4.05	3.39	2.69	2.20	1.85	1.58	1.25	1.02	0.00					
28	0.08	0.19	0.37	0.72	1.27	1.40	2.07	2.73	3.38	4.67	5.95	6.58	6.96	5.52	4.52	3.79	3.01	2.46	2.06	1.76	1.40	1.14	0.00					
30	0.08	0.20	0.40	0.77	1.36	1.50	2.22	2.93	3.63	5.01	6.37	7.05	7.72	6.13	5.01	4.20	3.33	2.73	2.29	1.95	1.55	1.27	0.00					
32	0.09	0.22	0.42	0.82	1.45	1.60	2.37	3.12	3.87	5.34	6.80	7.52	8.50	6.75	5.52	4.63	3.67	3.01	2.52	2.15	1.71	1.40	0.00					
35	0.10	0.24	0.46	0.90	1.59	1.76	2.59	3.41	4.23	5.84	7.44	8.23	9.80	7.72	6.32	5.29	4.20	3.44	2.88	2.46	1.95	0.00						
40	0.11	0.27	0.53	1.03	1.81	2.01	2.96	3.90	4.83	6.68	8.50	9.40	11.20	9.43	7.72	6.47	5.13	4.20	3.52	3.01	0.00							
45	0.13	0.31	0.60	1.16	2.04	2.26	3.33	4.39	5.44	7.51	9.56	10.58	12.60	11.25	9.21	7.72	6.13	5.01	4.20	3.59	0.00							
	Type I Manual or Drip Lubrication							Type II Bath or Disc Lubrication							Type III Oil Stream Lubrication													

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 32. SPROCKET INFORMATION FOR 41 – ½ IN. PITCH

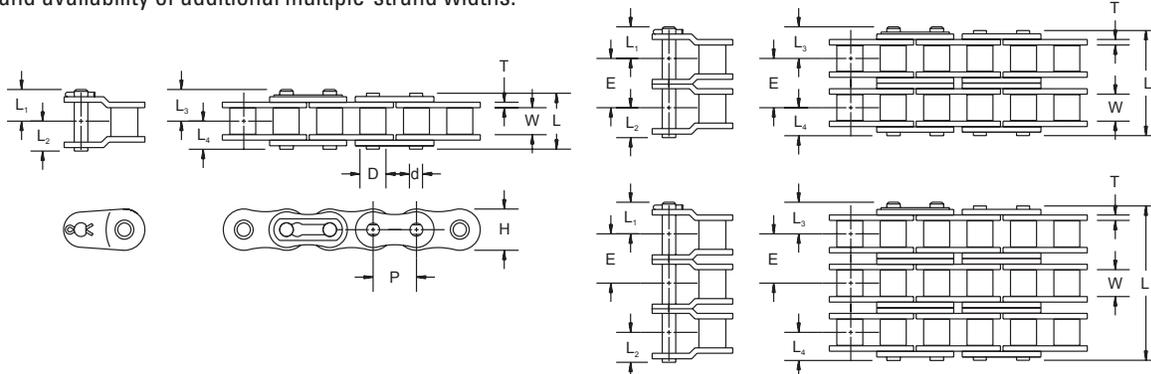
No. of Teeth	41 – ½ in. Pitch		No. of Teeth	41 – ½ in. Pitch		No. of Teeth	41 – ½ in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	1.462	1.674	49	7.804	8.088	89	14.168	14.459
10	1.618	1.839	50	7.963	8.247	90	14.327	14.618
11	1.775	2.003	51	8.122	8.407	91	14.486	14.777
12	1.932	2.166	52	8.281	8.566	92	14.645	14.937
13	2.089	2.329	53	8.440	8.725	93	14.804	15.096
14	2.247	2.491	54	8.599	8.885	94	14.963	15.255
15	2.405	2.652	55	8.758	9.044	95	15.122	15.414
16	2.563	2.814	56	8.917	9.203	96	15.282	15.573
17	2.721	2.975	57	9.076	9.363	97	15.441	15.733
18	2.879	3.135	58	9.236	9.522	98	15.600	15.892
19	3.038	3.296	59	9.395	9.681	99	15.759	16.051
20	3.196	3.457	60	9.554	9.841	100	15.918	16.210
21	3.355	3.617	61	9.713	10.000	101	16.077	16.370
22	3.513	3.778	62	9.872	10.159	102	16.236	16.529
23	3.672	3.938	63	10.031	10.318	103	16.395	16.688
24	3.831	4.098	64	10.190	10.478	104	16.555	16.847
25	3.989	4.258	65	10.349	10.637	105	16.714	17.006
26	4.148	4.418	66	10.508	10.796	106	16.873	17.166
27	4.307	4.578	67	10.667	10.956	107	17.032	17.325
28	4.466	4.738	68	10.826	11.115	108	17.191	17.484
29	4.625	4.897	69	10.986	11.274	109	17.350	17.643
30	4.783	5.057	70	11.145	11.434	110	17.509	17.803
31	4.942	5.217	71	11.304	11.593	111	17.669	17.962
32	5.101	5.377	72	11.463	11.752	112	17.828	18.122
33	5.260	5.536	73	11.622	11.911	113	17.987	18.280
34	5.419	5.696	74	11.781	12.071	114	18.146	18.440
35	5.578	5.855	75	11.940	12.229	115	18.305	18.597
36	5.737	6.015	76	12.099	12.389	116	18.464	18.757
37	5.896	6.175	77	12.258	12.548	117	18.623	18.917
38	6.055	6.334	78	12.417	12.708	118	18.783	19.077
39	6.214	6.494	79	12.577	12.867	119	18.942	19.235
40	6.373	6.653	80	12.736	13.026	120	19.101	19.394
41	6.532	6.813	81	12.895	13.185			
42	6.691	6.972	82	13.054	13.345			
43	6.850	7.131	83	13.213	13.504			
44	7.009	7.291	84	13.372	13.663			
45	7.168	7.451	85	13.531	13.822			
46	7.327	7.609	86	13.690	13.981			
47	7.486	7.769	87	13.849	14.141			
48	7.645	7.928	88	14.009	14.299			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 40 – 0.500 INCH PITCH

- Cut-to-length chain available.
- Available in riveted style.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 33. 40 – 0.500 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Weight lbs./ft.		
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>				
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
40-1	0.500	0.313	0.313	0.472	0.060	0.156	--	0.630	0.404	0.317	0.377	0.315			3,700	0.420
40-2	0.500	0.313	0.313	0.472	0.060	0.156	0.567	1.195	0.404	0.317	0.377	0.315			7,400	0.810
40-3	0.500	0.313	0.313	0.472	0.060	0.156	0.567	1.773	0.404	0.317	0.377	0.315			11,100	1.210
40-4	0.500	0.313	0.313	0.472	0.060	0.156	0.567	2.331	0.404	0.317	0.377	0.315			14,800	1.610

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 34. 40 – 0.500 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																										
	10	25	50	100	180	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	5000	6000	7000	8000	8500
11	0.06	0.14	0.27	0.52	0.91	1.00	1.48	1.95	2.42	3.34	4.25	4.70	5.60	6.49	5.57	4.66	3.70	3.03	2.54	2.17	1.72	1.41	1.01	0.77	0.61	0.50	0.45
12	0.06	0.15	0.29	0.56	0.99	1.09	1.61	2.13	2.64	3.64	4.64	5.13	6.11	7.09	6.34	5.31	4.22	3.45	2.89	2.47	1.96	1.60	1.15	0.87	0.69	0.57	0.00
13	0.07	0.16	0.31	0.61	1.07	1.19	1.75	2.31	2.86	3.95	5.02	5.56	6.62	7.68	7.15	5.99	4.76	3.89	3.26	2.79	2.21	1.81	1.29	0.98	0.78	0.00	
14	0.07	0.17	0.34	0.66	1.15	1.28	1.88	2.48	3.08	4.25	5.41	5.98	7.13	8.27	7.99	6.70	5.31	4.35	3.65	3.11	2.47	2.02	1.45	1.10	0.87	0.00	
15	0.08	0.19	0.36	0.70	1.24	1.37	2.02	2.66	3.30	4.55	5.80	6.41	7.64	8.86	8.86	7.43	5.89	4.82	4.04	3.45	2.74	2.24	1.60	1.22	0.97	0.00	
16	0.08	0.20	0.39	0.75	1.32	1.46	2.15	2.84	3.52	4.86	6.18	6.84	8.15	9.45	9.76	8.18	6.49	5.31	4.45	3.80	3.02	2.47	1.77	1.34	0.00		
17	0.09	0.21	0.41	0.80	1.40	1.55	2.2	3.02	3.74	5.16	6.57	7.27	8.66	10.04	10.69	8.96	7.11	5.82	4.88	4.17	3.31	2.71	1.94	1.47	0.00		
18	0.09	0.22	0.43	0.84	1.48	1.64	2.42	3.19	3.96	5.46	6.95	7.69	9.17	10.63	11.65	9.76	7.75	6.34	5.31	4.54	3.60	2.95	2.11	1.60	0.00		
19	0.10	0.24	0.46	0.89	1.57	1.73	2.56	3.37	4.18	5.77	7.34	8.12	9.68	11.22	12.64	10.59	8.40	6.88	5.76	4.92	3.91	3.20	2.29	0.09	0.00		
20	0.10	0.25	0.48	0.94	1.65	1.82	2.69	3.55	4.39	6.07	7.73	8.55	10.18	11.81	13.42	11.44	9.07	7.43	6.22	5.31	4.22	3.45	2.47	0.00			
21	0.11	0.26	0.51	0.98	1.73	1.91	2.83	3.72	4.61	6.37	8.11	8.98	10.69	12.40	14.10	12.30	9.76	7.99	6.70	5.72	4.54	3.71	2.66	0.00			
22	0.11	0.27	0.53	1.03	1.81	2.01	2.96	3.90	4.83	6.68	8.50	9.40	11.20	12.99	14.77	13.19	10.47	8.57	7.18	6.13	4.87	3.98	2.85	0.00			
23	0.12	0.28	0.55	1.08	1.90	2.10	3.10	4.08	5.05	6.98	8.89	9.83	11.71	13.58	15.44	14.10	11.19	9.16	7.68	6.55	5.20	4.26	3.05	0.00			
24	0.12	0.30	0.58	1.12	1.98	2.19	3.23	4.26	5.27	7.28	9.27	10.26	12.22	14.17	16.11	15.03	11.93	9.76	8.18	6.99	5.54	4.54	0.87	0.00			
25	0.13	0.31	0.60	1.17	2.06	2.28	3.36	4.43	5.49	7.59	9.66	10.69	12.73	14.76	16.78	15.98	12.68	10.38	8.70	7.43	5.89	4.82	0.00				
26	0.13	0.32	0.63	1.22	2.14	2.37	3.50	4.61	5.71	7.89	10.04	11.11	13.24	15.35	17.45	16.95	13.45	11.01	9.23	7.88	6.25	5.12	0.00				
28	0.14	0.35	0.67	1.31	2.31	2.55	3.77	4.97	6.15	8.50	10.82	11.97	14.26	16.53	18.79	18.94	15.03	12.30	10.31	8.80	6.99	5.72	0.00				
30	0.15	0.37	0.72	1.41	2.47	2.74	4.04	5.32	6.59	9.11	11.59	12.82	15.28	17.71	20.14	21.01	16.67	13.65	11.44	9.76	7.75	6.34	0.00				
32	0.16	0.40	0.77	1.50	2.64	2.92	4.31	5.68	7.03	9.71	12.36	13.68	16.30	18.89	21.48	23.14	18.37	15.03	12.60	10.76	8.54	1.41					
35	0.18	0.43	0.84	1.64	2.88	3.19	4.71	6.21	7.69	10.62	13.52	14.96	17.82	20.67	23.49	26.30	21.01	17.20	14.41	12.30	9.76	0.00					
40	0.21	0.50	0.96	1.87	3.30	3.65	5.38	7.09	8.79	12.14	15.45	17.10	20.37	23.62	26.85	30.06	25.67	21.01	17.61	15.03	0.00						
45	0.23	0.56	1.08	2.11	3.71	4.10	6.06	7.98	9.89	13.66	17.39	19.24	22.92	26.57	30.20	33.82	30.63	25.07	21.01	5.53	0.00						
	Type I					Type II					Type III																
	Manual or Drip Lubrication					Bath or Disc Lubrication					Oil Stream Lubrication																

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 35. SPROCKET INFORMATION FOR 40 – 1/2 IN. PITCH

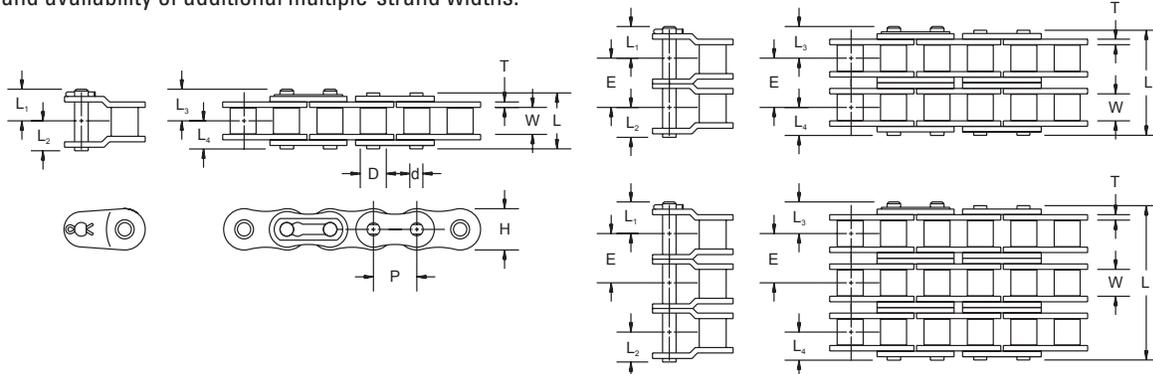
No. of Teeth	40 – 1/2 in. Pitch		No. of Teeth	40 – 1/2 in. Pitch		No. of Teeth	40 – 1/2 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	1.462	1.674	49	7.804	8.088	89	14.168	14.459
10	1.618	1.839	50	7.963	8.247	90	14.327	14.618
11	1.775	2.003	51	8.122	8.407	91	14.486	14.777
12	1.932	2.166	52	8.281	8.566	92	14.645	14.937
13	2.089	2.329	53	8.440	8.725	93	14.804	15.096
14	2.247	2.491	54	8.599	8.885	94	14.963	15.255
15	2.405	2.652	55	8.758	9.044	95	15.122	15.414
16	2.563	2.814	56	8.917	9.203	96	15.282	15.573
17	2.721	2.975	57	9.076	9.363	97	15.441	15.733
18	2.879	3.135	58	9.236	9.522	98	15.600	15.892
19	3.038	3.296	59	9.395	9.681	99	15.759	16.051
20	3.196	3.457	60	9.554	9.841	100	15.918	16.210
21	3.355	3.617	61	9.713	10.000	101	16.077	16.370
22	3.513	3.778	62	9.872	10.159	102	16.236	16.529
23	3.672	3.938	63	10.031	10.318	103	16.395	16.688
24	3.831	4.098	64	10.190	10.478	104	16.555	16.847
25	3.989	4.258	65	10.349	10.637	105	16.714	17.006
26	4.148	4.418	66	10.508	10.796	106	16.873	17.166
27	4.307	4.578	67	10.667	10.956	107	17.032	17.325
28	4.466	4.738	68	10.826	11.115	108	17.191	17.484
29	4.625	4.897	69	10.986	11.274	109	17.350	17.643
30	4.783	5.057	70	11.145	11.434	110	17.509	17.803
31	4.942	5.217	71	11.304	11.593	111	17.669	17.962
32	5.101	5.377	72	11.463	11.752	112	17.828	18.122
33	5.260	5.536	73	11.622	11.911	113	17.987	18.280
34	5.419	5.696	74	11.781	12.071	114	18.146	18.440
35	5.578	5.855	75	11.940	12.229	115	18.305	18.597
36	5.737	6.015	76	12.099	12.389	116	18.464	18.757
37	5.896	6.175	77	12.258	12.548	117	18.623	18.917
38	6.055	6.334	78	12.417	12.708	118	18.783	19.077
39	6.214	6.494	79	12.577	12.867	119	18.942	19.235
40	6.373	6.653	80	12.736	13.026	120	19.101	19.394
41	6.532	6.813	81	12.895	13.185			
42	6.691	6.972	82	13.054	13.345			
43	6.850	7.131	83	13.213	13.504			
44	7.009	7.291	84	13.372	13.663			
45	7.168	7.451	85	13.531	13.822			
46	7.327	7.609	86	13.690	13.981			
47	7.486	7.769	87	13.849	14.141			
48	7.645	7.928	88	14.009	14.299			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 50 – 0.625 INCH PITCH

- Cut-to-length chain available.
- Available in riveted style.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 36. 50 – 0.625 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Weight lbs./ft.
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
50-1	0.625	0.376	0.400	0.590	0.080	0.200	–	0.795	0.489	0.399	0.489	0.398	6,100	0.713
50-2	0.625	0.376	0.400	0.590	0.080	0.200	0.713	1.511	0.489	0.399	0.489	0.398	12,200	1.406
50-3	0.625	0.376	0.400	0.590	0.080	0.200	0.713	2.230	0.489	0.399	0.489	0.398	18,300	2.099
50-4	0.625	0.376	0.400	0.590	0.080	0.200	0.713	2.943	0.489	0.399	0.489	0.398	24,400	2.790
50-5	0.625	0.376	0.400	0.590	0.080	0.200	0.713	3.656	0.489	0.399	0.489	0.398	30,500	3.830

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 37. 50 – 0.625 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																								
	10	25	50	100	140	200	300	500	700	900	1200	1500	1800	2100	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500
11	0.11	0.27	0.52	1.00	1.39	1.95	2.88	4.70	6.50	8.27	10.24	7.33	5.58	4.42	3.41	2.59	2.06	1.68	1.41	1.20	1.04	0.92	0.81	0.73	0.00
12	0.12	0.29	0.56	1.09	1.51	2.13	3.14	5.13	7.09	9.02	11.67	8.35	6.35	5.04	3.88	2.95	2.34	1.92	1.61	1.37	1.19	1.04	0.93	0.00	
13	0.13	0.31	0.61	1.19	1.64	2.31	3.40	5.56	7.68	9.77	12.88	9.42	7.16	5.69	4.38	3.33	2.64	2.16	1.81	1.55	1.34	1.18	0.00		
14	0.14	0.34	0.66	1.28	1.76	2.48	3.67	5.99	8.27	10.53	13.87	10.52	8.01	6.35	4.89	3.72	2.95	2.42	2.03	1.73	1.50	1.28	0.00		
15	0.15	0.36	0.70	1.37	1.89	2.66	3.93	6.41	8.86	11.28	14.86	11.67	8.88	7.05	5.42	4.13	3.27	2.68	2.25	1.92	1.66	0.00	1.60		
16	0.16	0.39	0.75	1.46	2.02	2.84	4.19	6.84	9.45	12.03	15.85	12.86	9.78	7.76	5.98	4.55	3.61	2.95	2.47	2.11	0.00				
17	0.17	0.41	0.80	1.55	2.14	3.02	4.45	7.27	10.04	12.78	16.85	14.08	10.71	8.50	6.55	4.98	3.95	3.23	2.71	2.31	0.00				
18	0.18	0.43	0.84	1.64	2.27	3.19	4.71	7.70	10.63	13.53	17.84	15.34	11.67	9.26	7.13	5.42	4.30	3.52	2.95	0.05					
19	0.19	0.46	0.89	1.73	2.39	3.37	4.98	8.12	11.22	14.28	18.83	16.64	12.66	10.05	7.73	5.88	4.67	3.82	3.20	0.00					
20	0.20	0.48	0.94	1.82	2.52	3.55	5.24	8.55	11.81	15.04	19.82	17.97	13.67	10.85	8.35	6.35	5.04	4.13	3.46	0.00					
21	0.21	0.51	0.98	1.92	2.65	3.73	5.50	8.98	12.40	15.79	20.81	19.34	14.71	11.67	8.99	6.84	5.42	4.44	0.00						
22	0.22	0.53	1.03	2.01	2.77	3.90	5.76	9.41	12.99	16.54	21.80	20.73	15.77	12.52	9.64	7.33	5.82	4.76	0.00						
23	0.23	0.55	1.08	2.10	2.90	4.08	6.02	9.83	13.58	17.29	22.79	22.16	16.86	13.38	10.30	7.84	6.22	5.09	0.00						
24	0.24	0.58	1.13	2.19	3.02	4.26	6.28	10.26	14.18	18.04	23.78	23.62	17.97	14.26	10.98	8.35	6.63	1.36	0.00						
25	0.25	0.60	1.17	2.28	3.15	4.44	6.55	10.69	14.77	18.79	24.77	25.11	19.11	15.16	11.67	8.88	7.05								
26	0.26	0.63	1.22	2.37	3.28	4.61	6.81	11.12	15.36	19.55	25.76	26.64	20.26	16.08	12.38	9.42	7.47	0.00							
28	0.28	0.67	1.31	2.55	3.53	4.97	7.33	11.97	16.54	21.05	27.75	29.77	22.65	17.97	13.84	10.52	4.74	0.00							
30	0.30	0.72	1.41	2.74	3.78	5.32	7.86	12.83	17.72	22.55	29.73	33.01	25.11	19.93	15.34	11.67	0.00								
32	0.32	0.77	1.50	2.92	4.03	5.68	8.38	13.68	18.90	24.06	31.71	36.37	27.67	21.96	16.90	12.86	0.00								
35	0.35	0.84	1.64	3.19	4.41	6.21	9.16	14.97	20.67	26.31	34.68	41.60	31.65	25.11	19.34	0.94	0.00								
40	0.40	0.96	1.88	3.65	5.04	7.10	10.47	17.10	23.63	30.07	39.64	49.11	38.67	30.68	23.62	0.00									
45	0.45	1.08	2.11	4.10	5.67	7.98	11.78	19.24	26.58	33.83	44.59	55.24	46.14	36.61	8.64										
	Type I Manual or Drip Lubrication				Type II Bath or Disc Lubrication				Type III Oil Stream Lubrication																

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 38. SPROCKET INFORMATION FOR 50 – 5/8 IN. PITCH

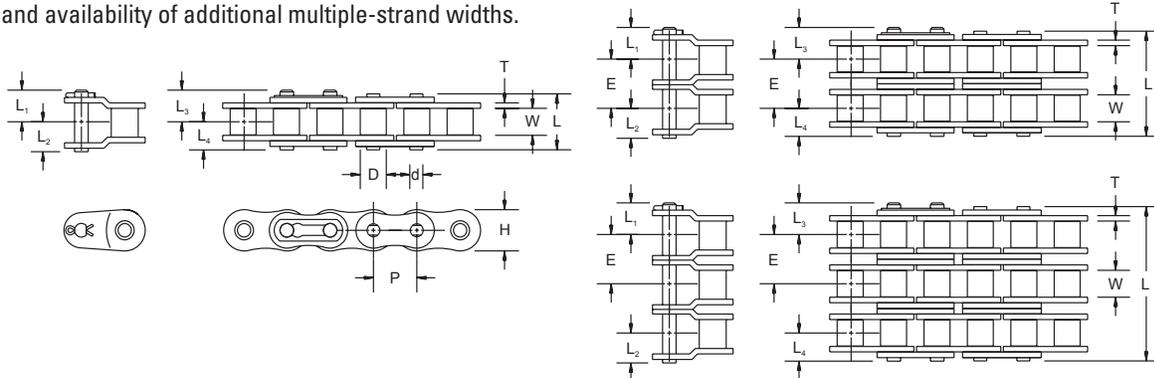
No. of Teeth	50 – 5/8 in. Pitch		No. of Teeth	50 – 5/8 in. Pitch		No. of Teeth	50 – 5/8 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	1.827	2.092	49	9.755	10.111	89	17.710	18.074
10	2.023	2.299	50	9.954	10.309	90	17.909	18.272
11	2.219	2.504	51	10.153	10.508	91	18.107	18.471
12	2.415	2.708	52	10.351	10.707	92	18.306	18.671
13	2.612	2.911	53	10.550	10.907	93	18.505	18.869
14	2.809	3.113	54	10.749	11.106	94	18.704	19.069
15	3.006	3.315	55	10.948	11.305	95	18.903	19.267
16	3.204	3.517	56	11.147	11.504	96	19.102	19.466
17	3.401	3.719	57	11.346	11.703	97	19.301	19.666
18	3.599	3.920	58	11.544	11.902	98	19.500	19.864
19	3.797	4.120	59	11.743	12.102	99	19.699	20.064
20	3.995	4.321	60	11.942	12.301	100	19.898	20.262
21	4.193	4.522	61	12.141	12.500	101	20.097	20.462
22	4.392	4.722	62	12.340	12.699	102	20.295	20.661
23	4.590	4.922	63	12.539	12.898	103	20.494	20.860
24	4.788	5.122	64	12.738	13.097	104	20.693	21.059
25	4.987	5.322	65	12.936	13.296	105	20.892	21.258
26	5.185	5.522	66	13.135	13.495	106	21.091	21.457
27	5.384	5.722	67	13.334	13.694	107	21.290	21.656
28	5.582	5.922	68	13.533	13.893	108	21.489	21.854
29	5.781	6.122	69	13.732	14.092	109	21.688	22.054
30	5.979	6.321	70	13.931	14.292	110	21.887	22.253
31	6.178	6.521	71	14.130	14.491	111	22.086	22.452
32	6.376	6.721	72	14.328	14.690	112	22.285	22.651
33	6.575	6.920	73	14.527	14.889	113	22.484	22.850
34	6.774	7.120	74	14.726	15.088	114	22.682	23.049
35	6.972	7.319	75	14.925	15.287	115	22.881	23.246
36	7.171	7.519	76	15.124	15.486	116	23.080	23.447
37	7.370	7.718	77	15.323	15.685	117	23.279	23.647
38	7.568	7.918	78	15.522	15.884	118	23.478	23.846
39	7.767	8.117	79	15.721	16.083	119	23.677	24.045
40	7.966	8.316	80	15.920	16.282	120	23.876	24.243
41	8.165	8.516	81	16.118	16.481			
42	8.363	8.715	82	16.317	16.681			
43	8.562	8.914	83	16.516	16.879			
44	8.761	9.114	84	16.715	17.079			
45	8.960	9.313	85	16.914	17.277			
46	9.159	9.512	86	17.113	17.476			
47	9.357	9.711	87	17.312	17.676			
48	9.556	9.911	88	17.511	17.874			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 60 – 0.750 INCH PITCH

- Cut-to-length chain available.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 39. 60 – 0.750 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>				
				in.	in.			in.	in.	in.	in.	in.				
60-1	0.750	0.500	0.469	0.705	0.094	0.234	—	0.996	0.600	0.498	0.648	0.498	8,500	1.067	STD	MTO
60-2	0.750	0.500	0.469	0.705	0.094	0.234	0.898	1.896	0.600	0.498	0.648	0.498	17,000	2.068	STD	MTO
60-3	0.750	0.500	0.469	0.705	0.094	0.234	0.898	2.794	0.600	0.498	0.648	0.498	25,500	3.069	STD	MTO
60-4	0.750	0.500	0.469	0.705	0.094	0.234	0.898	3.690	0.600	0.498	0.648	0.498	34,000	4.070	MTO	MTO
60-5	0.750	0.500	0.469	0.705	0.094	0.234	0.898	4.588	0.600	0.498	0.648	0.498	42,500	5.071	MTO	MTO
60-6	0.750	0.500	0.469	0.705	0.094	0.234	0.898	5.486	0.600	0.498	0.648	0.498	51,000	6.072	MTO	MTO

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 40. 60 – 0.750 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																								
	10	25	50	100	120	200	300	400	500	600	800	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000	4500	5000	5500	6000
11	0.19	0.46	0.89	1.72	2.05	3.35	4.95	6.52	8.08	9.63	12.69	15.58	11.85	9.41	7.70	6.45	5.51	3.94	3.00	2.38	1.95	1.63	1.39	1.21	0.00
12	0.21	0.50	0.97	1.88	2.24	3.66	5.40	7.12	8.82	10.51	13.85	17.15	13.51	10.72	8.77	7.35	6.28	4.49	3.42	2.71	2.22	1.86	1.59	1.38	0.00
13	0.22	0.54	1.05	2.04	2.43	3.96	5.85	7.71	9.55	11.38	15.00	18.58	15.23	12.08	9.89	8.29	7.08	5.06	3.85	3.06	2.50	2.10	1.79	0.00	
14	0.24	0.58	1.13	2.19	2.61	4.27	6.30	8.30	10.29	12.26	16.15	20.01	17.02	13.51	11.05	9.26	7.91	5.66	4.31	3.42	2.80	2.34	0.41	0.00	
15	0.26	0.62	1.21	2.35	2.80	4.57	6.75	8.90	11.02	13.13	17.31	21.44	18.87	14.98	12.26	10.27	8.77	6.28	4.77	3.79	3.10	2.60	0.00		
16	0.27	0.66	1.29	2.51	2.99	4.88	7.20	9.49	11.76	14.01	18.46	22.87	20.79	16.50	13.51	11.32	9.66	6.91	5.26	4.17	3.42	1.78	0.00		
17	0.29	0.70	1.37	2.66	3.17	5.18	7.65	10.08	12.49	14.88	19.62	24.30	22.77	18.07	14.79	12.40	10.58	7.57	5.76	4.57	3.74	0.00			
18	0.31	0.75	1.45	2.82	3.36	5.49	8.10	10.68	13.23	15.76	20.77	25.73	24.81	19.69	16.11	13.51	11.53	8.25	6.28	4.98	4.08	0.00			
19	0.33	0.79	1.53	2.98	3.55	5.79	8.55	11.27	13.96	16.63	21.92	27.16	26.91	21.35	17.48	14.65	12.50	8.95	6.81	5.40	0.20	0.00			
20	0.34	0.83	1.61	3.13	3.73	6.10	9.00	11.86	14.70	17.51	23.08	28.59	29.06	23.06	18.87	15.82	13.51	9.66	7.35	5.83	0.00				
21	0.36	0.87	1.69	3.29	3.92	6.40	9.45	12.46	15.43	18.38	24.23	30.02	31.26	24.81	20.31	17.02	14.53	10.40	7.91	6.28	0.00				
22	0.38	0.91	1.77	3.45	4.11	6.71	9.90	13.05	16.17	19.26	25.39	31.45	33.52	26.60	21.77	18.25	15.58	11.15	8.48	0.00					
23	0.40	0.95	1.85	3.61	4.29	7.01	10.35	13.64	16.90	20.13	26.54	32.88	35.84	28.44	23.28	19.51	16.66	11.92	9.07	0.00					
24	0.41	0.99	1.93	3.76	4.48	7.32	10.80	14.24	17.64	21.01	27.69	34.31	38.20	30.31	24.81	20.79	17.75	12.70	9.66	0.00					
25	0.43	1.04	2.01	3.92	4.67	7.62	11.25	14.83	18.37	21.89	28.85	35.74	40.61	32.23	26.38	22.11	18.87	13.51	10.27	0.00					
26	0.45	1.08	2.09	4.08	4.85	7.93	11.70	15.42	19.11	22.76	30.00	37.17	43.07	34.18	27.98	23.44	20.02	14.32	10.90	0.00					
28	0.48	1.16	2.26	4.39	5.23	8.54	12.60	16.61	20.58	24.51	32.31	40.03	47.68	38.20	31.26	26.20	22.37	16.01	0.00						
30	0.52	1.24	2.42	4.70	5.60	9.15	13.50	17.79	22.05	26.26	34.62	42.89	51.09	42.36	34.67	29.06	24.81	17.75	0.00						
32	0.55	1.33	2.58	5.02	5.98	9.76	14.40	18.98	23.52	28.01	36.92	45.75	54.50	46.67	38.20	32.01	27.33	19.56	0.00						
35	0.60	1.45	2.82	5.49	6.54	10.67	15.75	20.76	25.72	30.64	40.39	50.03	59.60	53.38	43.69	36.62	31.26	1.35	0.00						
40	0.69	1.66	3.22	6.27	7.47	12.20	18.00	23.73	29.39	35.02	46.16	57.18	68.12	65.22	53.38	44.74	38.20	0.00							
45	0.77	1.86	3.63	7.05	8.40	13.72	20.25	26.69	33.07	39.39	51.92	64.33	76.63	77.83	63.70	53.38	12.45	0.00							
	Type I Manual or Drip Lubrication					Type II Bath or Disc Lubrication					Type III Oil Stream Lubrication														

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 41. SPROCKET INFORMATION FOR 60 – 3/4 IN. PITCH

No. of Teeth	60 – 3/4 in. Pitch		No. of Teeth	60 – 3/4 in. Pitch		No. of Teeth	60 – 3/4 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	2.193	2.511	49	11.706	12.132	89	21.252	21.688
10	2.427	2.758	50	11.944	12.371	90	21.490	21.927
11	2.662	3.004	51	12.183	12.610	91	21.729	22.165
12	2.898	3.249	52	12.422	12.849	92	21.968	22.404
13	3.134	3.493	53	12.660	13.088	93	22.206	22.643
14	3.371	3.736	54	12.899	13.327	94	22.445	22.882
15	3.607	3.979	55	13.137	13.566	95	22.684	23.121
16	3.844	4.221	56	13.376	13.805	96	22.922	23.359
17	4.082	4.462	57	13.615	14.044	97	23.161	23.598
18	4.319	4.704	58	13.853	14.283	98	23.400	23.837
19	4.557	4.945	59	14.092	14.522	99	23.638	24.076
20	4.794	5.185	60	14.330	14.761	100	23.877	24.315
21	5.032	5.426	61	14.569	15.000	101	24.116	24.554
22	5.270	5.666	62	14.808	15.238	102	24.355	24.793
23	5.508	5.907	63	15.046	15.477	103	24.593	25.032
24	5.746	6.147	64	15.285	15.716	104	24.832	25.271
25	5.984	6.387	65	15.524	15.955	105	25.071	25.510
26	6.222	6.627	66	15.762	16.194	106	25.309	25.749
27	6.460	6.867	67	16.001	16.433	107	25.548	25.987
28	6.699	7.107	68	16.240	16.672	108	25.787	26.226
29	6.937	7.346	69	16.478	16.911	109	26.025	26.465
30	7.175	7.586	70	16.717	17.150	110	26.264	26.704
31	7.413	7.825	71	16.956	17.388	111	26.503	26.943
32	7.652	8.065	72	17.194	17.628	112	26.742	27.182
33	7.890	8.304	73	17.433	17.866	113	26.980	27.421
34	8.128	8.544	74	17.672	18.105	114	27.219	27.660
35	8.367	8.783	75	17.910	18.344	115	27.458	27.896
36	8.605	9.022	76	18.149	18.583	116	27.696	28.136
37	8.844	9.262	77	18.387	18.822	117	27.935	28.376
38	9.082	9.501	78	18.626	19.061	118	28.174	28.615
39	9.321	9.740	79	18.865	19.299	119	28.413	28.853
40	9.559	9.980	80	19.104	19.539	120	28.651	29.091
41	9.798	10.219	81	19.342	19.777			
42	10.036	10.458	82	19.581	20.016			
43	10.275	10.697	83	19.820	20.255			
44	10.513	10.936	84	20.058	20.494			
45	10.752	11.176	85	20.297	20.733			
46	10.990	11.415	86	20.536	20.971			
47	11.229	11.654	87	20.774	21.210			
48	11.467	11.893	88	21.013	21.449			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 80 – 1.000 INCH PITCH

- Cut-to-length chain available.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.

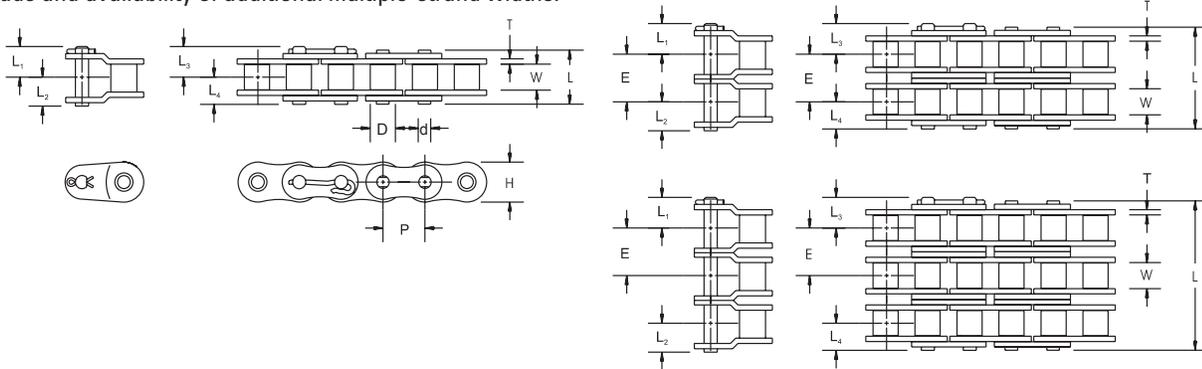


TABLE 42. 80 – 1.000 IN. PITCH CHAIN DIMENSIONS

Chain No.	Pitch P	Min. Roller Link Inside Width		Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Tensile Strength (Through-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered
		W	W		H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>					
		in.	in.		in.	in.			in.	in.	in.	in.	in.					
80-1	1.000	0.627	0.625	0.943	0.125	0.313	—	1.283	0.768	0.638	0.857	0.642	14,500	21,500	1.87	STD	STD	
80-2	1.000	0.627	0.625	0.943	0.125	0.313	1.155	2.439	0.768	0.638	0.857	0.642	29,000	43,000	3.74	STD	STD	
80-3	1.000	0.627	0.625	0.943	0.125	0.313	1.155	3.594	0.768	0.638	0.857	0.642	43,500	64,500	5.60	STD	STD	
80-4	1.000	0.627	0.625	0.943	0.125	0.313	1.155	4.749	0.768	0.638	0.857	0.642	58,000	86,000	7.44	MTO	STD	
80-5	1.000	0.627	0.625	0.943	0.125	0.313	1.155	5.904	0.768	0.638	0.857	0.642	72,500	107,500	9.03	MTO	STD	
80-6	1.000	0.627	0.625	0.943	0.125	0.313	1.155	7.059	0.768	0.638	0.857	0.642	87,000	129,000	10.82	MTO	STD	
80-8	1.000	0.627	0.625	0.943	0.125	0.313	1.155	9.369	0.768	0.638	0.857	0.642	116,000	172,000	14.43	MTO	STD	

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

TABLE 43. 80 – 1.000 IN. PITCH HORSEPOWER TABLE

No. of Teeth	Revolutions Per Minute – Small Sprocket																																			
	10	25	50	75	88	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	4000	4500						
11	0.44	1.06	2.07	3.05	3.56	4.03	5.94	7.83	11.56	15.23	18.87	22.48	26.07	27.41	22.97	19.61	17.00	14.92	11.84	9.69	8.12	6.93	6.01	5.27	4.42	3.77	3.27	2.87	2.45	0.00						
12	0.48	1.16	2.26	3.33	3.88	4.39	6.48	8.54	12.61	16.62	20.59	24.53	28.44	31.23	26.17	22.35	19.37	17.00	13.49	11.04	9.25	7.90	6.85	6.01	5.04	4.30	3.73	3.27	2.79	0.00						
13	0.52	1.26	2.45	3.61	4.21	4.76	7.02	9.26	13.66	18.00	22.31	26.57	30.81	35.02	29.51	25.20	21.84	19.17	15.21	12.45	10.43	8.91	7.72	6.78	5.68	4.85	4.20	3.69	0.00							
14	0.56	1.35	2.63	3.89	4.53	5.12	7.56	9.97	14.71	19.39	24.02	28.62	33.18	37.72	32.98	28.16	24.41	21.42	17.00	13.91	11.66	9.96	8.63	7.57	6.35	5.42	4.70	4.12	0.00							
15	0.60	1.45	2.82	4.16	4.86	5.49	8.10	10.68	15.76	20.77	25.74	30.66	35.55	40.41	36.58	31.23	27.07	23.76	18.85	15.43	12.93	11.04	9.57	8.40	7.04	6.01	5.21	4.57	0.00							
16	0.64	1.55	3.01	4.44	5.18	5.86	8.64	11.39	16.81	22.16	27.45	32.70	37.92	43.11	40.30	34.41	29.82	26.17	20.77	17.00	14.25	12.16	10.54	9.25	7.76	6.62	5.74	0.00								
17	0.68	1.64	3.20	4.72	5.50	6.22	9.18	12.10	17.86	23.54	29.17	34.75	40.29	45.80	44.13	37.68	32.66	28.66	22.75	18.62	15.60	13.32	11.55	10.13	8.49	7.25	0.00									
18	0.72	1.74	3.39	5.00	5.83	6.59	9.72	12.81	18.91	24.93	30.88	36.79	42.66	48.49	48.08	41.05	35.59	31.23	24.78	20.29	17.00	14.51	12.58	11.04	9.25	7.90	0.00									
19	0.76	1.84	3.57	5.28	6.15	6.95	10.26	13.53	19.96	26.31	32.60	38.84	45.03	51.19	52.15	44.52	38.59	33.87	26.88	22.00	18.44	15.74	13.64	11.97	10.04	0.36	0.00									
20	0.80	1.93	3.76	5.55	6.47	7.32	10.80	14.24	21.01	27.70	34.32	40.88	47.40	53.88	56.32	48.08	41.68	36.58	29.03	23.76	19.91	17.00	14.74	12.93	10.84	0.00										
21	0.84	2.03	3.95	5.83	6.80	7.69	11.34	14.95	22.07	29.08	36.03	42.92	49.77	56.58	60.59	51.73	44.84	39.36	31.23	25.56	21.42	18.29	15.85	13.91	11.66	0.00										
22	0.88	2.13	4.14	6.11	7.12	8.05	11.88	15.66	23.12	30.47	37.75	44.97	52.14	59.27	64.97	55.47	48.08	42.20	33.49	27.41	22.97	19.61	17.00	14.92	0.00											
23	0.92	2.22	4.33	6.39	7.45	8.42	12.42	16.37	24.17	31.85	39.46	47.01	54.51	61.97	69.38	59.30	51.40	45.11	35.80	29.30	24.55	20.97	18.17	15.95	0.00											
24	0.96	2.32	4.52	6.66	7.77	8.78	12.96	17.09	25.22	33.24	41.18	49.06	56.88	64.66	72.40	63.21	54.79	48.08	38.16	31.23	26.17	22.35	19.37	17.00	0.00											
25	1.00	2.42	4.70	6.94	8.09	9.15	13.50	17.80	26.27	34.62	42.89	51.10	59.25	67.35	75.42	67.20	58.25	51.12	40.57	33.20	27.83	23.76	20.59	18.16	0.00											
26	1.04	2.51	4.89	7.22	8.42	9.52	14.04	18.51	27.32	36.01	44.61	53.14	61.62	70.05	78.43	71.27	61.78	54.22	43.02	35.22	29.51	25.20	21.84	0.00												
28	1.12	2.71	5.27	7.77	9.06	10.25	15.12	19.93	29.42	38.78	48.04	57.23	66.36	75.44	84.47	79.65	69.04	60.59	48.08	39.36	32.98	28.16	9.22	0.00												
30	1.20	2.90	5.64	8.33	9.71	10.98	16.20	21.36	31.52	41.55	51.47	61.32	71.10	80.82	90.50	88.33	76.57	67.20	53.33	43.65	36.58	31.23	0.00													
32	1.28	3.09	6.02	8.89	10.36	11.71	17.28	22.78	33.62	44.32	54.91	65.41	75.84	86.21	96.53	97.31	84.35	74.03	58.75	48.08	40.30	5.65	0.00													
35	1.40	3.38	6.58	9.72	11.33	12.81	18.90	24.92	36.78	48.47	60.05	71.54	82.95	94.29	105.58	111.31	96.49	84.68	67.20	55.00	28.15	0.00														
40	1.61	3.87	7.53	11.11	12.95	14.64	21.61	28.48	42.03	55.40	68.63	81.76	94.80	107.77	120.67	133.51	117.88	103.46	82.10	40.16	0.00															
45	1.81	4.35	8.47	12.49	14.57	16.47	24.31	32.04	47.28	62.32	77.21	91.98	106.65	121.24	135.75	150.20	140.66	123.45	72.28	0.00																
	Type I Manual or Drip Lubrication			Type II Bath or Disc Lubrication												Type III Oil Stream Lubrication																				

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 44. SPROCKET INFORMATION FOR 80 – 1.000 IN. PITCH

No. of Teeth	80 – 1 in. Pitch		No. of Teeth	80 – 1 in. Pitch		No. of Teeth	80 – 1 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	2.924	3.347	49	15.608	16.176	89	28.335	28.918
10	3.236	3.678	50	15.928	16.495	90	28.654	29.236
11	3.549	4.006	51	16.244	16.813	91	28.972	29.554
12	3.864	4.332	52	16.562	17.132	92	29.290	29.873
13	4.179	4.657	53	16.880	17.451	93	29.608	30.191
14	4.494	4.982	54	17.198	17.769	94	29.927	30.510
15	4.810	5.305	55	17.517	18.088	95	30.245	30.828
16	5.126	5.627	56	17.835	18.406	96	30.563	31.146
17	5.442	5.950	57	18.153	18.725	97	30.881	31.465
18	5.759	6.271	58	18.471	19.044	98	31.200	31.783
19	6.076	6.593	59	18.739	19.363	99	31.518	32.102
20	6.392	6.914	60	19.107	19.681	100	31.836	32.420
21	6.710	7.235	61	19.426	20.000	101	32.154	32.739
22	7.027	7.555	62	19.744	20.318	102	32.473	33.058
23	7.344	7.875	63	20.062	20.637	103	32.791	33.376
24	7.661	8.196	64	20.380	20.955	104	33.109	33.695
25	7.979	8.516	65	20.698	21.274	105	33.428	34.013
26	8.296	8.836	66	21.016	21.593	106	33.746	34.332
27	8.614	9.156	67	21.335	21.911	107	34.064	34.650
28	8.931	9.475	68	21.653	22.230	108	34.382	34.968
29	9.249	9.795	69	21.971	22.548	109	34.701	35.287
30	9.567	10.114	70	22.289	22.867	110	35.019	35.605
31	9.885	10.434	71	22.607	23.185	111	35.337	35.924
32	10.202	10.753	72	22.926	23.504	112	35.655	36.243
33	10.520	11.072	73	23.244	23.822	113	35.974	36.561
34	10.838	11.392	74	23.562	24.141	114	36.292	36.879
35	11.156	11.711	75	23.880	24.459	115	36.610	37.194
36	11.474	12.030	76	24.198	24.778	116	36.929	37.515
37	11.792	12.349	77	24.517	25.096	117	37.247	37.835
38	12.110	12.668	78	24.835	25.415	118	37.565	38.135
39	12.428	12.987	79	25.153	25.733	119	37.883	38.471
40	12.745	13.306	80	25.471	26.052	120	38.202	38.789
41	13.063	13.625	81	25.790	26.370			
42	13.381	13.944	82	26.108	26.689			
43	13.700	14.263	83	26.426	27.007			
44	14.018	14.582	84	26.744	27.326			
45	14.336	14.901	85	27.063	27.644			
46	14.654	15.219	86	27.381	27.962			
47	14.972	15.538	87	27.699	28.281			
48	15.290	15.857	88	28.017	28.599			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 100 – 1.250 IN. PITCH

- Cut-to-length chain available.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.

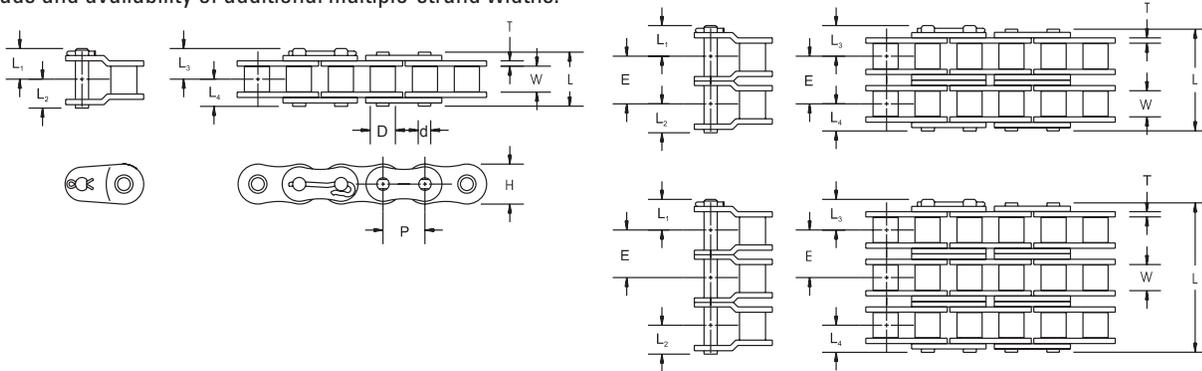


TABLE 45. 100 – 1.250 IN. PITCH CHAIN DIMENSIONS

Chain No.	Pitch P	Min. Roller Link Inside Width		Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Tensile Strength (Through-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered	
		W			H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>						
	in.	in.		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs./ft.		
100-1	1.250	0.755	0.750	1.180	0.156	0.375	–	1.595	0.908	0.785	0.912	0.785	24,000	33,000	2.80	STD	STD		
100-2	1.250	0.755	0.750	1.180	0.156	0.375	1.411	2.981	0.908	0.785	0.912	0.785	48,000	66,000	5.60	STD	STD		
100-3	1.250	0.755	0.750	1.180	0.156	0.375	1.411	4.392	0.908	0.785	0.912	0.785	72,000	99,000	8.47	MTO	STD		
100-4	1.250	0.755	0.750	1.180	0.156	0.375	1.411	5.803	0.908	0.785	0.912	0.785	96,000	132,000	11.11	MTO	STD		
100-5	1.250	0.755	0.750	1.180	0.156	0.375	1.411	7.214	0.908	0.785	0.912	0.785	120,000	165,000	13.97	MTO	STD		
100-6	1.250	0.755	0.750	1.180	0.156	0.375	1.411	8.625	0.908	0.785	0.912	0.785	144,000	198,000	16.72	MTO	STD		
100-8	1.250	0.755	0.750	1.180	0.156	0.375	1.411	11.447	0.908	0.785	0.912	0.785	192,000	264,000	22.29	MTO	STD		

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

TABLE 46. 100 – 1.250 IN. PITCH HORSEPOWER TABLE

No. of Teeth	Revolutions Per Minute – Small Sprocket																																			
	5	10	25	50	71	75	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	4500						
11	0.43	0.85	2.04	3.96	5.55	5.85	7.71	11.38	15.00	22.14	29.18	36.15	43.06	40.03	32.77	27.46	23.45	20.32	17.84	14.15	11.58	9.71	8.29	7.19	6.31	5.28	4.51	3.91	0.00	0.00						
12	0.47	0.92	2.22	4.32	6.05	6.38	8.41	12.41	16.36	24.15	31.83	39.44	46.98	45.61	37.33	31.29	26.71	23.16	20.32	16.13	13.20	11.06	9.45	8.19	7.19	6.02	5.14	4.46	0.00	0.00						
13	0.51	1.00	2.41	4.68	6.56	6.91	9.11	13.45	17.73	26.16	34.48	42.72	50.89	51.43	42.10	35.28	30.12	26.11	22.92	18.18	14.88	12.47	10.65	9.23	8.10	6.79	5.80	0.00	0.00							
14	0.55	1.08	2.59	5.04	7.06	7.45	9.81	14.48	19.09	28.18	37.14	46.01	54.81	57.48	47.05	39.43	33.66	29.18	25.61	20.32	16.63	13.94	11.90	10.32	9.05	7.59	1.13	0.00	0.00							
15	0.59	1.15	2.78	5.41	7.57	7.98	10.51	15.52	20.45	30.19	39.79	49.30	58.72	63.75	52.18	43.73	37.33	32.36	28.40	22.54	18.45	15.46	13.20	11.44	10.04	8.42	0.00	0.00	0.00							
16	0.63	1.23	2.96	5.77	8.07	8.51	11.22	16.55	21.82	32.20	42.44	52.58	62.64	70.23	57.48	48.17	41.13	35.65	31.29	24.83	20.32	17.03	14.54	12.60	11.06	4.93	0.00	0.00	0.00							
17	0.67	1.31	3.15	6.13	8.58	9.04	11.92	17.59	23.18	34.21	45.10	55.87	66.55	76.91	62.95	52.76	45.05	39.04	34.27	27.19	22.26	18.65	15.93	13.80	12.12	0.00	0.00	0.00	0.00							
18	0.71	1.38	3.33	6.49	9.08	9.57	12.62	18.62	24.55	36.23	47.75	59.15	70.47	81.71	68.59	57.48	49.08	42.54	37.33	29.63	24.25	20.32	17.35	15.04	13.20	0.00	0.00	0.00	0.00							
19	0.75	1.46	3.52	6.85	9.59	10.10	13.32	19.66	25.91	38.24	50.40	62.44	74.38	86.25	74.38	62.34	53.22	46.13	40.49	32.13	26.30	22.04	18.82	16.31	0.56	0.00	0.00	0.00	0.00							
20	0.79	1.54	3.70	7.21	10.09	10.64	14.02	20.69	27.27	40.25	53.05	65.73	78.30	90.79	80.33	67.32	57.48	49.82	43.73	34.70	28.40	23.80	20.32	17.62	0.00	0.00	0.00	0.00	0.00							
21	0.83	1.61	3.89	7.57	10.60	11.17	14.72	21.73	28.64	42.26	55.71	69.01	82.21	95.33	86.43	72.43	61.85	53.61	47.05	37.33	30.56	25.61	21.87	18.17	0.00	0.00	0.00	0.00	0.00							
22	0.87	1.69	4.08	7.93	11.10	11.70	15.42	22.76	30.00	44.28	58.36	72.30	86.13	99.87	92.68	77.67	66.31	57.48	50.45	40.03	32.77	27.46	23.45	0.00	0.00	0.00	0.00	0.00	0.00							
23	0.91	1.77	4.26	8.29	11.60	12.23	16.12	23.79	31.36	46.29	61.01	75.59	90.04	104.41	99.07	83.02	70.89	61.44	53.93	42.79	35.03	29.35	25.06	0.00	0.00	0.00	0.00	0.00	0.00							
24	0.95	1.84	4.45	8.65	12.11	12.76	16.82	24.83	32.73	48.30	63.66	78.87	93.96	108.95	105.60	88.50	75.56	65.49	57.48	45.61	37.33	31.29	26.43	0.00	0.00	0.00	0.00	0.00	0.00							
25	0.99	1.92	4.63	9.01	12.61	13.30	17.52	25.86	34.09	50.31	66.32	82.16	97.87	113.48	112.27	94.09	80.33	69.63	61.11	48.49	39.69	33.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
26	1.03	2.00	4.82	9.37	13.12	13.83	18.23	26.90	35.45	52.33	68.97	85.45	101.79	118.02	119.07	99.79	85.20	73.85	64.81	51.43	42.10	35.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
28	1.11	2.15	5.19	10.09	14.13	14.89	19.63	28.97	38.18	56.35	74.27	92.02	109.62	127.10	133.07	111.52	95.22	82.53	72.43	57.48	47.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
30	1.19	2.31	5.56	10.81	15.14	15.95	21.03	31.04	40.91	60.38	79.58	98.59	117.45	136.18	147.58	123.68	105.60	91.53	80.33	63.75	49.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
32	1.26	2.46	5.93	11.53	16.15	17.02	22.43	33.11	43.64	64.40	84.88	105.16	125.28	145.26	162.58	136.25	116.33	100.84	88.50	70.23	8.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
35	1.38	2.69	6.48	12.61	17.66	18.61	24.53	36.21	47.73	70.44	92.84	115.02	137.02	158.88	180.61	155.85	133.07	115.34	101.23	69.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
40	1.58	3.07	7.41	14.41	20.18	21.27	28.04	41.38	54.54	80.50	106.11	131.45	156.60	181.58	206.41	190.42	162.58	140.92	122.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
45	1.78	3.46	8.34	16.22	22.71	23.93	31.54	46.55	61.36	90.56	119.37	147.89	176.17	204.27	232.21	227.21	194.00	168.15	145.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	Type I Manual or Drip Lubrication					Type II Bath or Disc Lubrication										Type III Oil Stream Lubrication																				

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 47. SPROCKET INFORMATION FOR 100 – 1.250 IN. PITCH

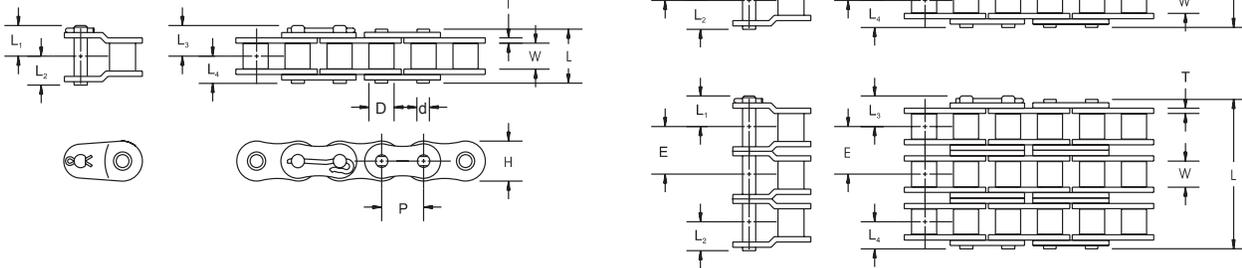
No. of Teeth	100 – 1 ¼ in. Pitch		No. of Teeth	100 – 1 ¼ in. Pitch		No. of Teeth	100 – 1 ¼ in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	3.655	4.184	49	19.510	20.219	89	35.419	36.148
10	4.045	4.597	50	19.908	20.618	90	35.817	36.545
11	4.437	5.007	51	20.305	21.017	91	36.215	36.943
12	4.830	5.415	52	20.703	21.415	92	36.613	37.341
13	5.223	5.821	53	21.100	21.813	93	37.011	37.739
14	5.617	6.227	54	21.498	22.212	94	37.408	38.138
15	6.012	6.631	55	21.896	22.610	95	37.806	38.535
16	6.407	7.034	56	22.293	23.008	96	38.204	38.933
17	6.803	7.437	57	22.691	23.407	97	38.602	39.331
18	7.198	7.839	58	23.089	23.805	98	39.000	39.729
19	7.594	8.241	59	23.486	24.203	99	39.397	40.128
20	7.991	8.642	60	23.884	24.601	100	39.795	40.525
21	8.387	9.043	61	24.282	25.000	101	40.193	40.924
22	8.783	9.444	62	24.680	25.397	102	40.591	41.322
23	9.180	9.844	63	25.077	25.796	103	40.989	41.720
24	9.577	10.245	64	25.475	26.194	104	41.387	42.118
25	9.973	10.645	65	25.873	26.593	105	41.784	42.517
26	10.370	11.045	66	26.271	26.991	106	42.182	42.915
27	10.767	11.444	67	26.668	27.389	107	42.580	43.312
28	11.164	11.844	68	27.066	27.787	108	42.978	43.710
29	11.561	12.244	69	27.464	28.185	109	43.376	44.108
30	11.958	12.643	70	27.862	28.584	110	43.774	44.506
31	12.356	13.043	71	28.259	28.981	111	44.171	44.905
32	12.753	13.442	72	28.657	29.380	112	44.569	45.304
33	13.150	13.841	73	29.055	29.778	113	44.967	45.701
34	13.547	14.240	74	29.453	30.176	114	45.365	46.099
35	13.945	14.639	75	29.850	30.574	115	45.763	46.493
36	14.342	15.038	76	30.248	30.973	116	46.161	46.893
37	14.740	15.437	77	30.646	31.370	117	46.558	47.293
38	15.137	15.840	78	31.044	31.769	118	46.956	47.691
39	15.534	16.234	79	31.441	32.166	119	47.354	48.089
40	15.932	16.633	80	31.839	32.565	120	47.752	48.486
41	16.329	17.032	81	32.237	32.963			
42	16.727	17.430	82	32.635	33.361			
43	17.124	17.829	83	33.033	33.759			
44	17.522	18.227	84	33.430	34.158			
45	17.919	18.626	85	33.828	34.555			
46	18.317	19.024	86	34.226	34.953			
47	18.715	19.423	87	34.624	35.351			
48	19.112	19.821	88	35.022	35.749			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 120 – 1.500 IN. PITCH

- Cut-to-length chain available.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 48. 120 – 1.500 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Tensile Strength (Through-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>					
				in.	in.			in.	in.	in.	in.	in.					
120-1	1.500	1.000	0.875	1.425	0.187	0.437	—	1.955	1.119	1.071	1.119	0.989	34,000	45,100	4.14	STD	STD
120-2	1.500	1.000	0.875	1.425	0.187	0.437	1.789	3.767	1.119	1.071	1.119	0.989	68,000	90,200	8.27	STD	STD
120-3	1.500	1.000	0.875	1.425	0.187	0.437	1.789	5.556	1.119	1.071	1.119	0.989	102,000	135,300	12.10	MTO	STD
120-4	1.500	1.000	0.875	1.425	0.187	0.437	1.789	7.345	1.119	1.071	1.119	0.989	136,000	180,400	16.17	MTO	STD
120-5	1.500	1.000	0.875	1.425	0.187	0.437	1.789	9.134	1.119	1.071	1.119	0.989	170,000	225,500	20.24	MTO	STD
120-6	1.500	1.000	0.875	1.425	0.187	0.437	1.789	10.923	1.119	1.071	1.119	0.989	204,000	270,600	24.20	MTO	STD
120-8	1.500	1.000	0.875	1.425	0.187	0.437	1.789	14.501	1.119	1.071	1.119	0.989	272,000	360,800	32.27	MTO	STD

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 49. 120 – 1.500 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																											
	5	10	25	50	60	75	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400	2700	3000	
11	0.73	1.43	3.44	6.69	7.97	9.88	13.02	19.22	25.33	37.38	49.27	61.04	58.37	46.32	37.91	31.77	27.13	23.51	20.64	16.38	13.40	11.23	9.59	8.31	7.30	6.11	0.00	
12	0.80	1.56	3.75	7.30	8.70	10.78	14.20	20.96	27.63	40.78	53.75	66.59	66.51	52.78	43.20	36.20	30.91	26.79	23.51	18.66	15.27	12.80	10.93	9.47	8.31	6.97	0.00	
13	0.87	1.69	4.07	7.91	9.42	11.67	15.39	22.71	29.93	44.18	58.23	72.14	74.99	59.51	48.71	40.82	34.85	30.21	26.51	21.04	17.22	14.43	12.32	10.68	9.37	0.00		
14	0.93	1.82	4.38	8.52	10.15	12.57	16.57	24.46	32.24	47.58	62.71	77.69	83.81	66.51	54.44	45.62	38.95	33.76	29.63	23.51	19.25	16.13	13.77	11.94	10.48	0.00		
15	1.00	1.95	4.69	9.13	10.87	13.47	17.76	26.20	34.54	50.98	67.19	83.24	92.95	73.76	60.37	50.59	43.20	37.44	32.86	26.08	21.34	17.89	15.27	13.24	0.00			
16	1.07	2.08	5.00	9.74	11.60	14.37	18.94	27.95	36.84	54.37	71.67	88.79	102.39	81.26	66.51	55.74	47.59	41.25	36.20	28.73	23.51	19.71	16.83	14.58	0.00			
17	1.13	2.21	5.32	10.34	12.32	15.27	20.12	29.70	39.14	57.77	76.15	94.34	112.14	88.99	72.84	61.04	52.12	45.18	39.65	31.46	25.75	21.58	18.43	0.00				
18	1.20	2.34	5.63	10.95	13.05	16.16	21.31	31.45	41.45	61.17	80.63	99.89	119.00	96.96	79.36	66.51	56.78	49.22	43.20	34.28	28.06	23.51	20.08	0.00				
19	1.27	2.47	5.94	11.56	13.77	17.06	22.49	33.19	43.75	64.57	85.11	105.44	125.61	105.15	86.06	72.13	61.58	53.38	46.85	37.18	30.43	25.50	0.80	0.00				
20	1.33	2.60	6.26	12.17	14.50	17.96	23.67	34.94	46.05	67.97	89.59	110.99	132.22	113.56	92.95	77.89	66.51	57.65	50.59	40.15	32.86	27.54	0.00					
21	1.40	2.73	6.57	12.78	15.22	18.86	24.86	36.69	48.36	71.37	94.07	116.54	138.83	122.18	100.00	83.81	71.56	62.02	54.44	43.20	35.36	27.46	0.00					
22	1.47	2.86	6.88	13.39	15.95	19.76	26.04	38.43	50.66	74.76	98.55	122.09	145.44	131.01	107.23	89.87	76.73	66.51	58.37	46.32	37.91	0.00						
23	1.53	2.99	7.19	14.00	16.67	20.65	27.22	40.18	52.96	78.16	103.02	127.64	152.05	140.04	114.62	96.06	82.02	71.09	62.39	49.51	40.53	0.00						
24	1.60	3.11	7.51	14.60	17.40	21.55	28.41	41.93	55.26	81.56	107.50	133.19	158.66	149.28	122.18	102.39	87.43	75.78	66.51	52.78	43.20	0.00						
25	1.67	3.24	7.82	15.21	18.12	22.45	29.59	43.67	57.57	84.96	111.98	138.74	165.27	158.70	129.90	108.86	92.95	80.56	70.71	56.11	18.37	0.00						
26	1.73	3.37	8.13	15.82	18.85	23.35	30.78	45.42	59.87	88.36	116.46	144.29	171.88	168.32	137.77	115.46	98.58	85.45	74.99	59.51	0.00							
28	1.87	3.63	8.76	17.04	20.30	25.15	33.14	48.92	64.47	95.15	125.42	155.38	185.11	188.11	153.97	129.03	110.17	95.49	83.81	66.51	0.00							
30	2.00	3.89	9.38	18.25	21.75	26.94	35.51	52.41	69.08	101.95	134.38	166.48	198.33	208.62	170.75	143.10	122.18	105.90	92.95	13.70	0.00							
32	2.14	4.15	10.01	19.47	23.20	28.74	37.88	55.90	73.68	108.75	143.34	177.58	211.55	229.83	188.11	157.65	134.60	116.67	102.39	0.00								
35	2.34	4.54	10.95	21.30	25.37	31.43	41.43	61.14	80.59	118.94	156.78	194.23	231.38	262.89	215.17	180.33	153.97	133.46	63.34	0.00								
40	2.67	5.19	12.51	24.34	28.99	35.92	47.35	69.88	92.11	135.94	179.17	221.98	264.44	306.61	262.89	220.32	176.66	42.93	0.00									
45	3.00	5.84	14.08	27.38	32.62	40.41	53.27	78.61	103.62	152.93	201.57	249.72	297.49	344.94	313.69	213.33	49.79	0.00										
	Type I Manual or Drip Lubrication							Type II Bath or Disc Lubrication							Type III Oil Stream Lubrication													

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 50. SPROCKET INFORMATION FOR 120 – 1.500 IN. PITCH

No. of Teeth	120 – 1 1/2 in. Pitch		No. of Teeth	120 – 1 1/2 in. Pitch		No. of Teeth	120 – 1 1/2 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	4.386	5.021	49	23.412	24.264	89	42.503	43.377
10	4.854	5.516	50	23.889	24.742	90	42.981	43.854
11	5.324	6.008	51	24.366	25.220	91	43.458	44.331
12	5.796	6.498	52	24.843	25.698	92	43.935	44.810
13	6.268	6.986	53	25.320	26.176	93	44.413	45.287
14	6.741	7.472	54	25.798	26.654	94	44.890	45.765
15	7.215	7.957	55	26.275	27.132	95	45.367	46.242
16	7.689	8.441	56	26.752	27.610	96	45.845	46.719
17	8.163	8.924	57	27.229	28.088	97	46.322	47.198
18	8.638	9.407	58	27.707	28.566	98	46.800	47.675
19	9.113	9.889	59	28.184	29.044	99	47.277	48.153
20	9.589	10.370	60	28.661	29.522	100	47.754	48.630
21	10.064	10.851	61	29.138	30.000	101	48.232	49.109
22	10.540	11.332	62	29.616	30.477	102	48.709	49.586
23	11.016	11.813	63	30.093	30.955	103	49.187	50.064
24	11.492	12.294	64	30.570	31.433	104	49.664	50.542
25	11.968	12.774	65	31.047	31.911	105	50.141	51.020
26	12.444	13.254	66	31.525	32.389	106	50.619	51.498
27	12.921	13.733	67	32.002	32.867	107	51.096	51.975
28	13.397	14.213	68	32.479	33.345	108	51.574	52.452
29	13.874	14.692	69	32.957	33.822	109	52.051	52.930
30	14.350	15.172	70	33.434	34.301	110	52.528	53.408
31	14.827	15.651	71	33.911	34.778	111	53.006	53.886
32	15.303	16.130	72	34.388	35.256	112	53.483	54.364
33	15.780	16.609	73	34.866	35.733	113	53.960	54.841
34	16.257	17.088	74	35.343	36.212	114	54.438	55.319
35	16.734	17.566	75	35.820	36.689	115	54.915	55.792
36	17.211	18.045	76	36.298	37.167	116	55.393	56.272
37	17.687	18.524	77	36.775	37.644	117	55.870	56.752
38	18.164	19.000	78	37.252	38.123	118	56.348	57.230
39	18.641	19.481	79	37.730	38.600	119	56.825	57.707
40	19.118	19.959	80	38.207	39.078	120	57.302	58.183
41	19.595	20.438	81	38.684	39.555			
42	20.072	20.916	82	39.162	40.034			
43	20.549	21.394	83	39.639	40.511			
44	21.026	21.873	84	40.116	40.989			
45	21.503	22.351	85	40.594	41.466			
46	21.980	22.829	86	41.071	41.943			
47	22.458	23.308	87	41.548	42.422			
48	22.935	23.786	88	42.026	42.899			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 140 – 1.750 IN. PITCH

- Cut-to-length chain available.
- Multiple strand 140-3 through 140-8 only available with through-hardened pin in riveted and cottered styles.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.

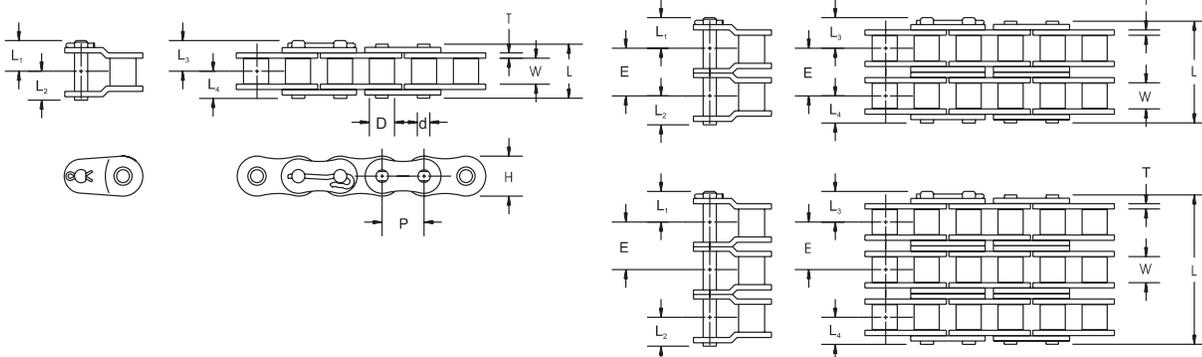


TABLE 51. 140 – 1.750 IN. PITCH CHAIN DIMENSIONS

Chain No.	Pitch P	Min. Roller Link Inside Width W		Roller Dia. D	Link Plate H T		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Tensile Strength (Through-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered
		L	L1		L2	L3			L4									
140-1	1.750	1.000	1.000	1.663	0.220	0.500	—	2.136	1.253	1.150	1.253	1.068	46,000	57,450	5.14	STD	STD	
140-2	1.750	1.000	1.000	1.663	0.220	0.500	1.924	4.060	1.253	1.150	1.253	1.068	92,000	114,900	10.27	STD	STD	
140-3	1.750	1.000	1.000	1.663	0.220	0.500	1.924	5.984	1.253	1.150	1.253	1.068	138,000	172,350	15.29	MTO	STD	
140-4	1.750	1.000	1.000	1.663	0.220	0.500	1.924	7.908	1.253	1.150	1.253	1.068	184,000	229,800	20.46	MTO	STD	
140-5	1.750	1.000	1.000	1.663	0.220	0.500	1.924	9.832	1.253	1.150	1.253	1.068	230,000	287,250	25.52	MTO	STD	
140-6	1.750	1.000	1.000	1.663	0.220	0.500	1.924	11.756	1.253	1.150	1.253	1.068	276,000	344,700	30.69	MTO	STD	
140-8	1.750	1.000	1.000	1.663	0.220	0.500	1.924	15.604	1.253	1.150	1.253	1.068	368,000	459,600	40.92	MTO	STD	

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

TABLE 52. 140 – 1.750 IN. PITCH HORSEPOWER TABLE

No. of Teeth	Revolutions Per Minute – Small Sprocket																										
	5	10	25	50	53	75	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400	2700	
11	1.14	2.21	5.32	10.36	10.95	15.28	20.15	29.73	39.19	57.84	76.24	86.80	96.03	104.20	111.52	118.16	124.24	130.00	135.56	141.04	146.56	152.16	157.92	163.84	169.92	176.16	
12	1.24	2.41	5.81	11.30	11.95	16.67	21.98	32.44	42.75	63.10	83.17	98.90	112.24	124.16	134.72	144.00	152.16	160.00	167.68	175.36	183.12	191.04	199.20	207.60	216.24	225.12	
13	1.34	2.61	6.29	12.24	12.94	18.06	23.81	35.14	46.32	68.36	90.10	111.52	128.80	142.72	154.40	164.88	175.20	185.44	195.76	206.24	216.96	227.92	239.12	250.56	262.24	274.16	
14	1.45	2.81	6.78	13.18	13.94	19.45	25.64	37.84	49.88	73.61	97.03	120.21	141.84	161.12	178.16	194.00	208.72	223.44	238.24	253.12	268.08	283.12	298.32	313.68	329.20	344.88	
15	1.55	3.01	7.26	14.12	14.93	20.84	27.47	40.54	53.44	78.87	103.96	128.79	151.36	171.76	190.00	207.20	224.48	241.92	259.52	277.28	295.20	313.28	331.52	350.00	368.72	387.68	
16	1.65	3.21	7.74	15.06	15.93	22.23	29.30	43.25	57.00	84.13	110.89	137.38	161.83	184.32	204.88	223.60	241.52	259.72	278.24	297.04	316.12	335.48	355.12	375.04	395.20	415.60	
17	1.75	3.41	8.23	16.00	16.93	23.62	31.13	45.95	60.57	89.39	117.82	145.97	172.86	197.60	220.32	241.04	260.88	280.96	301.28	321.84	342.64	363.68	384.96	406.48	428.24	450.24	
18	1.86	3.61	8.71	16.95	17.92	25.01	32.97	48.65	64.13	94.65	124.75	154.55	182.22	207.84	230.56	251.36	270.32	289.52	308.96	328.64	348.56	368.72	389.12	409.76	430.64	451.76	
19	1.96	3.82	9.20	17.89	18.92	26.40	34.80	51.36	67.69	99.90	131.68	163.14	192.89	220.96	246.48	269.52	291.12	312.36	333.24	354.76	376.96	399.84	423.44	446.76	470.80	495.56	
20	2.06	4.02	9.68	18.83	19.91	27.79	36.63	54.06	71.25	105.16	138.61	171.73	203.68	234.56	262.48	288.48	313.52	338.72	364.08	389.60	415.28	441.12	467.12	493.28	519.60	546.08	
21	2.17	4.22	10.16	19.77	20.91	29.18	38.46	56.76	74.82	110.42	145.54	180.31	214.17	246.16	275.20	302.32	329.52	356.88	384.40	412.08	439.92	467.92	496.08	524.40	552.88	581.52	
22	2.27	4.42	10.65	20.71	21.90	30.57	40.29	59.47	78.38	115.68	152.47	188.90	226.76	261.84	293.04	320.40	347.92	375.60	403.44	431.44	459.60	487.92	516.40	545.04	573.84	602.80	
23	2.37	4.62	11.13	21.65	22.90	31.96	42.12	62.17	81.94	120.94	159.40	197.48	239.64	277.92	312.32	342.88	373.60	404.48	435.52	466.72	498.08	529.60	561.28	593.12	625.12	657.28	
24	2.48	4.82	11.62	22.60	23.90	33.35	43.95	64.87	85.51	126.20	166.33	206.07	252.80	294.72	330.80	358.04	385.44	413.00	440.72	468.60	496.64	524.84	553.20	581.72	610.40	639.24	
25	2.58	5.02	12.10	23.54	24.89	34.74	45.79	67.57	89.07	131.45	173.27	214.66	265.24	310.00	348.16	377.44	406.88	436.48	466.24	496.16	526.24	556.48	586.88	617.44	648.16	679.04	
26	2.68	5.22	12.58	24.48	25.89	36.13	47.62	70.28	92.63	136.71	180.20	223.24	278.00	326.88	368.00	401.36	434.96	468.72	502.64	536.72	570.96	605.36	639.92	674.64	709.52	744.56	
28	2.89	5.62	13.55	26.36	27.88	38.91	51.28	75.68	99.76	147.23	194.06	240.42	298.16	350.40	395.20	432.56	469.52	506.08	542.24	578.00	613.36	648.32	682.88	717.52	752.24	787.04	
30	3.10	6.02	14.52	28.24	29.87	41.68	54.94	81.09	106.88	157.74	207.92	257.59	311.84	365.68	411.12	448.24	484.96	521.28	557.20	592.72	627.84	662.56	696.88	730.80	765.32	799.44	
32	3.30	6.43	15.49	30.13	31.86	44.46	58.61	86.50	114.01	168.26	221.78	274.76	332.63	390.56	440.56	481.64	522.80	564.00	605.24	646.52	687.84	729.20	770.60	812.04	853.52	895.04	
35	3.61	7.03	16.94	32.95	34.85	48.63	64.10	94.60	124.70	184.03	242.57	300.52	368.00	436.00	504.56	574.64	645.28	716.48	788.16	860.32	932.96	1006.08	1079.60	1153.52	1227.84	1302.56	
40	4.13	8.03	19.36	37.66	39.83	55.58	73.26	108.12	142.51	210.33	277.22	343.45	419.15	504.32	590.96	678.08	765.68	853.76	942.32	1031.36	1120.88	1210.88	1301.36	1392.32	1483.76	1575.68	
45	4.65	9.04	21.78	42.37	44.80	62.53	82.42	121.63	160.32	236.62	311.88	386.38	469.29	561.76	655.84	750.56	845.92	941.84	1038.32	1135.36	1232.96	1331.12	1429.84	1529.12	1628.96	1729.36	
	Type I Manual or Drip Lubrication							Type II Bath or Disc Lubrication							Type III Oil Stream Lubrication												

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 53. SPROCKET INFORMATION FOR 140 – 1.750 IN. PITCH

No. of Teeth	140 – 1 3/4 in. Pitch		No. of Teeth	140 – 1 3/4 in. Pitch		No. of Teeth	140 – 1 3/4 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	5.117	5.858	49	27.314	28.308	89	49.587	50.607
10	5.663	6.436	50	27.871	28.865	90	50.144	51.163
11	6.212	7.010	51	28.427	29.423	91	50.701	51.720
12	6.762	7.581	52	28.984	29.980	92	51.258	52.278
13	7.313	8.150	53	29.541	30.538	93	51.814	52.834
14	7.864	8.718	54	30.097	31.096	94	52.371	53.393
15	8.417	9.283	55	30.654	31.654	95	52.928	53.949
16	8.970	9.848	56	31.211	32.211	96	53.485	54.506
17	9.524	10.411	57	31.768	32.769	97	54.042	55.064
18	10.078	10.975	58	32.324	33.327	98	54.499	55.620
19	10.632	11.537	59	32.881	33.885	99	55.156	56.179
20	11.187	12.099	60	33.438	34.442	100	55.713	56.735
21	11.742	12.660	61	33.995	35.000	101	56.270	57.294
22	12.297	13.221	62	34.551	35.557	102	56.827	57.851
23	12.852	13.782	63	35.108	36.114	103	57.384	58.408
24	13.407	14.343	64	35.665	36.672	104	57.941	58.966
25	13.963	14.903	65	36.222	37.229	105	58.498	59.523
26	14.518	15.463	66	36.779	37.787	106	59.055	60.081
27	15.074	16.022	67	37.336	38.345	107	59.612	60.637
28	15.630	16.582	68	37.892	38.902	108	60.169	61.194
29	16.186	17.141	69	38.449	39.459	109	60.726	61.751
30	16.742	17.700	70	39.006	40.017	110	61.283	62.309
31	17.298	18.259	71	39.563	40.574	111	61.840	62.867
32	17.854	18.818	72	40.120	41.132	112	62.397	63.425
33	18.410	19.377	73	40.677	41.689	113	62.954	63.982
34	18.966	19.936	74	41.234	42.247	114	63.511	64.539
35	19.523	20.494	75	41.790	42.803	115	64.068	65.090
36	20.079	21.052	76	42.347	43.362	116	64.625	65.651
37	20.635	21.611	77	42.904	43.918	117	65.182	66.210
38	21.192	22.120	78	43.461	44.476	118	65.739	66.768
39	21.748	22.728	79	44.018	45.033	119	66.296	67.325
40	22.305	23.286	80	44.575	45.591	120	66.583	67.880
41	22.861	23.844	81	45.132	46.148			
42	23.418	23.402	82	45.689	46.706			
43	23.974	24.960	83	46.246	47.262			
44	24.531	25.518	84	46.803	47.821			
45	25.087	26.076	85	47.359	48.377			
46	25.644	26.634	86	47.916	48.934			
47	26.201	27.192	87	48.473	49.492			
48	26.757	27.750	88	49.030	50.048			

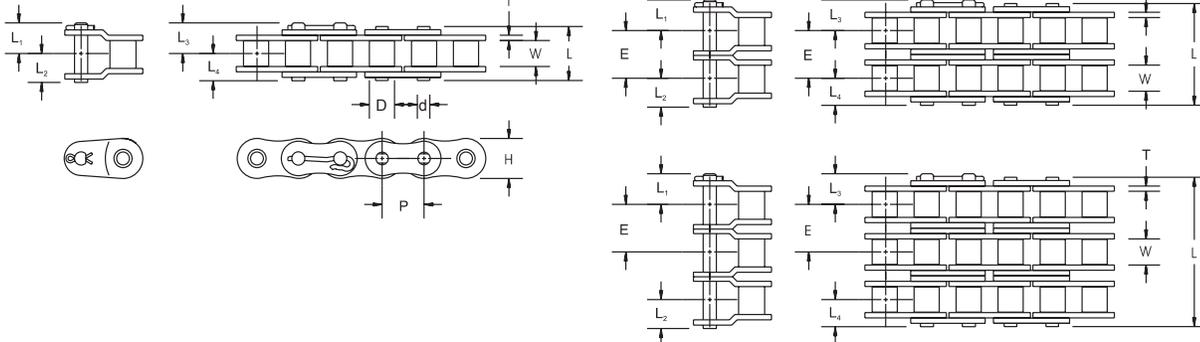
# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 160 – 2.000 IN. PITCH

- Cut-to-length chain available.
- Multiple strand 160-3 through 160-8 only available with through-hardened pin in riveted and cottered styles.

- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 54. 160 – 2.000 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width		Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Tensile Strength (Through-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered
		W	D		H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>					
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs./ft.		
160-1	2.000	1.250	1.126	1.899	0.252	0.563	—	2.538	1.454	1.370	1.454	1.269	58,000	72,800	6.60	STD	STD	
160-2	2.000	1.250	1.126	1.899	0.252	0.563	2.305	4.843	1.454	1.370	1.454	1.269	116,000	145,600	13.21	STD	STD	
160-3	2.000	1.250	1.126	1.899	0.252	0.563	2.305	7.148	1.454	1.370	1.454	1.269	174,000	218,400	20.79	MTO	STD	
160-4	2.000	1.250	1.126	1.899	0.252	0.563	2.305	9.453	1.454	1.370	1.454	1.269	232,000	291,200	27.83	MTO	STD	
160-5	2.000	1.250	1.126	1.899	0.252	0.563	2.305	11.758	1.454	1.370	1.454	1.269	290,000	364,000	34.76	MTO	STD	
160-6	2.000	1.250	1.126	1.899	0.252	0.563	2.305	14.063	1.454	1.370	1.454	1.269	348,000	436,800	41.69	MTO	STD	
160-8	2.000	1.250	1.126	1.899	0.252	0.563	2.305	18.673	1.454	1.370	1.454	1.269	406,000	582,400	55.50	MTO	STD	

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 55. 160 – 2.000 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																									
	2	5	10	25	47	50	75	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400
11	0.68	1.65	3.20	7.72	14.16	15.02	22.17	29.23	43.14	56.86	83.91	110.60	96.58	73.47	58.31	47.72	39.99	34.15	29.60	25.98	20.61	16.87	14.14	12.07	10.46	0.00
12	0.75	1.80	3.50	8.43	15.45	16.39	24.19	31.88	47.06	62.03	91.54	120.66	110.05	83.72	66.44	54.38	45.57	38.91	33.73	29.60	23.49	19.22	16.11	13.76	0.00	
13	0.81	1.95	3.79	9.13	16.73	17.76	26.21	34.54	50.98	67.19	99.17	130.71	124.09	94.40	74.91	61.31	51.38	43.87	38.03	33.37	26.48	21.68	18.17	0.00		
14	0.87	2.10	4.08	9.83	18.02	19.12	28.22	37.20	54.90	72.36	106.80	140.77	138.68	105.50	83.72	68.52	57.43	49.03	42.50	37.30	29.60	24.23	20.30	0.00		
15	0.93	2.25	4.37	10.53	19.31	20.49	30.24	39.86	58.82	77.53	114.43	150.82	153.80	117.00	92.85	75.99	63.69	54.38	47.13	41.37	32.83	26.87	0.00			
16	0.99	2.40	4.66	11.23	20.59	21.85	32.25	42.51	62.74	82.70	122.05	160.88	169.43	128.89	102.28	83.72	70.16	59.90	51.92	45.57	36.16	29.60	0.00			
17	1.06	2.55	4.95	11.94	21.88	23.22	34.27	45.17	66.66	87.87	129.68	170.93	185.56	141.16	112.02	91.69	76.84	65.61	56.87	49.91	39.61	24.21	0.00			
18	1.12	2.70	5.24	12.64	23.17	24.59	36.29	47.83	70.59	93.04	137.31	180.99	202.17	153.80	122.05	99.90	83.72	71.48	61.96	54.38	43.15	0.00				
19	1.18	2.85	5.54	13.34	24.45	25.95	38.30	50.48	74.51	98.21	144.94	191.04	219.25	166.79	132.36	108.33	90.79	77.52	67.19	58.97	46.80	0.00				
20	1.24	3.00	5.83	14.04	25.74	27.32	40.32	53.14	78.43	103.38	152.57	201.10	236.79	180.13	142.95	117.00	98.05	83.72	72.57	63.69	46.79	0.00				
21	1.30	3.15	6.12	14.74	27.03	28.68	42.33	55.80	82.35	108.54	160.20	211.15	254.77	193.81	153.80	125.88	105.50	90.07	78.08	68.52	0.00					
22	1.37	3.29	6.41	15.45	28.32	30.05	44.35	58.45	86.27	113.71	167.83	221.21	273.18	207.82	164.91	134.98	113.12	96.58	83.72	73.47	0.00					
23	1.43	3.44	6.70	16.15	29.60	31.42	46.36	61.11	90.19	118.88	175.45	231.26	286.51	222.15	176.29	144.29	120.92	103.24	89.49	78.54	0.00					
24	1.49	3.59	6.99	16.85	30.89	32.78	48.38	63.77	94.11	124.05	183.08	241.32	298.97	236.79	187.91	153.80	128.89	110.05	95.39	83.72	0.00					
25	1.55	3.74	7.28	17.55	32.18	34.15	50.40	66.43	98.04	129.22	190.71	251.37	311.42	251.74	199.77	163.51	137.03	117.00	101.41	83.72	0.00					
26	1.62	3.89	7.57	18.26	33.46	35.51	52.41	69.08	101.96	134.39	198.34	261.43	323.88	267.00	211.88	173.42	145.33	124.09	107.56	0.00						
28	1.74	4.19	8.16	19.66	36.04	38.24	56.44	74.40	109.80	144.73	213.60	281.54	348.79	298.39	236.79	193.81	162.42	138.68	113.12	0.00						
30	1.86	4.49	8.74	21.06	38.61	40.98	60.48	79.71	117.64	155.06	228.85	301.65	373.71	330.92	262.61	214.94	180.13	126.46	0.00							
32	1.99	4.79	9.32	22.47	41.19	43.71	64.51	85.03	125.49	165.40	244.11	321.76	398.62	364.56	289.30	236.79	198.44	145.33	0.00							
35	2.17	5.24	10.20	24.57	45.05	47.81	70.55	93.00	137.25	180.91	266.99	351.92	435.99	417.01	330.92	270.86	212.60	0.00								
40	2.49	5.99	11.65	28.09	51.48	54.63	80.63	106.28	156.86	206.75	305.14	402.19	498.28	509.49	404.31	330.92	270.86	0.00								
45	2.80	6.74	13.11	31.60	57.92	61.46	90.71	119.57	176.47	232.59	343.28	452.47	560.56	607.95	289.10	0.00										
	Type I Manual or Drip Lubrication					Type II Bath or Disc Lubrication					Type III Oil Stream Lubrication															

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 56. SPROCKET INFORMATION FOR 160 – 2.000 IN. PITCH

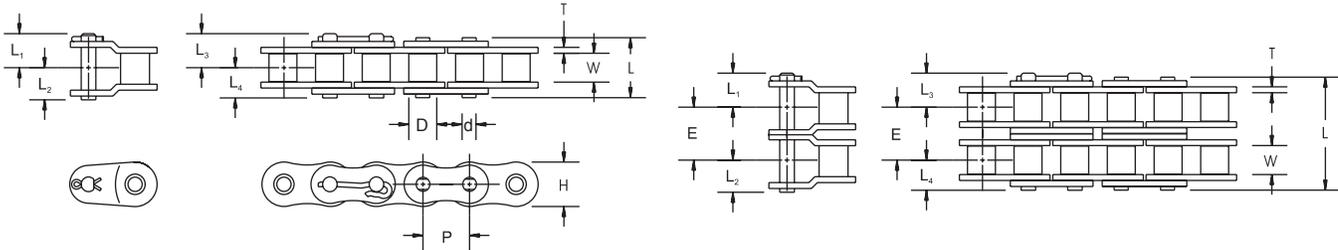
No. of Teeth	160 – 2 in. Pitch		No. of Teeth	160 – 2 in. Pitch		No. of Teeth	160 – 2 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	5.848	6.695	49	31.216	32.352	89	56.671	57.836
10	6.472	7.355	50	31.852	32.989	90	57.307	58.472
11	7.099	8.011	51	32.488	33.626	91	57.944	59.108
12	7.727	8.664	52	33.124	34.263	92	58.580	59.746
13	8.357	9.314	53	33.761	34.901	93	59.216	60.382
14	8.988	9.963	54	34.397	35.539	94	59.853	61.020
15	9.620	10.609	55	35.033	36.176	95	60.489	61.656
16	10.252	11.255	56	35.669	36.813	96	61.126	62.292
17	10.885	11.899	57	36.306	37.451	97	61.762	62.930
18	11.518	12.543	58	36.942	38.088	98	62.399	63.566
19	12.151	13.185	59	37.578	38.725	99	63.035	64.204
20	12.785	13.828	60	38.215	39.362	100	63.672	64.840
21	13.419	14.470	61	38.851	39.999	101	64.309	65.478
22	14.053	15.110	62	39.487	40.636	102	64.945	66.115
23	14.688	15.751	63	40.124	41.274	103	65.582	66.752
24	15.323	16.392	64	40.760	41.911	104	66.218	67.389
25	15.958	17.032	65	41.396	42.548	105	66.855	68.027
26	16.593	17.671	66	42.033	43.185	106	67.492	68.664
27	17.228	18.311	67	42.669	43.822	107	68.128	69.299
28	17.863	18.951	68	43.306	44.459	108	68.765	69.936
29	18.498	19.590	69	43.942	45.096	109	69.401	70.573
30	19.134	20.229	70	44.578	45.734	110	70.038	71.210
31	19.769	20.868	71	45.215	46.370	111	70.674	71.848
32	20.405	21.506	72	45.851	47.008	112	71.311	72.486
33	21.040	22.145	73	46.488	47.644	113	71.948	73.122
34	21.676	22.784	74	47.124	48.282	114	72.584	73.759
35	22.312	23.422	75	47.760	48.918	115	73.220	74.398
36	22.947	24.060	76	48.397	49.556	116	73.857	75.030
37	23.583	24.698	77	49.033	50.192	117	74.494	75.669
38	24.219	25.340	78	49.670	50.830	118	75.130	76.306
39	24.855	25.975	79	50.306	51.466	119	75.767	76.943
40	25.491	26.613	80	50.943	52.104	120	76.403	77.577
41	26.127	27.251	81	51.579	52.740			
42	26.763	27.888	82	52.216	53.378			
43	27.399	28.526	83	52.852	54.014			
44	28.035	29.164	84	53.489	54.652			
45	28.671	29.802	85	54.125	55.288			
46	29.307	30.439	86	54.761	55.924			
47	29.943	31.077	87	55.398	56.562			
48	30.580	31.714	88	56.034	57.198			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 180 – 2.250 IN. PITCH

- Cut-to-length chain available.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 57. 180 – 2.250 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Through-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>				
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		
180-1	2.250	1.400	1.406	2.132	0.281	0.687	–	2.780	1.561	1.390	1.561	1.390	95,000	9.10	STD	STD
180-2	2.250	1.400	1.406	2.132	0.281	0.687	2.592	5.372	1.561	1.390	1.561	1.390	190,000	18.10	STD	STD
180-3	2.250	1.400	1.406	2.132	0.281	0.687	2.592	7.964	1.561	1.390	1.561	1.390	285,000	27.01	MTO	MTO
180-4	2.250	1.400	1.406	2.132	0.281	0.687	2.592	10.556	1.561	1.390	1.561	1.390	380,000	35.91	MTO	MTO

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 58. 180 – 2.250 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																							
	2	5	10	25	43	50	75	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000
11	0.94	2.27	4.43	10.66	17.95	20.75	30.62	40.36	59.56	78.51	115.87	148.32	106.13	80.73	64.07	52.44	43.95	37.52	32.52	28.54	22.65	18.54	15.54	0.00
12	1.03	2.48	4.83	11.63	19.58	22.63	33.40	44.03	64.98	85.64	126.40	166.61	120.92	91.99	73.00	59.75	50.07	42.75	37.06	32.52	25.81	21.12	17.70	0.00
13	1.12	2.69	5.23	12.60	21.21	24.52	36.19	47.70	70.39	92.78	136.93	180.49	136.35	103.72	82.31	67.37	56.46	48.21	41.79	36.67	29.10	23.82	0.00	
14	1.20	2.90	5.63	13.57	22.84	26.40	38.97	51.36	75.81	99.92	147.47	194.37	152.38	115.92	91.99	75.29	63.10	53.87	46.70	40.98	32.52	26.62	0.00	
15	1.29	3.10	6.03	14.54	24.48	28.29	41.75	55.03	81.22	107.06	158.00	208.26	169.00	128.56	102.02	83.50	69.98	59.75	51.79	45.45	36.07	0.00		
16	1.37	3.31	6.44	15.51	26.11	30.18	44.54	58.70	86.64	114.19	168.53	222.14	186.17	141.63	112.39	91.99	77.09	65.82	57.05	50.07	39.74	0.00		
17	1.46	3.52	6.84	16.48	27.74	32.06	47.32	62.37	92.05	121.33	179.07	236.02	203.90	155.11	123.09	100.75	84.43	72.09	62.49	54.84	43.52	0.00		
18	1.54	3.72	7.24	17.45	29.37	33.95	50.10	66.04	97.47	128.47	189.60	249.91	222.15	169.00	134.11	109.77	91.99	78.54	68.08	59.75	0.00			
19	1.63	3.93	7.64	18.42	31.00	35.83	52.89	69.71	102.88	135.60	200.13	263.79	240.92	183.27	145.44	119.04	99.76	85.18	73.83	64.80	0.00			
20	1.72	4.14	8.05	19.39	32.64	37.72	55.67	73.38	108.30	142.74	210.67	277.68	260.19	197.93	157.07	128.56	107.74	91.99	79.74	69.98	0.00			
21	1.80	4.34	8.45	20.36	34.27	39.61	58.45	77.05	113.71	149.88	221.20	291.56	279.94	212.96	169.00	138.32	115.92	98.97	85.79	75.29	0.00			
22	1.89	4.55	8.85	21.33	35.90	41.49	61.24	80.71	119.12	157.02	231.73	305.44	300.17	228.35	181.21	148.32	124.30	106.13	91.99	0.00				
23	1.97	4.76	9.25	22.30	37.53	43.38	64.02	84.38	124.54	164.15	242.27	319.33	320.87	244.10	193.70	158.54	132.87	113.45	98.33	0.00				
24	2.06	4.96	9.65	23.27	39.16	45.26	66.80	88.05	129.95	171.29	252.80	333.21	342.02	260.19	206.47	169.00	141.63	120.92	40.34	0.00				
25	2.15	5.17	10.06	24.24	40.79	47.15	69.59	91.72	135.37	178.43	263.33	347.10	363.62	276.62	219.51	179.67	150.57	128.56	0.00					
26	2.23	5.38	10.46	25.21	42.43	49.04	72.37	95.39	140.78	185.56	273.87	360.98	385.66	293.38	232.81	190.55	159.69	122.43	0.00					
28	2.40	5.79	11.26	27.15	45.69	52.81	77.94	102.73	151.61	199.84	294.93	388.75	431.00	327.87	260.19	212.96	178.47	0.00						
30	2.57	6.20	12.07	29.09	48.95	56.58	83.50	110.07	162.44	214.11	316.00	416.51	477.99	363.62	288.56	236.18	128.92	0.00						
32	2.75	6.62	12.87	31.02	52.22	60.35	89.07	117.40	173.27	228.39	337.07	444.28	526.58	400.58	317.89	260.19	0.00							
35	3.00	7.24	14.08	33.93	57.11	66.01	97.42	128.41	189.52	249.80	368.67	485.93	602.34	458.22	363.62	142.51	0.00							
40	3.43	8.27	16.09	38.78	65.27	75.44	111.34	146.75	216.59	285.48	421.34	555.35	688.02	559.83	254.20	0.00								
45	3.86	9.31	18.10	43.63	73.43	84.87	125.26	165.10	243.66	321.17	474.00	624.77	774.03	480.00	0.00									
	Type I Manual or Drip Lubrication							Type II Bath or Disc Lubrication							Type III Oil Stream Lubrication									

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 59. SPROCKET INFORMATION FOR 180 – 2.250 IN. PITCH

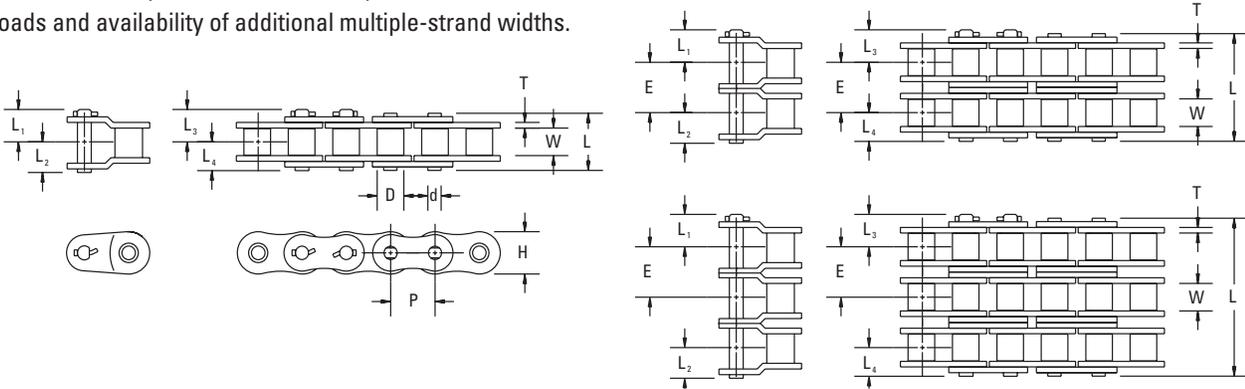
No. of Teeth	180 – 2 ¼ in. Pitch	
	Pitch Dia.	O.D.
	in.	in.
11	7.986	9.010
12	8.693	9.750
13	9.402	10.480
14	10.111	11.210
15	10.822	11.940
16	11.533	12.660
17	12.245	13.390
18	12.957	14.110
19	13.670	14.830
20	14.383	15.560
21	15.096	16.280
22	15.810	17.000
23	16.524	17.720
24	17.238	18.440
25	17.952	19.160
28	20.096	21.320
30	21.525	22.760
35	25.101	26.350
40	28.677	29.940
45	32.255	33.530
54	38.696	39.980
60	42.922	44.280

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 200 – 2.500 IN. PITCH

- Cut-to-length chain available.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 60. 200 – 2.500 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Through-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered	
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>					
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.		
200-1	2.500	1.500	1.562	2.312	0.312	0.781	–	3.088	1.889	1.544	1.889	1.544	100,000	10.90	STD	STD	
200-2	2.500	1.500	1.562	2.312	0.312	0.781	2.817	5.905	1.889	1.544	1.889	1.544	200,000	21.00	STD	STD	
200-3	2.500	1.500	1.562	2.312	0.312	0.781	2.817	8.722	1.889	1.544	1.889	1.544	300,000	31.50	MTO	STD	
200-4	2.500	1.500	1.562	2.312	0.312	0.781	2.817	11.539	1.889	1.544	1.889	1.544	400,000	42.10	MTO	MTO	

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 61. 200 – 2.500 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																							
	2	5	10	25	40	50	75	100	150	200	250	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800
11	1.25	3.02	5.88	14.16	22.23	27.54	40.65	53.58	79.08	104.24	129.14	153.84	161.36	115.46	87.83	69.70	57.05	47.81	40.82	35.38	31.05	24.64	20.17	0.00
12	1.37	3.29	6.41	15.45	24.25	30.05	44.35	58.45	86.27	113.71	140.88	167.82	183.86	131.56	100.08	79.42	65.00	54.48	46.51	40.32	35.38	28.08	22.98	0.00
13	1.48	3.57	6.94	16.73	26.28	32.55	48.04	63.33	93.46	123.19	152.62	181.81	207.31	148.34	112.85	89.55	73.30	61.43	52.45	45.46	39.90	31.66	0.00	
14	1.59	3.84	7.48	18.02	28.30	35.06	51.74	68.20	100.65	132.66	164.36	195.79	231.69	165.78	126.11	100.08	81.91	68.65	58.61	50.80	44.59	35.38	0.00	
15	1.71	4.12	8.01	19.31	30.32	37.56	55.43	73.07	107.84	142.14	176.09	209.78	256.95	183.86	139.87	110.99	90.85	76.13	65.00	56.34	49.45	37.46	0.00	
16	1.82	4.39	8.55	20.60	32.34	40.06	59.13	77.94	115.03	151.61	187.83	223.76	283.07	202.55	154.08	122.27	100.08	83.87	71.61	62.07	54.48	0.00		
17	1.94	4.67	9.08	21.88	34.36	42.57	62.83	82.81	122.22	161.09	199.57	237.75	310.02	221.83	168.75	133.91	109.61	91.86	78.43	67.98	59.66	0.00		
18	2.05	4.94	9.61	23.17	36.38	45.07	66.52	87.68	129.41	170.57	211.31	251.73	331.81	241.69	183.86	145.90	119.42	100.08	85.45	74.07	65.00			
19	2.16	5.22	10.15	24.46	38.40	47.58	70.22	92.55	136.59	180.04	223.05	265.72	350.24	262.11	199.39	158.23	129.51	108.53	92.67	80.32	2.22			
20	2.28	5.49	10.68	25.74	40.42	50.08	73.91	97.42	143.78	189.52	234.79	279.70	368.67	283.07	215.34	170.88	139.87	117.21	100.08	86.75	0.00			
21	2.39	5.77	11.22	27.03	42.45	52.59	77.61	102.29	150.97	198.99	246.53	293.69	387.11	304.56	231.69	183.86	150.49	126.11	107.68	32.68	0.00			
22	2.51	6.04	11.75	28.32	44.47	55.09	81.30	107.17	158.16	208.47	258.27	307.68	405.54	326.57	248.43	197.15	161.36	135.23	115.46	0.00				
23	2.62	6.31	12.28	29.61	46.49	57.59	85.00	112.04	165.35	217.95	270.01	321.66	423.97	349.09	265.56	210.74	172.49	144.55	104.48	0.00				
24	2.73	6.59	12.82	30.89	48.51	60.10	88.70	116.91	172.54	227.42	281.75	335.65	442.41	372.10	283.07	224.63	183.86	154.08	21.71	0.00				
25	2.85	6.86	13.35	32.18	50.53	62.60	92.39	121.78	179.73	236.90	293.49	349.63	460.84	395.60	300.94	238.82	195.47	163.81	0.00					
26	2.96	7.14	13.89	33.47	52.55	65.11	96.09	126.65	186.92	246.37	305.23	363.62	479.27	419.57	319.18	253.29	207.31	151.14	0.00					
	Type I Manual or Drip Lubrication					Type II Bath or Disc Lubrication					Type III Oil Stream Lubrication													

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 62. SPROCKET INFORMATION FOR 200 – 2.500 IN. PITCH

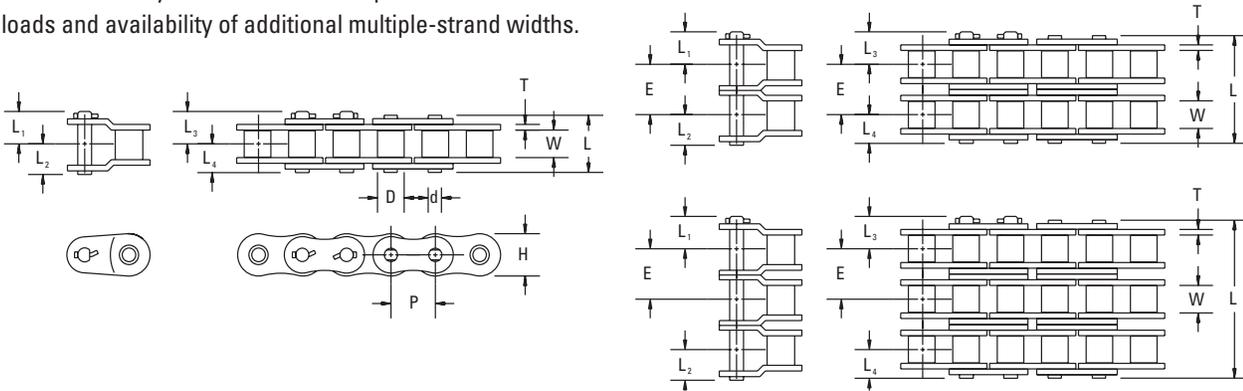
No. of Teeth	200 – 2 1/2 in. Pitch		No. of Teeth	200 – 2 1/2 in. Pitch		No. of Teeth	200 – 2 1/2 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	7.310	8.367	49	39.020	40.440	89	70.837	72.295
10	8.090	9.195	50	39.815	41.237	90	71.635	73.090
11	8.872	10.015	51	40.610	42.032	91	72.430	73.885
12	9.660	10.830	52	41.405	42.830	92	73.225	74.682
13	10.447	11.642	53	42.200	43.627	93	74.020	75.477
14	11.235	12.455	54	42.996	44.422	94	74.815	76.275
15	12.025	13.262	55	43.792	45.220	95	75.612	77.070
16	12.815	14.067	56	44.587	46.015	96	76.407	77.865
17	13.605	14.872	57	45.382	46.812	97	77.202	78.662
18	14.397	15.677	58	46.177	47.610	98	77.997	79.457
19	15.190	16.482	59	46.972	48.407	99	78.795	80.255
20	15.982	17.285	60	47.767	49.202	100	79.590	81.050
21	16.775	18.087	61	48.565	50.000	101	80.385	81.847
22	17.567	18.887	62	49.360	50.795	102	81.182	82.642
23	18.360	19.687	63	50.155	51.592	103	81.977	83.440
24	19.152	20.490	64	50.950	52.387	104	82.772	84.235
25	19.947	21.290	65	51.745	53.185	105	83.567	85.030
26	20.740	22.090	66	52.540	53.982	106	84.365	85.827
27	21.535	22.890	67	53.337	54.777	107	85.160	86.622
28	22.330	23.687	68	54.132	55.575	108	85.955	87.420
29	23.122	24.487	69	54.927	56.370	109	86.752	88.215
30	23.917	25.285	70	55.722	57.167	110	87.547	89.012
31	24.712	26.085	71	56.517	57.962	111	88.342	89.807
32	25.505	26.882	72	57.315	58.760	112	89.137	90.602
33	26.300	27.680	73	58.110	59.555	113	89.935	91.400
34	27.095	28.480	74	58.905	60.352	114	90.730	92.195
35	27.890	29.277	75	59.700	61.147	115	91.525	92.992
36	28.685	30.075	76	60.495	61.945	116	92.322	93.787
37	29.480	30.872	77	61.292	62.741	117	93.117	94.582
38	30.275	31.670	78	62.087	63.537	118	93.912	95.380
39	31.070	32.467	79	62.882	64.332	119	94.707	96.175
40	31.865	33.265	80	63.677	65.130	120	95.502	96.970
41	32.660	34.062	81	64.475	65.925			
42	33.455	34.860	82	65.270	66.722			
43	34.250	35.657	83	66.065	67.517			
44	35.045	36.455	84	66.860	68.315			
45	35.840	37.252	85	67.657	69.110			
46	36.635	38.047	86	68.452	69.905			
47	37.430	38.845	87	69.247	70.702			
48	38.225	39.642	88	70.042	71.497			

# PRECISION ROLLER CHAIN PRODUCTS

## ROLLER CHAIN DIMENSIONS AND HORSEPOWER TABLES

### 240 – 3.000 IN. PITCH

- Cut-to-length chain available.
- Please consult your Timken Drives representative for maximum loads and availability of additional multiple-strand widths.



**TABLE 63. 240 – 3.000 IN. PITCH CHAIN DIMENSIONS**

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Through-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted	Cottered
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>				
				in.	in.			in.	in.	in.	in.	in.				
240-1	3.000	1.864	1.875	2.812	0.375	0.937	—	3.708	2.212	1.854	2.212	1.854	152,200	16.40	STD	STD
240-2	3.000	1.864	1.875	2.812	0.375	0.937	3.458	7.166	2.212	1.854	2.212	1.854	304,400	32.20	MTO	STD
240-3	3.000	1.864	1.875	2.812	0.375	0.937	3.458	2.780	2.212	1.854	2.212	1.854	456,600	49.40	MTO	STD
240-4	3.000	1.864	1.875	2.812	0.375	0.937	3.458	7.166	2.212	1.854	2.212	1.854	608,800	65.70	MTO	STD

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**TABLE 64. 240 – 3.000 IN. PITCH HORSEPOWER TABLE**

No. of Teeth	Revolutions Per Minute – Small Sprocket																							
	2	5	10	25	36	50	75	100	150	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
11	2.02	4.86	9.46	22.81	32.36	44.36	65.47	86.30	127.37	167.88	207.99	247.77	186.70	133.59	101.63	80.65	66.01	55.32	47.23	40.94	35.93	31.87	28.51	0.00
12	2.20	5.31	10.32	24.88	35.31	48.40	71.43	94.15	138.95	183.14	226.89	270.30	212.73	152.22	115.80	91.89	75.21	63.03	53.82	46.65	40.94	36.31	2.11	0.00
13	2.39	5.75	11.18	26.95	38.25	52.43	77.38	101.99	150.53	198.41	245.80	292.82	239.87	171.64	130.57	103.61	84.81	71.07	60.68	52.60	46.16	38.13	0.00	
14	2.57	6.19	12.04	29.02	41.19	56.46	83.33	109.84	162.11	213.67	264.71	315.34	268.07	191.82	145.92	115.80	94.78	79.43	67.82	58.78	51.59	0.00		
15	2.75	6.63	12.90	31.10	44.13	60.50	89.28	117.68	173.68	228.93	283.62	337.87	297.30	212.73	161.83	128.42	105.11	88.09	75.21	65.19	0.00			
16	2.94	7.08	13.76	33.17	47.08	64.53	95.24	125.53	185.26	244.19	302.53	360.39	327.52	234.35	178.28	141.47	115.80	97.04	82.86	71.82	0.00			
17	3.12	7.52	14.62	35.24	50.02	68.56	101.19	133.37	196.84	259.45	321.43	382.92	358.70	256.66	195.25	154.94	126.82	106.28	90.74	0.00				
18	3.30	7.96	15.48	37.32	52.96	72.59	107.14	141.22	208.42	274.71	340.34	405.44	390.81	279.64	212.73	168.81	138.17	115.80	98.87	0.00				
19	3.49	8.40	16.34	39.39	55.90	76.63	113.09	149.06	220.00	289.98	359.25	427.97	423.82	303.26	230.70	183.08	149.84	125.58	3.20	0.00				
20	3.67	8.84	17.20	41.46	58.84	80.66	119.04	156.91	231.58	305.24	378.16	450.49	457.72	327.52	249.15	197.72	161.83	135.62	0.00					
21	3.85	9.29	18.07	43.54	61.79	84.69	125.00	164.76	243.16	320.50	397.07	473.02	492.48	352.39	268.07	212.73	174.12	109.86	0.00					
22	4.04	9.73	18.93	45.61	64.73	88.73	130.95	172.60	254.74	335.76	415.97	495.54	528.07	377.85	287.44	228.10	186.70	0.00						
23	4.22	10.17	19.79	47.68	67.67	92.76	136.90	180.45	266.32	351.02	434.88	518.07	564.48	403.91	307.26	243.83	199.57	0.00						
24	4.40	10.61	20.65	49.76	70.61	96.79	142.85	188.29	277.89	366.29	453.79	540.59	601.69	430.53	327.52	259.91	188.30	0.00						
25	4.59	11.06	21.51	51.83	73.55	100.83	148.81	196.14	289.47	381.55	472.70	563.12	639.68	457.72	348.20	276.32	73.47	0.00						
26	4.77	11.50	22.37	53.90	76.50	104.86	154.76	203.98	301.05	396.81	491.61	585.64	678.45	485.46	369.30	293.06	0.00							
	Type I Manual or Drip Lubrication					Type II Bath or Disc Lubrication					Type III Oil Stream Lubrication													

NOTE: The limiting RPM for each lubrication type is shown in the chart's shaded areas directly above the type I, II or III reference. For optimum results, it is suggested that the roller chain manufacturer be given the opportunity to evaluate the operating condition of chains in the shaded (galling range) speed area. The horsepower ratings of multiple-strand chains are greater than those for single strand chain. See table 1 on page 6 for multiple-strand factors.

TABLE 65. SPROCKET INFORMATION FOR 240 – 3.000 IN. PITCH

No. of Teeth	240 – 3 in. Pitch		No. of Teeth	240 – 3 in. Pitch		No. of Teeth	240 – 3 in. Pitch	
	Pitch Dia.	O.D.		Pitch Dia.	O.D.		Pitch Dia.	O.D.
	in.	in.		in.	in.		in.	in.
9	8.771	10.044	49	46.824	48.528	89	85.006	86.754
10	9.708	11.034	50	47.778	49.485	90	85.961	87.708
11	10.649	12.018	51	48.732	50.439	91	86.916	88.665
12	11.591	12.996	52	49.687	51.396	92	87.871	89.619
13	12.536	13.971	53	50.641	52.353	93	88.825	90.576
14	13.482	14.943	54	51.595	53.307	94	89.780	91.530
15	14.429	15.912	55	52.550	54.264	95	90.735	92.484
16	15.377	16.881	56	53.504	55.221	96	91.690	93.441
17	16.327	17.847	57	54.458	56.175	97	92.645	94.395
18	17.276	18.813	58	55.413	57.132	98	93.599	95.352
19	18.227	19.779	59	56.368	58.089	99	94.554	96.306
20	19.177	20.742	60	57.322	59.043	100	95.509	97.263
21	20.129	21.705	61	58.277	60.000	101	96.464	98.217
22	21.080	22.665	62	59.231	60.954	102	97.418	99.171
23	22.032	23.628	63	60.185	61.911	103	98.373	100.128
24	22.984	24.588	64	61.140	62.868	104	99.328	101.082
25	23.936	25.548	65	62.095	63.822	105	100.283	102.039
26	24.889	26.508	66	63.049	64.779	106	101.238	102.993
27	25.841	27.468	67	64.004	65.733	107	102.192	103.947
28	26.794	28.425	68	64.958	66.690	108	103.147	104.904
29	27.747	29.385	69	65.913	67.644	109	104.102	105.858
30	28.700	30.342	70	66.868	68.601	110	105.056	106.815
31	29.654	31.302	71	67.822	69.555	111	106.011	107.769
32	30.607	32.259	72	68.777	70.512	112	106.967	108.723
33	31.560	33.219	73	69.731	71.466	113	107.921	109.680
34	32.514	34.176	74	70.686	72.423	114	108.876	110.634
35	33.467	35.133	75	71.641	73.377	115	109.831	111.591
36	34.421	36.090	76	72.595	74.334	116	110.786	112.545
37	35.375	37.047	77	73.550	75.288	117	111.740	113.499
38	36.324	38.007	78	74.505	76.245	118	112.695	114.456
39	37.283	38.961	79	75.459	77.199	119	113.650	115.410
40	38.237	39.918	80	76.414	78.156	120	114.605	116.364
41	39.191	40.875	81	77.369	79.110			
42	40.145	41.832	82	78.323	80.067			
43	41.099	42.789	83	79.278	81.021			
44	42.053	43.746	84	80.233	81.978			
45	43.007	44.703	85	81.188	82.932			
46	43.961	45.657	86	82.142	83.886			
47	44.915	46.614	87	83.097	84.843			
48	45.869	47.571	88	84.052	85.797			



***HEAVY-SERIES  
ROLLER CHAIN  
PRODUCTS***

Heavy-series chains are produced with thicker link plates than standard ANSI chains designed for higher fatigue strengths and increased wear life. These chains are designed to be used in heavy shock loading applications like skid steers, drilling mixers, palletizers, etc.



### HEAVY-SERIES ROLLER CHAIN PRODUCTS

#### HR RIVETED SERIES CHAIN – CASE-HARDENED PINS

All HR series chains are designed with a wide waist contour and a heavy side plate to improve stress distribution, increase fatigue strength and reduce vibration. All HR riveted series chains (sizes 80HR – 120H) contain ballized plates to provide increased bearing area and press fits. This special ballizing process is after heat treatment which is a key to achieving the maximum residual compressive stress. This improves fatigue life and increases working load capacities.

- Offset links available.
- Cut-to-length chain available.
- 60H slip-fit spring clip connector standard. Cotter available upon request.
- 80H – 120H slip-fit, hook-style cotter connecting link standard. Press-fit available upon request.
- Other multiple-wide sizes available.
- Cotter style available upon request.
- Please consult your Timken Drives representative for maximum allowable loads.

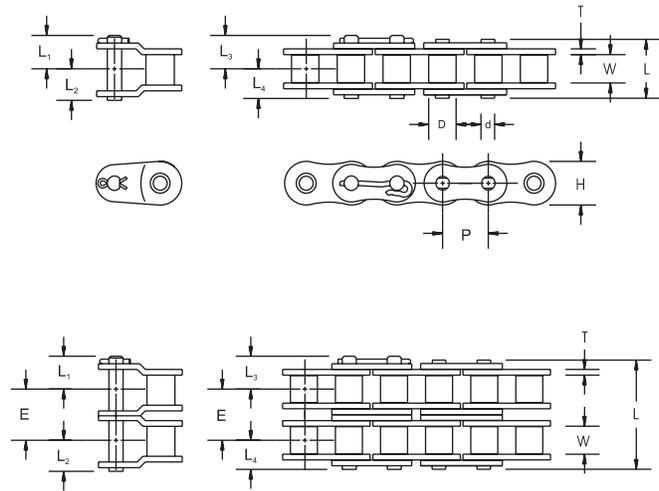


TABLE 66. HR RIVETED CHAIN DIMENSIONS

Chain No.	Pitch P	Width Between L.P. W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Case-Hardened Pin) lbs.	Average Weight lbs./ft.	Riveted
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>			
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.	
60H-1R	0.750	0.500	0.469	0.709	0.125	0.234	–	1.140	0.650	0.570	0.650	0.570	8,500	1.265	STD
60H-2R	0.750	0.500	0.469	0.709	0.125	0.234	1.028	2.160	0.650	0.570	0.650	0.570	17,000	2.637	STD
60H-3R	0.750	0.500	0.469	0.709	0.125	0.234	1.028	3.196	0.650	0.570	0.650	0.570	25,500	4.010	MTO
80H-1R	1.000	0.625	0.625	0.949	0.156	0.312	–	1.413	0.839	0.707	0.839	0.707	14,500	2.462	STD
80H-2R	1.000	0.625	0.625	0.949	0.156	0.312	1.283	2.694	0.839	0.707	0.839	0.707	29,000	4.344	STD
80H-3R	1.000	0.625	0.625	0.949	0.156	0.312	1.283	3.977	0.839	0.707	0.839	0.707	43,500	6.569	MTO
100H-1R	1.250	0.750	0.750	1.186	0.187	0.375	–	1.725	0.993	0.863	0.993	0.863	24,000	3.223	STD
100H-2R	1.250	0.750	0.750	1.186	0.187	0.375	1.539	3.260	0.993	0.863	0.993	0.863	48,000	6.356	STD
100H-3R	1.250	0.750	0.750	1.186	0.187	0.375	1.539	4.799	0.993	0.863	0.993	0.863	72,000	9.579	MTO
120H-1R	1.500	1.000	0.875	1.425	0.219	0.437	–	2.085	1.186	1.043	1.186	1.043	34,000	4.614	STD
120H-2R	1.500	1.000	0.875	1.425	0.219	0.437	1.924	4.010	1.186	1.043	1.186	1.043	68,000	9.161	STD
120H-3R	1.500	1.000	0.875	1.425	0.219	0.437	1.924	5.934	1.186	1.043	1.186	1.043	102,000	13.650	MTO

NOTE: Dimensions subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

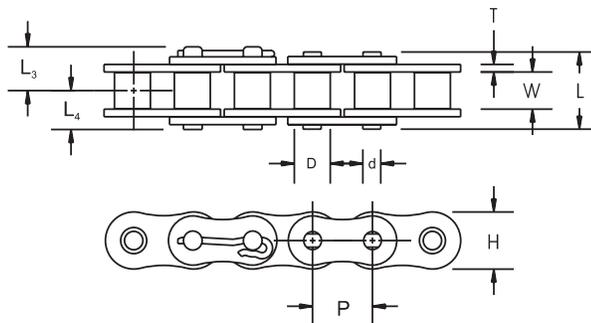
### HZ RIVETED AND COTTERED SERIES CHAIN – THROUGH-HARDENED PINS

HZ series chain features include:

- Through-hardened pins are used for higher working load capacity and additional resistance to fatigue in heavy load applications.
- Ballized pin-plate, middle-bar and bushing-plate holes made to precision tolerances provide increased bearing area and press fits, improving fatigue life and working loads.
- Wide-waisted link plates are manufactured with maximized ball heights from special alloy steels for added strength. The wide link plate profile improves stress distribution, leading to improved fatigue resistance and enhanced performance.

HZ series chains have the same dimensions as ANSI-standard heavy-series chains.

- Multiple-strand widths available in all pitch sizes listed below.
- Riveted endless construction standard/suggested for certain applications.
- Size 264 chain is produced with a heavy-series side plate (0.375 in. thick plate material) and a larger diameter pin, which provides greater tensile strength/working load. It's also a direct replacement for 200H chain.
- Please consult your Timken Drives representative for maximum allowable loads.



**TABLE 67. HZ SERIES CHAIN DIMENSIONS**

Chain No.	Pitch P	Width Between L.P. W	Roller Dia. D	Link Plate		Pin. Dia. d	Transverse Pitch	Pin			Average Tensile Strength (Through- Hardened Pins)	Average Weight
				H	T			L	L <sub>3</sub>	L <sub>4</sub>		
		in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
60HZ-1R	0.750	0.500	0.469	0.709	0.125	0.234	1.028	1.140	0.650	0.570	12,500	1.265
80HZ-1R	1.000	0.625	0.625	0.949	0.156	0.312	1.283	1.413	0.839	0.707	21,500	2.243
100HZ-1R	1.250	0.750	0.750	1.186	0.187	0.375	1.539	1.725	0.993	0.863	33,000	3.277
120HZ-1R	1.500	1.000	0.875	1.425	0.219	0.437	1.925	2.085	1.186	1.043	45,100	4.605
140HZ-1R	1.750	1.000	1.000	1.663	0.250	0.500	2.055	2.260	1.313	1.130	57,450	5.801
160HZ-1R	2.000	1.250	1.126	1.899	0.283	0.563	2.437	2.673	1.520	1.339	72,800	7.548
180HZ-1R	2.250	1.400	1.406	2.132	0.312	0.687	2.716	2.968	1.641	1.484	95,000	10.250
264HZ-1R	2.500	1.490	1.562	2.375	0.375	0.875	3.083	3.344	2.015	1.672	135,000	12.400
240HZ-1R	3.000	1.875	1.875	2.850	0.500	0.937	3.984	4.265	2.453	2.157	217,000	19.570

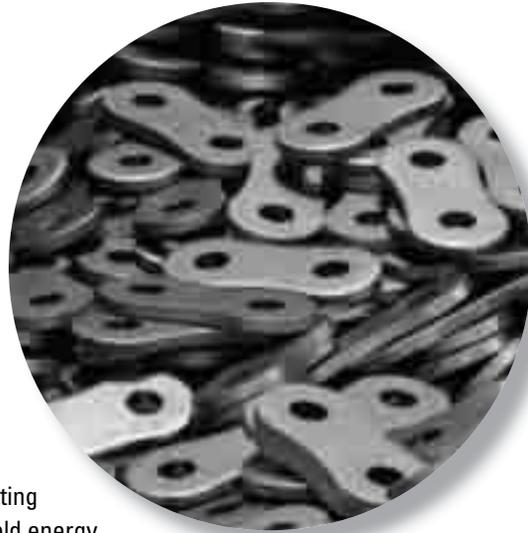
NOTE: Dimensions subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.



**PREMIUM OIL  
FIELD ROLLER  
CHAIN PRODUCTS**

Roller chains used in the oil and natural gas industries are subjected to some of the highest loads and harshest operating conditions. We produce our oil field energy roller chains with the same attention to detail that goes into all of our products. But these chains also are subjected to performance testing in accordance with the latest American Petroleum Institute (API) Specification 7F.

The quality of our API roller chain is demonstrated by examining the label on our box, which carries the API monogram. Only those companies which have established API-approved-and-audited quality systems are authorized to display this symbol of excellence.



## **PREMIUM OIL FIELD ROLLER CHAIN PRODUCTS FEATURES AND BENEFITS FATIGUE/WEAR**

### **ALL BALLIZED PLATES**

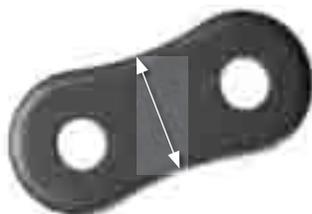
Ballized pin-plate, middle-bar and bushing-plate holes made to precision tolerances provide increased bearing area and press fits, improving fatigue life and working loads.



**Fig. 31.**  
All ballized plates.

### **WIDE-WAISTED LINK PLATES**

Wide-waisted link plates are manufactured with maximized ball heights from special alloy steels for added strength. The wide link plate profile improves stress distribution, leading to improved fatigue resistance and enhanced performance.



**Fig. 32.**  
Wide-waisted link plates.

### **THROUGH-HARDENED SHOT PEENED PINS**

Through-hardened pins are hardened and shot peened, designed to provide maximum performance in demanding applications. These pins increase the fatigue strength of the chain for protection from unpredictable overloads.



**Fig. 33.**  
Through-hardened shot peened pins.

### **SPECIAL HOOK COTTER**

A full-hardened hook cotter provides greater link-plate support and up to twice the shear strength of conventional short split cotters. The easily installed hardened hook cotter is designed to retain position in high-vibration applications.



**Fig. 34.** Special hook cotter.

### **COATED T-PIN**

High-shear T-pins are designed to resist corrosion and retain position in the most extreme applications. Sizes 200, 264 and 240.



**Fig. 35.** Coated T-pin.

### **SOLID ROLLERS**

The solid roller allows for smooth rotation on the bushing, reducing the impact load as the chain engages the sprocket tooth.

### **FACTORY PRELOADED AT 50 PERCENT MUTS**

Our chains are preloaded to 50 percent of minimum ultimate tensile strength (MUTS), which is especially important for applications involving fixed center-to-center sprockets without take-ups. Applications can withstand shock loads up to 50 percent of the chain's MUTS without premature elongation.

### **PRELUBRICATION**

After final assembly, we hot-dip the roller chains in a special lubricant. This process ensures that all the load-bearing surfaces are initially protected from metal-to-metal contact, improving the wear life of the chain.

We suggest that you change out the sprockets each time you replace the roller chain.

## TYPICAL CHAIN LOCATIONS ON AN OIL RIG

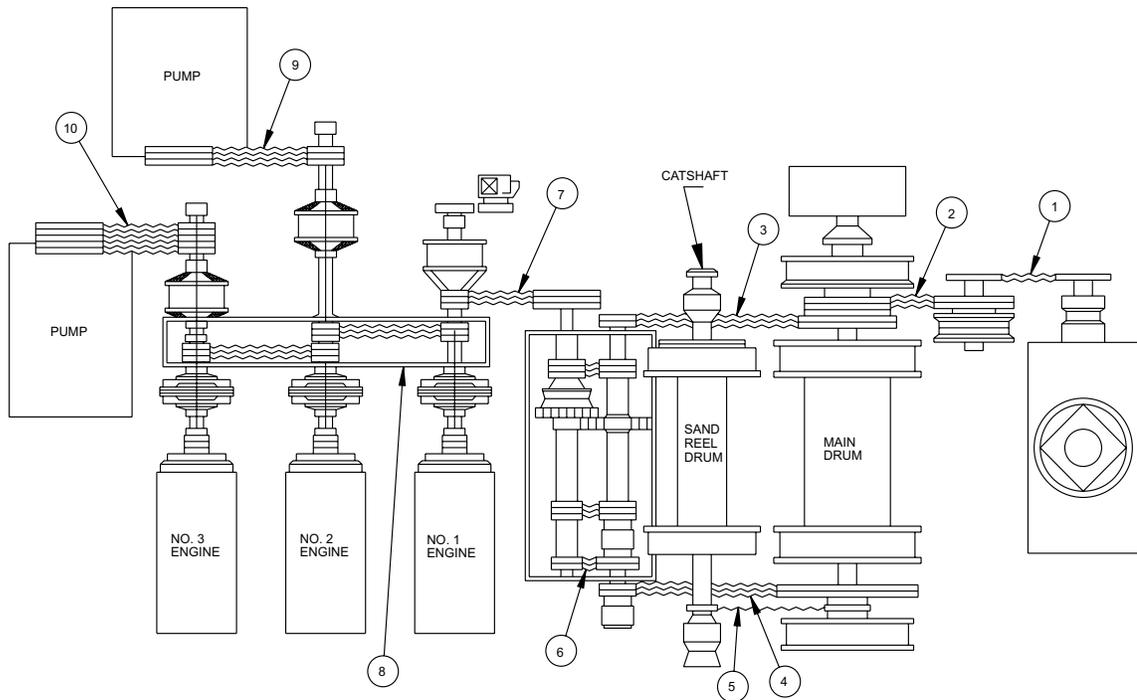


TABLE 69. SAMPLE CHAIN DRIVE SELECTION GUIDE

Chain Drive	Rig Horsepower						
	4000	3000	2000	1500	1000	750	500
1. Rotary Table	160-2	160-2 264-1	160-2	160-2 140-2	140-2 160-1	140-2 160-1	140-1 120-1
2. Rotary Countershaft	160-2	160-2 264-1	160-2	160-2 140-2	140-2 160-1	140-2 160-1	140-1 120-1
3. High Drum	240-3	264-3	160-4	160-3	140-3 160-2	160-2 140-2	120-3 140-2
4. Low Drum	240-3	264-3	160-4	160-3	140-3 160-2	160-2 140-3	120-3 140-2
5. Cat Shaft	160-2	160-2 264-1	160-2	160-1 140-2	160-1 140-2	160-1 140-2	140-1 120-1
6. Transmission	140-8	160-4 264-3	160-4 160-3	160-3	160-2 140-3	140-2	120-2 100-3
7. Drawworks Input	140-8	120-8	120-6	120-4	120-3 120-4	100-4	100-3 100-4
8. Compound	140-8	120-8	120-6	120-4	120-3 120-4	100-4	100-3
9. & 10. Mud Pump Drives	140-8	120-8	120-8 120-6	120-6 120-4	120-4 120-3	100-6 100-4	100-4 100-3

NOTE: Size 264 roller chain provides greater tensile strength/working load and replaces 200H chain.

# OIL FIELD ROLLER CHAIN PRODUCT SPECIFICATIONS

## 80-1 THROUGH 240-1

- Cut-to-length chain available.
- Corrosion-resistant finishes for components available upon request.
- Offsets not suggested. Please contact your Timken Drives representative.
- T-pin cotters used on sizes 200, 264, and 240 oil field chain.
- Heavy-chain series available/MTO.
- 121 series replaces 472 series.
- Size 264 chain provides greater tensile strength/working load utilizing larger diameter pin and replaces 200H chain.

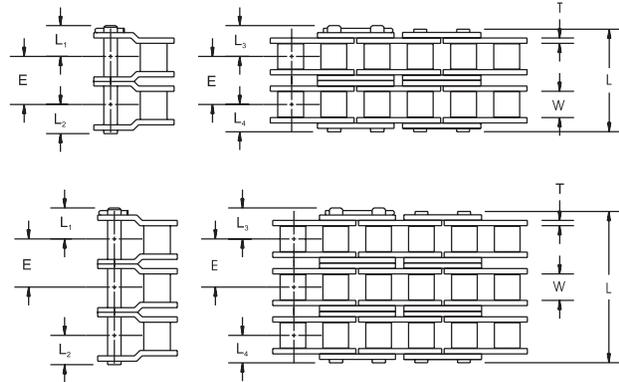
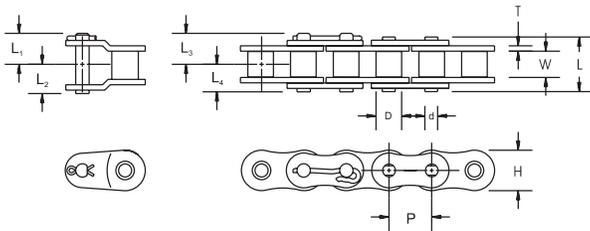


TABLE 70. API 7F OIL FIELD ROLLER CHAIN PRODUCTS

Chain No.	Pitch P	Min. Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin Dia. d	Transverse Pitch E	Pin					Average Tensile Strength (Through-Hardened Pin) lbf.	Average Weight lbs./ft.	Riveted	Cottered
				H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>				
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		
<b>80-1 through 80-8</b>																
80-1	1.000	0.627	0.625	0.943	0.125	0.313	—	1.283	0.768	0.638	0.857	0.642	21,500	1.87	STD	STD
80-2	1.000	0.627	0.625	0.943	0.125	0.313	1.155	2.439	0.768	0.638	0.857	0.642	43,000	3.74	STD	STD
80-3	1.000	0.627	0.625	0.943	0.125	0.313	1.155	3.594	0.768	0.638	0.857	0.642	64,500	5.60	STD	STD
80-4	1.000	0.627	0.625	0.943	0.125	0.313	1.155	4.749	0.768	0.638	0.857	0.642	86,000	7.44	MTO	STD
80-5	1.000	0.627	0.625	0.943	0.125	0.313	1.155	5.904	0.768	0.638	0.857	0.642	107,500	9.03	MTO	STD
80-6	1.000	0.627	0.625	0.943	0.125	0.313	1.155	7.059	0.768	0.638	0.857	0.642	129,000	10.82	MTO	STD
80-8	1.000	0.627	0.625	0.943	0.125	0.313	1.155	9.369	0.768	0.638	0.857	0.642	172,000	14.43	MTO	STD
<b>100-1 through 100-8</b>																
100-1	1.250	0.755	0.750	1.180	0.156	0.375	—	1.595	0.908	0.785	0.912	0.785	33,000	2.80	STD	STD
100-2	1.250	0.755	0.750	1.180	0.156	0.375	1.411	2.981	0.908	0.785	0.912	0.785	66,000	5.60	STD	STD
100-3	1.250	0.755	0.750	1.180	0.156	0.375	1.411	4.392	0.908	0.785	0.912	0.785	99,000	8.47	MTO	STD
100-4	1.250	0.755	0.750	1.180	0.156	0.375	1.411	5.803	0.908	0.785	0.912	0.785	132,000	11.11	MTO	STD
100-5	1.250	0.755	0.750	1.180	0.156	0.375	1.411	7.214	0.908	0.785	0.912	0.785	165,000	13.97	MTO	STD
100-6	1.250	0.755	0.750	1.180	0.156	0.375	1.411	8.625	0.908	0.785	0.912	0.785	198,000	16.72	MTO	STD
100-8	1.250	0.755	0.750	1.180	0.156	0.375	1.411	11.447	0.908	0.785	0.912	0.785	264,000	22.29	MTO	STD

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

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Chain No.	Pitch	Min. Roller Link Inside Width	Roller Dia.	Link Plate		Pin Dia.	Transverse Pitch	Pin					Average Tensile Strength (Through-Hardened Pin)	Average Weight	Riveted	Cottered
	P			W	D			H	T	d	E	L				
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbf.	lbs./ft.		
<b>120-1 through 120-8</b>																
120-1	1.500	1.000	0.875	1.425	0.187	0.437	–	1.955	1.119	1.071	1.119	0.989	45,100	4.14	STD	STD
120-2	1.500	1.000	0.875	1.425	0.187	0.437	1.789	3.767	1.119	1.071	1.119	0.989	90,200	8.27	STD	STD
120-3	1.500	1.000	0.875	1.425	0.187	0.437	1.789	5.556	1.119	1.071	1.119	0.989	135,300	12.10	MTO	STD
120-4	1.500	1.000	0.875	1.425	0.187	0.437	1.789	7.345	1.119	1.071	1.119	0.989	180,400	16.17	MTO	STD
120-5	1.500	1.000	0.875	1.425	0.187	0.437	1.789	9.134	1.119	1.071	1.119	0.989	225,500	20.24	MTO	STD
120-6	1.500	1.000	0.875	1.425	0.187	0.437	1.789	10.923	1.119	1.071	1.119	0.989	270,600	24.20	MTO	STD
120-8	1.500	1.000	0.875	1.425	0.187	0.437	1.789	14.501	1.119	1.071	1.119	0.989	360,800	32.27	MTO	STD
<b>121-1 through 121-3</b>																
121-1	1.500	0.750	0.875	1.425	0.187	0.437	–	1.955	–	–	0.994	0.864	45,100	3.30	STD	STD
121-2	1.250	0.755	0.750	1.180	0.156	0.375	1.546	3.274	–	–	0.994	0.864	90,200	6.76	MTO	STD
121-3	1.250	0.755	0.750	1.180	0.156	0.375	1.546	4.820	–	–	0.994	0.864	135,300	10.08	MTO	STD
<b>140-1 through 140-8</b>																
140-1	1.750	1.000	1.000	1.663	0.220	0.500	–	2.136	1.253	1.150	1.253	1.068	57,450	5.14	STD	STD
140-2	1.750	1.000	1.000	1.663	0.220	0.500	1.924	4.060	1.253	1.150	1.253	1.068	114,900	10.27	STD	STD
140-3	1.750	1.000	1.000	1.663	0.220	0.500	1.924	5.984	1.253	1.150	1.253	1.068	172,350	15.29	MTO	STD
140-4	1.750	1.000	1.000	1.663	0.220	0.500	1.924	7.908	1.253	1.150	1.253	1.068	229,800	20.46	MTO	STD
140-5	1.750	1.000	1.000	1.663	0.220	0.500	1.924	9.832	1.253	1.150	1.253	1.068	287,250	25.52	MTO	STD
140-6	1.750	1.000	1.000	1.663	0.220	0.500	1.924	11.756	1.253	1.150	1.253	1.068	344,700	30.69	MTO	STD
140-8	1.750	1.000	1.000	1.663	0.220	0.500	1.924	15.604	1.253	1.150	1.253	1.068	459,600	40.92	MTO	STD
<b>160-1 through 160-8</b>																
160-1	2.000	1.250	1.126	1.899	0.252	0.563	–	2.538	1.454	1.370	1.454	1.269	72,800	6.60	STD	STD
160-2	2.000	1.250	1.126	1.899	0.252	0.563	2.305	4.843	1.454	1.370	1.454	1.269	145,600	13.21	STD	STD
160-3	2.000	1.250	1.126	1.899	0.252	0.563	2.305	7.148	1.454	1.370	1.454	1.269	218,400	20.79	MTO	STD
160-4	2.000	1.250	1.126	1.899	0.252	0.563	2.305	9.453	1.454	1.370	1.454	1.269	291,200	27.83	MTO	STD
160-5	2.000	1.250	1.126	1.899	0.252	0.563	2.305	11.758	1.454	1.370	1.454	1.269	364,000	34.76	MTO	STD
160-6	2.000	1.250	1.126	1.899	0.252	0.563	2.305	14.063	1.454	1.370	1.454	1.269	436,800	41.69	MTO	STD
160-8	2.000	1.250	1.126	1.899	0.252	0.563	2.305	18.673	1.454	1.370	1.454	1.269	582,400	55.50	MTO	STD
<b>180-1 through 180-4</b>																
180-1	2.250	1.400	1.406	2.132	0.281	0.687	–	2.780	1.561	1.390	1.561	1.390	95,000	9.10	STD	STD
180-2	2.250	1.400	1.406	2.132	0.281	0.687	2.592	5.372	1.561	1.390	1.561	1.390	190,000	18.10	STD	STD
180-3	2.250	1.400	1.406	2.132	0.281	0.687	2.592	7.964	1.561	1.390	1.561	1.390	285,000	27.01	MTO	MTO
180-4	2.250	1.400	1.406	2.132	0.281	0.687	2.592	10.556	1.561	1.390	1.561	1.390	380,000	35.91	MTO	MTO

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

Continued on next page.

# PREMIUM OIL FIELD ROLLER CHAIN PRODUCTS

## OIL FIELD ROLLER CHAIN PRODUCT SPECIFICATIONS

Continued from previous page.

Chain No.	Pitch	Min. Roller Link Inside Width	Roller Dia.	Link Plate		Pin Dia.	Transverse Pitch	Pin					Average Tensile Strength (Through-Hardened Pin)	Average Weight	Riveted	Cottered
	P			H	T			L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>				
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbf.	lbs./ft.		
<b>200-1 through 200-4</b>																
200-1	2.500	1.500	1.562	2.312	0.312	0.781	–	3.088	1.889	1.544	1.889	1.544	100,000	10.90	STD	STD
200-2	2.500	1.500	1.562	2.312	0.312	0.781	2.817	5.905	1.889	1.544	1.889	1.544	200,000	21.00	STD	STD
200-3	2.500	1.500	1.562	2.312	0.312	0.781	2.817	8.722	1.889	1.544	1.889	1.544	300,000	31.50	MTO	STD
200-4	2.500	1.500	1.562	2.312	0.312	0.781	2.817	11.539	1.889	1.544	1.889	1.544	400,000	42.10	MTO	MTO
<b>264-1 through 264-4</b>																
264-1	2.500	1.490	1.562	2.375	0.375	0.875	–	3.687	2.015	1.672	2.015	0.672	135,000	12.40	STD	STD
264-2	2.500	1.490	1.562	2.375	0.375	0.875	3.083	6.770	2.015	1.672	2.015	1.672	270,000	24.90	STD	STD
264-3	2.500	1.490	1.562	2.375	0.375	0.875	3.083	9.853	2.015	1.672	2.015	1.672	405,000	37.30	MTO	STD
264-4	2.500	1.490	1.562	2.375	0.375	0.875	3.083	12.936	2.015	1.672	2.015	1.672	540,000	49.80	MTO	STD
<b>240-1 through 240-4</b>																
240-1	3.000	1.864	1.875	2.812	0.375	0.937	–	3.708	2.212	1.854	2.212	1.854	152,200	16.40	STD	STD
240-2	3.000	1.864	1.875	2.812	0.375	0.937	3.458	7.166	2.212	1.854	2.212	1.854	304,400	32.20	MTO	STD
240-3	3.000	1.864	1.875	2.812	0.375	0.937	3.458	2.780	2.212	1.854	2.212	1.854	456,600	49.40	MTO	STD
240-4	3.000	1.864	1.875	2.812	0.375	0.937	3.458	7.166	2.212	1.854	2.212	1.854	608,800	65.70	MTO	STD
<b>241-1</b>																
241-1	3.000	1.250	1.875	2.812	0.375	0.937	–	3.094	–	–	1.905	1.547	152,200	16.20	MTO	MTO

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

## POWER TONG CHAINS

Power tongs are used to spin and tighten drill pipe, casing, tubing or other types of pipe. In some instances they also are used to apply the final makeup torque. The chain used on the power tongs is designed to grip the pipe. We supply individual boxes of power tong chains that are cut to the specified length required for the power tong you have. Please contact your Timken Drives representative for availability of your power tong chain.

## TIMKEN SPECIALTY CHAIN PRODUCTS

Silver Shield CR® series chains are available for those applications that may be subjected to wet, caustic or acidic environments. Silver Shield CR chains consist of precision carbon-steel components, specially coated with a zinc-aluminum compound. Contact your Timken Drives representative for proper use of the Silver Shield CR chain coatings.

With a major focus on problem solving, we designed Extended Life CHP® series chain for toughness and strength. The chrome plating on the pins exceeds the hardness level commonly found in standard roller chains and provides exceptional wear resistance without giving up toughness, even in dry and abrasive environments.



Fig. 36. Specialty drive chain product.

## 50WR WRENCH CHAIN

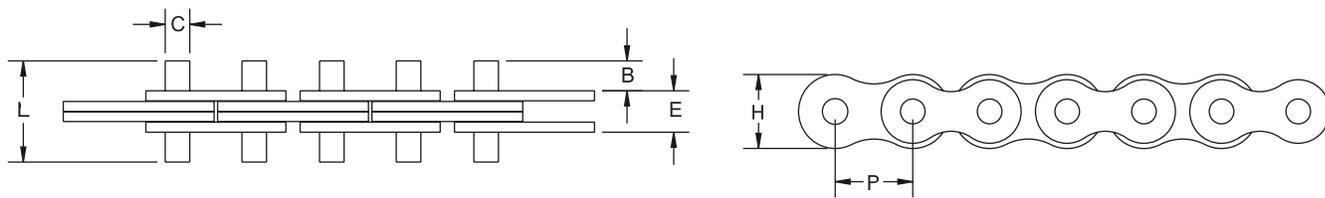


TABLE 71. 50WR WRENCH CHAIN PRODUCT SPECIFICATIONS

Chain No.	Pitch P	Lacing	Pin Dia. C	Pin Over All Length L	Pin Projection B	Link Plate H	Width Over Link Plate E	Average Tensile Strength Case-Hardened Pin	Average Weight
	in.		in.	in.	in.	in.	in.	lbf	lbs./ft.
50WR	0.625	2X2	0.2	0.806	0.238	0.59	0.33	6,000	0.50

## COIL TUBING INJECTOR CHAIN TO FIT OEM GRIPPER BLOCKS

Primary oil field chain features include:

- All ballized plates.
- Wide-waisted link plates.
- Through-hardened shot peened pins
- Special hook cotter.
- Coated T-pin.

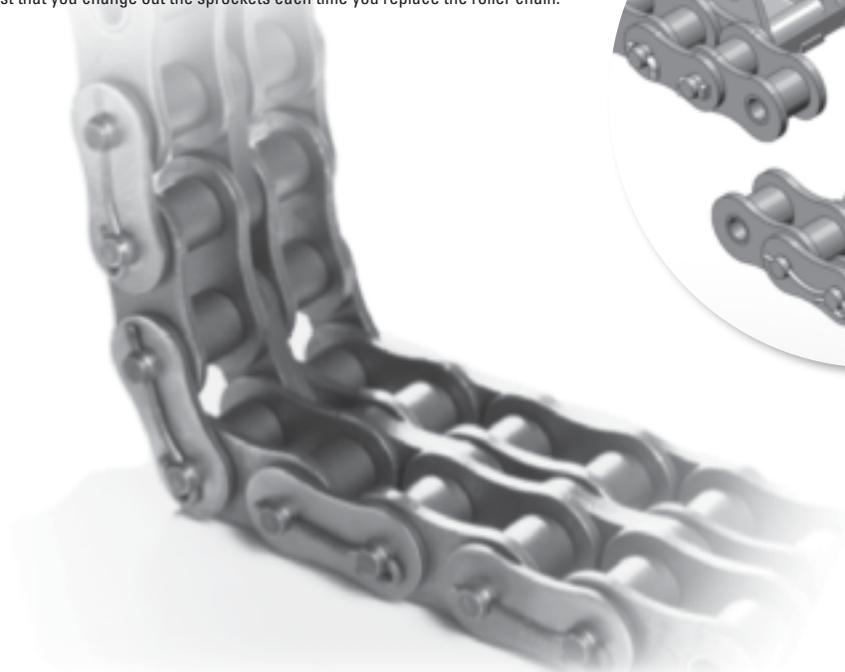
**TABLE 72. COIL TUBE CHAIN KITS AVAILABLE**

Manufacturer	Coiled Tube Unit Model	Chain Size
National Oilwell	RT10	120-3
National Oilwell	RT 20	120-3
National Oilwell	RT30	120-3
National Oilwell	RT3238	120-3
National Oilwell	RT25	120-3
National Oilwell	RT60	160-4
National Oilwell	RT100	160-4
Hydra Rig	HR560/660	180-4
Hydra Rig	HR580/680	200-4
Hydra Rig	HR440	180-3
Hydra Rig	HR480	200-3
Hydra Rig	HR5100	180-6
Hydra Rig	HR635	140-5

**TABLE 73. COIL TUBE CHAIN ASSEMBLIES AVAILABLE**

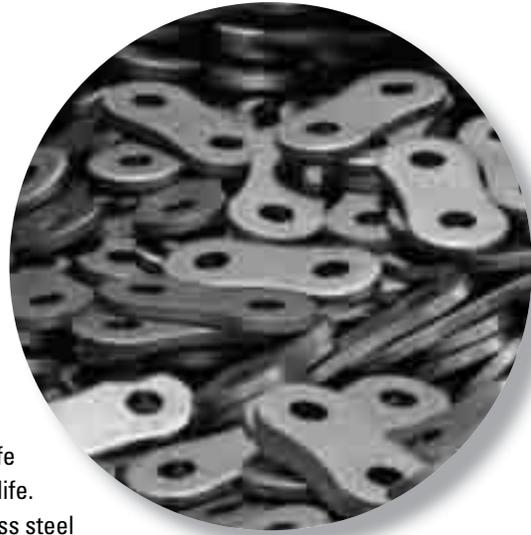
Manufacturer	Coiled Tube Unit Model	Chain Size	Strand	Number of Strands Required
Stewart & Stevenson	Short unit	160-1 w/D3	14 pitch	8
Stewart & Stevenson	Long unit	160-1 w/D3	14 pitch	10
Stewart & Stevenson	Short unit	160H-1 w/D3	14 pitch	8
Stewart & Stevenson	Long unit	160H-1 w/D3	14 pitch	10

We suggest that you change out the sprockets each time you replace the roller chain.



***SPECIALTY CHAIN  
PRODUCTS***

We offer specialty chain products to meet the challenging applications of our customers. We have Extended Life CHP® chains that increase wear life. Our Silver Shield CR® and stainless steel chains perform well in corrosive applications.



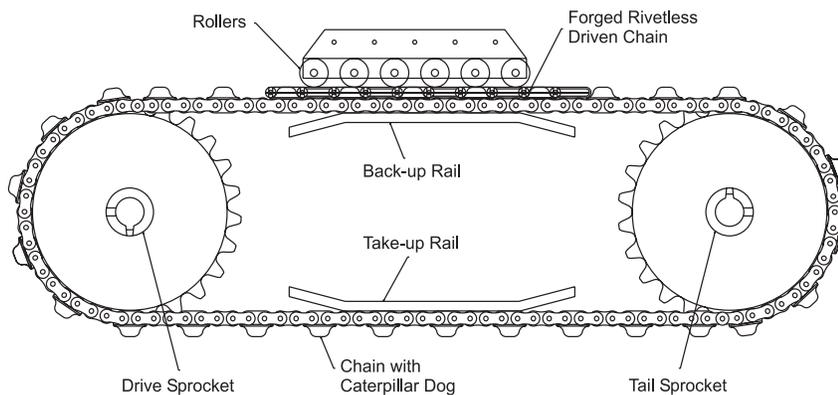
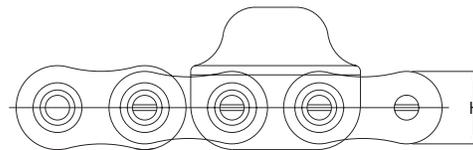
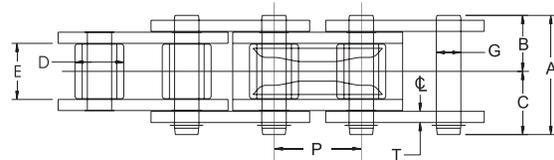
## SPECIALTY CHAIN PRODUCTS CATERPILLAR DRIVE CHAIN

Caterpillar drive chains are essential in driving drop forged chain conveyors. Our caterpillar drive chains provide high fatigue life and are designed to perform with forged, rivetless chains.

Our caterpillar drive chains feature all ballized plates to provide increased bearing area and press fits. This improves fatigue life and working loads. We use wide-waist link plates with maximized ball heights to improve stress distribution, leading to improved fatigue resistance and enhanced performance.

Through-hardened pins are used for higher working load capacity and additional resistance to fatigue in heavy load applications.

Our one-piece forged drive dog is induction-hardened in the chain contact bearing area for wear resistance. The balance of the drive dog is through-hardened for strength and durability. The entire assembly is designed to operate in combination with the drop forged rivetless chain.



**TABLE 74. CATERPILLAR DRIVE CHAIN SPECIFICATIONS**

Chain No.	Pitch P	Chain Width				Diameter		Sidebars		Drive Dog Pitch Spacing	Average Ultimate Strength	Approx. Weight
		Overall	Pin Head to CL	Pin End to CL	Inside Width	Roller	Pin	Thickness	Height			
		A	B	C	E	D	G	T	H			
160/348	2.000	2.723	1.269	1.454	1.250	1.126	0.563	0.250	1.899	3 or 6	58,000	8.3
160/458	2.000	2.723	1.269	1.454	1.250	1.126	0.563	0.250	1.899	4 or 6	58,000	8.3 or 10.0
160/678	2.000	2.723	1.269	1.454	1.250	1.126	0.563	0.250	1.899	6	58,000	9.8

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.  
NOTE: Special hardened hook cotter is standard.

## HOLLOW PIN CHAIN – 2.000 IN. PITCH

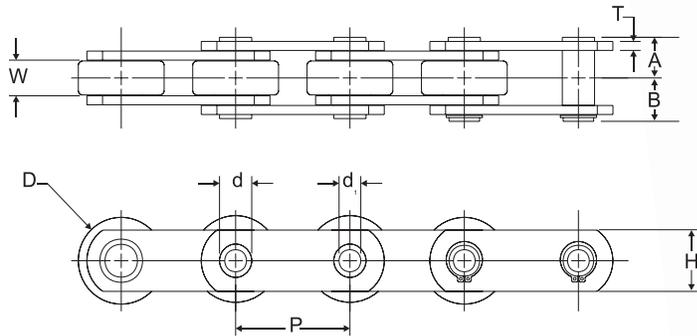


TABLE 75. HOLLOW PIN CHAIN – 2.000 IN. PITCH

Chain No.	Pitch P	Width Between L.P. W	Roller Dia. D	Link Plate		Pin Dia.		Pin		Average Weight lbs./ft.	Average Tensile Strength lbs.	Maximum Suggested Working Load lbs./ft.
				H	T	d	d <sub>1</sub>	A	B			
HP200	2.000	0.617	1.500	1.060	0.156	0.564	0.382	0.703	0.750	2.500	15,000	2,600

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

## COUPLING CHAIN

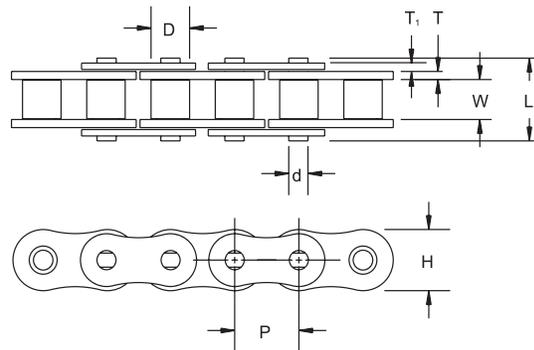
Our coupling chain is manufactured in accordance with ANSI/ASME B29.1. These duplex chains utilize a standard duplex connecting link for easy installation.

TABLE 76. COUPLING CHAIN

Chain No.	Pitch	Length Pitches	Weight lb./ft.	Weight lb.
	in.		lb./ft.	lb.
40	0.500	12	0.410	0.410
40	0.500	16	0.550	0.550
50	0.625	16	1.120	1.170
50	0.625	18	1.260	1.320
60	0.750	18	2.160	2.330
60	0.750	20	2.400	2.590
60	0.750	22	2.640	2.840
80	1.000	18	5.000	5.600
80	1.000	20	5.560	6.230
100	1.250	18	9.240	10.510
100	1.250	20	10.300	11.670
120	1.500	18	16.200	18.610
120	1.500	22	19.800	22.740

**EXTRA CLEARANCE EXC® CONVEYOR CHAIN**

EXC® conveyor chains are produced with extra clearance to compensate for steel expansion at temperatures up to 500° F and to permit free joint-action at oven temperatures. Extra Clearance chain may be used with ANSI chain sprockets. Consult your Timken Drives representative for application and available sizes.



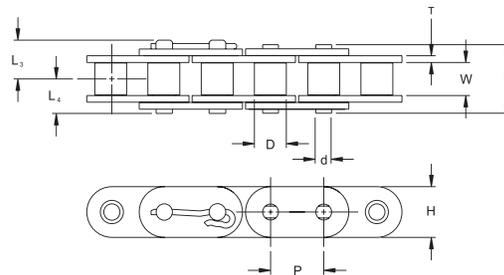
**TABLE 77. EXTRA CLEARANCE EXC® CONVEYOR CHAIN**

Chain No.	Pitch P	Width Between L.P. W	Roller Dia. D	Link Plate			Pin		Average Tensile Strength (Through- Hardened Pin) lbs./ft.	Average Weight lbs./ft.	Riveted	Cottered
				H	T	T <sub>1</sub>	d	L				
80 EXC	1.000	0.625	0.625	0.949	0.156	0.120	0.312	1.413	21,500	2.200	STD	MTO

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

**E-SERIES CHAIN**

- Available in riveted style.
- Cut-to-length chain available.
- E-series suggested for heavy-duty transfer systems.



**TABLE 78. E-SERIES CHAIN**

Chain No.	Pitch P	Width Between L.P. W	Roller Dia. D	Link Plate		Pin Dia. d	Pin			Average Weight lbs./ft.
				H	T		L	L <sub>1</sub>	L <sub>2</sub>	
C60E	0.750	0.500	0.469	0.705	0.094	0.234	0.996	0.648	0.498	1.173
C80E	1.000	0.627	0.625	0.943	0.125	0.312	1.283	0.857	0.642	2.054
C100E	1.250	0.755	0.750	1.180	0.156	0.375	1.595	0.912	0.785	3.081
C120E	1.500	1.000	0.875	1.425	0.187	0.437	1.955	1.119	0.989	4.588
C140E	1.750	1.000	1.000	1.663	0.220	0.500	2.136	1.253	1.068	5.878
C160E	2.000	1.250	1.126	1.899	0.252	0.563	2.538	1.454	1.269	7.787

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

## EXTENDED LIFE CHP® SERIES CHAIN

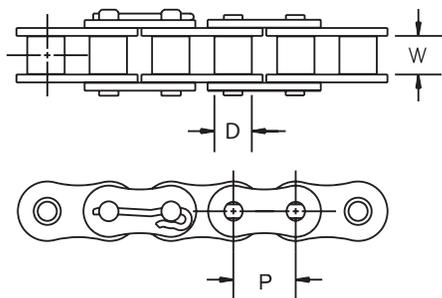


Fig. 38. Extended Life CHP® series chain.

- Directly interchangeable with standard ANSI chain.
- Outstanding wear and shock-load performance, even at elevated temperatures.
- No reduction in working loads or operating speeds.
- Exceptional pin wear resistance reduces chain elongation and can increase wear life up to three times over conventional premium chains (fig. 37).
- Full range of ANSI standard attachments available.
- Extended Life CHP offsets available on a made-to-order basis. Two pitch riveted offsets are required.
- Cotter type connecting links standard for Extended Life CHP chains
  - 40 through 60 pitch dual cotter key.
  - 80 through 180 pitch hardened hook cotter.
  - 200 through 240 pitch coated T-pin.
- Available in single and double-strand sizes – #40 to #240.
- Riveted or cotted pins available depending on size.
- Corrosion-resistant finishes available upon request for side bars, bushings and rollers.
- We suggest operating roller chain with periodic lubrication and maintenance review. Various lubricants are available, including food grade and no-stain, depending on application.

TABLE 79. EXTENDED LIFE CHP® CHAIN SPECIFICATIONS

Chain No.	Pitch P	Width Between L.P. W	Roller Diameter D	Average Weight
	in.		lb./ft.	lb.
40	0.500	0.313	0.313	0.420
50	0.625	0.376	0.400	0.713
60	0.750	0.500	0.469	1.067
80	1.000	0.627	0.625	1.868
100	1.250	0.755	0.750	2.801
120	1.500	1.000	0.875	4.135
140	1.750	1.000	1.000	5.136
160	2.000	1.250	1.126	6.603
180	2.250	1.400	1.406	9.100
200	2.500	1.490	1.562	10.900
240	3.000	1.864	1.875	16.400
C2040	1.000	0.312	0.312	0.340
C2050	1.250	0.376	0.400	0.580
C2060H	1.500	0.500	0.470	1.010
C2080H	2.000	0.625	0.625	1.204

NOTE: Product specifications are subject to change without notice.

NOTE: Contact your Timken Drives representative to obtain certified prints for design and construction.

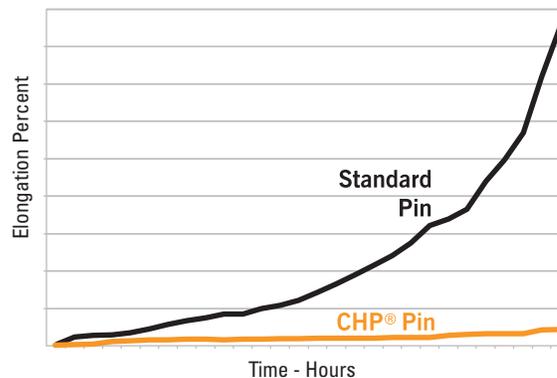


Fig. 37. Elongation vs. time.

### CORROSION- AND MOISTURE-RESISTANT CHAINS

If your power-transmission or conveyor-chain application requires resistance to moisture, mild or aggressive corrosive agents, or extreme temperatures, look to us for the corrosion-resistant chain products that best fit your needs. The chains you receive will help provide the dependability, reliability and productivity that makes us a leader in the production of power transmission and conveyor chains.



#### NICKEL-PLATED CHAIN

Nickel-plated chains are designed to resist incidental contact or exposure to water or water-based wash-down operations. We apply an electroless nickel plating to the component parts prior to assembly to provide initial coverage of all exposed carbon material. Special attention is placed on the after-plating processes to help remove the possibility of hydrogen embrittlement – a common occurrence in lesser-quality chains.

#### SILVER SHIELD CR® SERIES CHAINS

Silver Shield CR series chains are available for those applications that may be subjected to mildly caustic or acidic environments. Silver Shield CR chains consist of our standard carbon steel components, specially coated with a zinc-aluminum compound. This compound, combined with a polymer-based resin, tightly adheres to the components during a high-temperature baking process. This combination, quality carbon steel components and environmental-resistant coating, provides one of the best alternative to stainless in applications where stainless has historically been the only option.

#### AS600 SERIES STAINLESS STEEL CHAIN

The primary use of 600 stainless steel chain is in corrosive and/or high-temperature environments, which shortens the life of a standard carbon steel chain. The hardened round parts provide up to a 50 percent higher working load and better wear life than 304 stainless steel chains. These chains are designed for drive applications, that normally have a high number of articulations.

**⚠ CAUTION**

***Failure to follow these cautions may result in property damage.***

Do not weld or torch-cut nickel plated or Silver Shield CR® coated chains. Consult your Timken Drives representative for application information.

## SELECTION INFORMATION

We offer stainless, Silver Shield CR and nickel-plated NP materials and coatings in commonly used sizes. They're available in standard packaged lengths or cut-to-length as required. Additionally, attachment link plates and extended pins are readily available for the most commonly requested ANSI power transmission and extended pitch conveyor chains. Contact your Timken Drives representative for the specific availability of the size and configuration your application requires.

The overall application requirements are important when selecting the correct type of roller or conveyor chain. The factors that most often define what chain combination should be used are: resistance to the environment, wear life/strength and total operational cost.

The following are some characteristics to consider when selecting the chain that best suits the application.

## ENVIRONMENT RESISTANCE

The chain selected should be capable of resisting the majority of the chemical and/or temperature requirements. If the environment is ambient in temperature, then only chemical presence needs to be addressed. Our stainless, nickel-plated or Silver Shield CR chains may be considered depending upon the severity of the chemical environment. If the environment is one that is elevated or sub-zero, stainless steel chains will most often provide the best overall operation.

## WEAR LIFE/STRENGTH

If satisfactory chain life is defined as extended wear, then carbon steel based products are best suited. Our nickel-plated or Silver Shield CR chains are constructed from carbon steel components having the highest level of wear resistance and strength.

Chain strength is normally defined by its allowable working load. This value is one at which the chain can be expected to operate at or below for an indefinite period of time. Remember, allowable working loads are significantly less than ultimate tensile strength. Chains can have very different allowable working loads but have very similar ultimate tensile strengths.

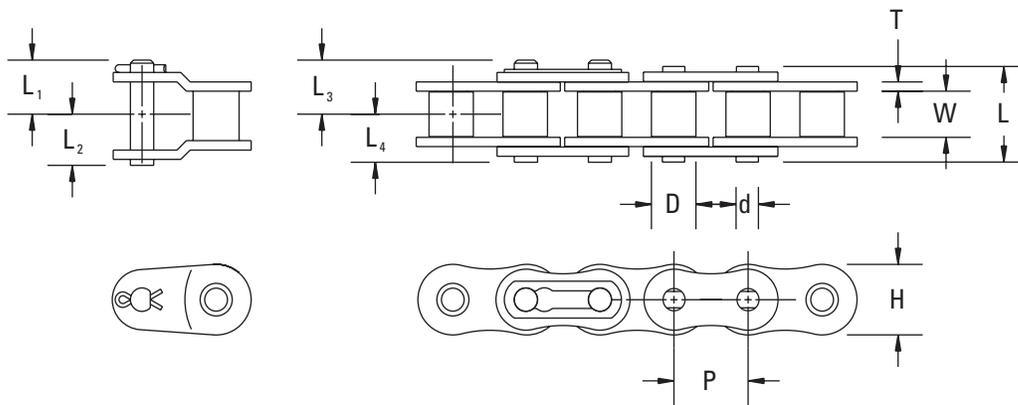
## COST

Cost normally depends on the material used to produce the chain. Stainless steel chains are considerably more costly to produce than carbon-based chains. However, if the environment requires a chain with exceptional corrosion resistance, carbon steel based chains may provide the user with a lower priced product, but may incur a higher cost of operation.

### NICKEL-PLATED ROLLER CHAINS

We produce nickel-plated chains to withstand the effects of exposure to moisture, outdoor conditions and incidental wash-down applications. All components are identical to our carbon steel components with the addition of electroless nickel plating applied prior to assembly, which provides initial coverage of all exposed carbon material.

- Equal in strength and wear life to carbon steel chains.
- Electroless nickel-plated parts provide uniform and comprehensive protection.
- Resists rust from incidental exposure to water or water vapor.
- Nickel-plating applied prior to assembly.



**TABLE 80. NICKEL-PLATED ATTACHMENT CHAIN – ANSI WITH STANDARD ATTACHMENTS**

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin						Average Weight lbs./ft.
				H	T	d	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	
				in.	in.	in.	in.	in.	in.	in.	in.	
40NP	0.500	0.312	0.312	0.472	0.060	0.156	0.630	0.404	0.317	0.377	0.315	0.420
50NP	0.625	0.376	0.400	0.590	0.080	0.200	0.795	0.489	0.399	0.489	0.398	0.713
60NP	0.750	0.500	0.469	0.705	0.094	0.234	0.996	0.600	0.498	0.648	0.498	1.067
80NP	1.000	0.626	0.625	0.943	0.125	0.313	1.283	0.768	0.638	0.857	0.642	1.868
100NP	1.250	0.755	0.750	1.180	0.156	0.375	1.595	0.908	0.785	0.912	0.785	2.680
120NP	1.500	1.000	0.875	1.425	0.187	0.437	1.955	1.119	1.071	1.119	0.989	3.980
160NP	2.000	1.250	1.125	1.899	0.250	0.562	2.538	1.454	1.370	1.454	1.209	6.790

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### SILVER SHIELD CR ROLLER CHAINS

Many industry applications require a roller chain option that provides the strength of carbon steel combined with some degree of corrosion resistance. For these reasons, we engineered Silver Shield CR. Silver Shield CR is constructed using our standard high-quality carbon components that have been specially coated using a zinc-aluminum compound. After coating, a protective polymer resin is applied and baked to provide resistance to abrasion and flaking. Silver Shield CR is specifically designed to resist mild acidic or caustic environments.

- Equal in strength and wear resistance to carbon steel chains.
- Protective coating is applied to all parts for uniform and comprehensive protection.
- Silver Shield CR coating developed specifically for corrosion resistance in caustic or acidic environments.

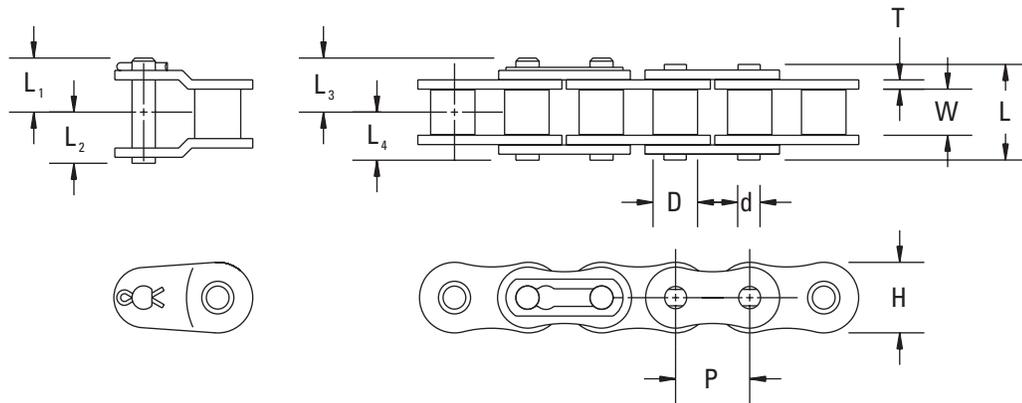


TABLE 81. SILVER SHIELD CR® CHAIN

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin						Average Weight lbs./ft.
				H	T	d	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
40CR	0.500	0.312	0.312	0.472	0.060	0.156	0.630	0.404	0.317	0.377	0.315	0.420
50CR	0.625	0.376	0.400	0.590	0.080	0.200	0.795	0.489	0.399	0.489	0.398	0.713
60CR	0.750	0.500	0.469	0.705	0.094	0.234	0.996	0.600	0.498	0.648	0.498	1.067
80CR	1.000	0.626	0.625	0.943	0.125	0.313	1.283	0.768	0.638	0.857	0.642	1.868
100CR	1.250	0.755	0.750	1.180	0.156	0.375	1.595	0.908	0.785	0.912	0.785	2.680
120CR	1.500	1.000	0.875	1.425	0.187	0.437	1.955	1.119	1.071	1.119	0.989	3.980
140CR	1.750	1.000	1.000	1.663	0.220	0.500	2.136	1.253	1.150	1.253	1.068	5.030
160CR	2.000	1.250	1.125	1.899	0.250	0.562	2.538	1.454	1.370	1.454	1.209	6.790

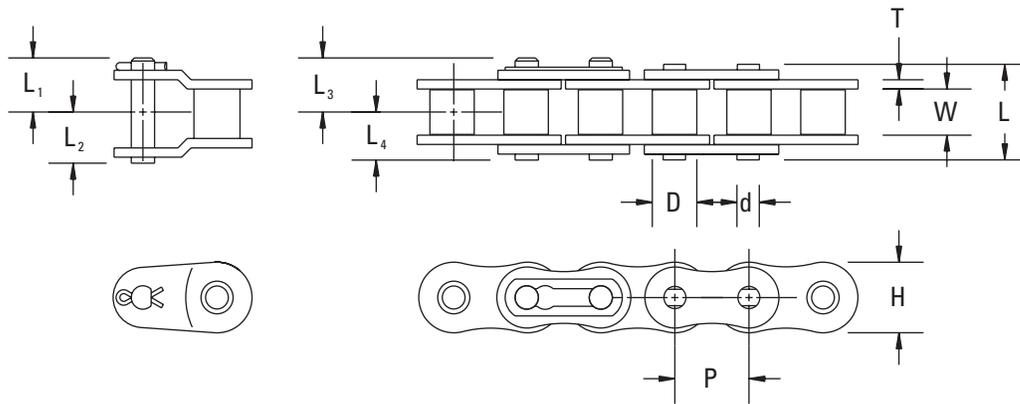
NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

NOTE: Solutions used in wash-down applications may not be compatible with Silver Shield CR coating. Contact your Timken Drives representative for more information.

**⚠ WARNING**  
**Failure to observe the following warnings could create a risk of death or serious injury.**

Do not weld to Silver Shield CR® chain as it will release toxic fumes.

**STAINLESS STEEL ANSI CHAIN SIZES**



**TABLE 82. STAINLESS STEEL**

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin						Max. Allowable Load		Average Weight lbs./ft.	
				H	T	d	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	PS(304SS) NS(316SS)	AS(600SS)		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs./ft.
40	0.500	0.312	0.312	0.472	0.060	0.156	0.630	0.404	0.317	0.377	0.315	100	155	0.420	
50	0.625	0.376	0.400	0.590	0.080	0.200	0.795	0.489	0.399	0.489	0.398	165	230	0.713	
60	0.750	0.500	0.469	0.705	0.094	0.234	0.996	0.600	0.498	0.648	0.498	231	350	1.067	
80	1.000	0.626	0.625	0.943	0.125	0.313	1.283	0.768	0.638	0.857	0.642	396	600	1.868	
100	1.250	0.755	0.750	1.180	0.156	0.375	1.595	0.908	0.785	0.912	0.785	568	850	2.680	
120	1.500	1.000	0.875	1.425	0.187	0.437	1.955	1.119	1.071	1.119	0.989	850	1,278	3.980	
140	1.750	1.000	1.000	1.663	0.220	0.500	2.136	1.253	1.150	1.263	1.068	1,025	1,535	5.030	
160	2.000	1.250	1.125	1.899	0.250	0.562	2.538	1.454	1.370	1.454	1.209	1,400	2,108	6.790	

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

## ***ATTACHMENT ROLLER CHAINS***

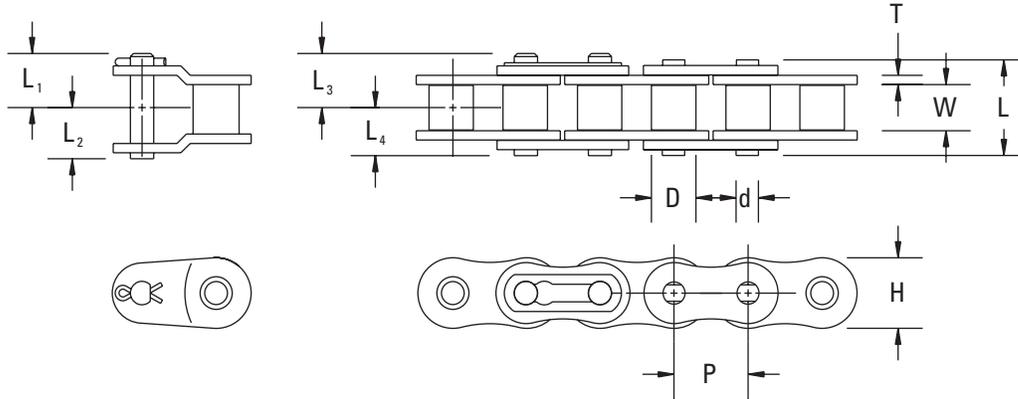
We deliver what customers need, when they need it, supplying attachment chains to get equipment running again.

We offer attachment chains in carbon steel, Extended Life CHP<sup>®</sup>, Silver Shield CR<sup>®</sup>, Silver Shield CR with Extended Life CHP pins or stainless.

Our engineers are available to help you select the right chain for your equipment.



### CARBON STEEL ATTACHMENT CHAIN ANSI CHAIN SIZES AVAILABLE WITH STANDARD ATTACHMENTS

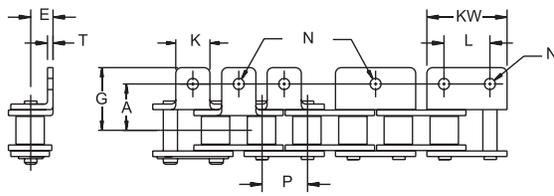


**TABLE 83. CARBON STEEL ATTACHMENT CHAIN – ANSI WITH STANDARD ATTACHMENTS**

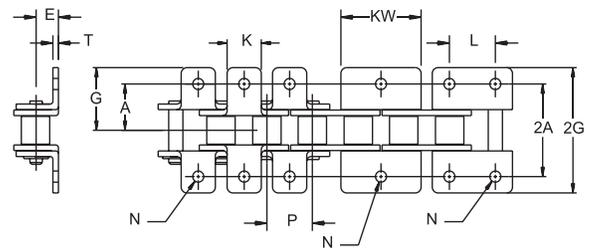
Chain No.	Pitch	Main Roller Link Inside Width	Roller Dia.	Link Plate		Pin						Max. Allowable Load	Average Weight
	P	W	D	H	T	d	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
40	0.500	0.312	0.312	0.472	0.060	0.156	0.630	0.404	0.317	0.377	0.315	615	0.420
50	0.625	0.376	0.400	0.590	0.080	0.200	0.795	0.489	0.399	0.489	0.398	1,010	0.713
60	0.750	0.500	0.469	0.705	0.094	0.234	0.996	0.600	0.498	0.648	0.498	1,410	1.067
80	1.000	0.626	0.625	0.943	0.125	0.313	1.283	0.768	0.638	0.857	0.642	2,350	1.868
100	1.250	0.755	0.750	1.180	0.156	0.375	1.595	0.908	0.785	0.912	0.785	3,800	2.680
120	1.500	1.000	0.875	1.425	0.187	0.437	1.955	1.119	1.071	1.119	0.989	5,380	3.980
140	1.750	1.000	1.000	1.663	0.220	0.500	2.136	1.253	1.150	1.253	1.068	7,280	5.030
160	2.000	1.250	1.125	1.899	0.250	0.562	2.538	1.454	1.370	1.454	1.209	9,190	6.790

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

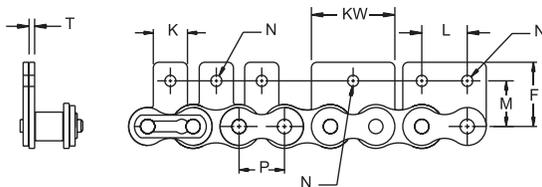
### ANSI ROLLER CHAIN WITH ATTACHMENTS



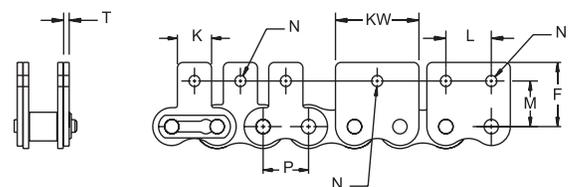
**BA-1**



**BK-1**



**SA-1**



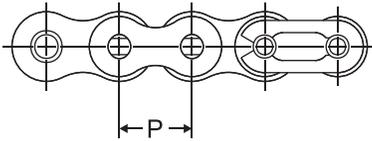
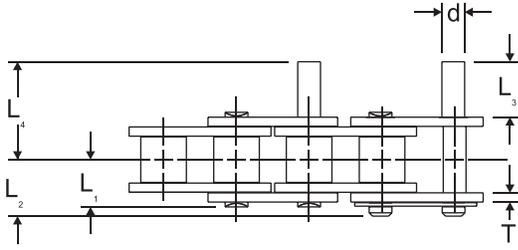
**SK-1**

**TABLE 84. CARBON STEEL – ANSI ROLLER CHAIN WITH ATTACHMENTS**

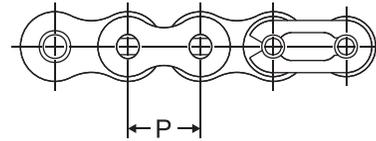
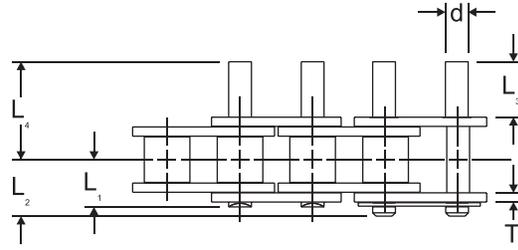
Chain No.	BA-SK-SA-SK Type Attachment													Additional Weight Per Attachment	
	P	T	K	KW	L	N	A	E	G	2A	2G	M	F	BA-SK	BK-SK
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
40	0.500	0.060	0.374	0.970	0.500	0.142	0.500	0.311	0.681	1.000	1.362	0.500	0.685	0.0044	0.0088
50	0.625	0.080	0.500	1.210	0.625	0.205	0.625	0.406	0.917	1.250	1.834	0.625	0.906	0.0066	0.0132
60	0.750	0.094	0.625	1.460	0.750	0.205	0.750	0.469	1.106	1.500	2.212	0.720	1.051	0.0154	0.0308
80	1.000	0.125	0.750	1.940	1.000	0.268	1.000	0.625	1.413	2.000	2.826	0.969	1.358	0.0287	0.0574
100	1.250	0.156	1.000	–	–	0.343	1.250	0.780	1.768	2.500	3.536	1.252	1.732	0.0572	0.1144
120	1.500	0.187	1.250	–	–	0.386	1.500	0.906	2.197	3.000	4.394	1.437	2.081	0.0968	0.1935
140	1.750	0.221	1.375	–	–	0.448	1.750	1.125	2.484	3.500	4.968	1.750	2.500	0.1562	0.3124
160	2.000	0.250	1.500	–	–	0.516	2.000	1.252	2.827	4.000	5.654	2.000	2.760	0.2134	0.4268

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### ANSI ROLLER CHAIN WITH ATTACHMENTS



**D-1**



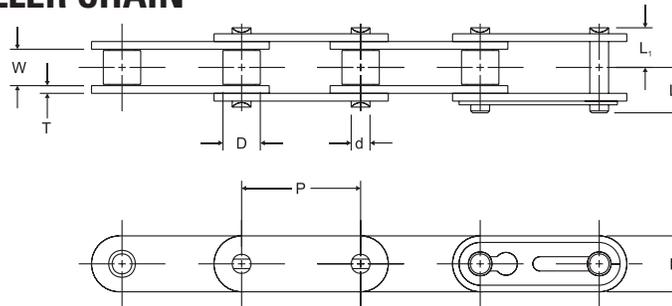
**D-3**

**TABLE 85. CARBON STEEL – ANSI ROLLER CHAIN WITH ATTACHMENTS**

Chain No.	P	T	d	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Additional Weight Per Attachment	
								D-1	D-3
	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
40	0.500	0.060	0.156	0.317	0.377	0.374	0.661	0.002	0.004
50	0.625	0.080	0.200	0.399	0.489	0.469	0.827	0.004	0.008
60	0.750	0.094	0.234	0.498	0.648	0.563	1.018	0.006	0.012
80	1.000	0.125	0.313	0.638	0.857	0.752	1.335	0.020	0.040
100	1.250	0.156	0.325	0.785	0.912	0.937	1.698	0.027	0.054
120	1.500	0.187	0.437	0.989	1.119	1.126	2.024	0.044	0.088
140	1.750	0.220	0.500	1.068	1.253	1.311	2.264	0.066	0.132
160	2.000	0.250	0.562	1.263	1.454	1.500	2.654	0.099	0.198

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

DOUBLE-PITCH ROLLER CHAIN

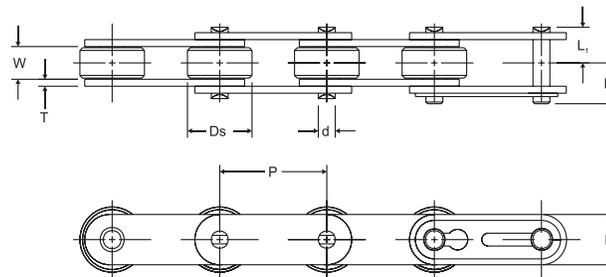


Small roller

TABLE 86. CARBON STEEL DOUBLE-PITCH ROLLER CHAIN – STANDARD ROLLER

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin			Carbon Max. Allowable Load lbs.	Average Weight lbs./ft.
				H	T	d	L <sub>1</sub>	L <sub>2</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
C2040	1.000	0.312	0.312	0.472	0.060	0.156	0.319	0.382	615	0.340
C2050	1.250	0.376	0.400	0.590	0.080	0.200	0.409	0.477	1,010	0.580
C2060H	1.500	0.500	0.469	0.687	0.125	0.234	0.590	0.660	1,410	1.010
C2080H	2.000	0.626	0.625	0.943	0.156	0.312	0.745	0.845	2,350	1.770
C2100H	2.500	0.750	0.250	1.150	0.187	0.375	0.830	0.980	3,800	2.380
C2120H	3.000	1.000	0.875	1.370	0.219	0.437	1.030	1.210	5,380	3.410
C2160H	4.000	1.250	1.125	1.870	0.281	0.563	1.337	1.514	9,190	6.020

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.



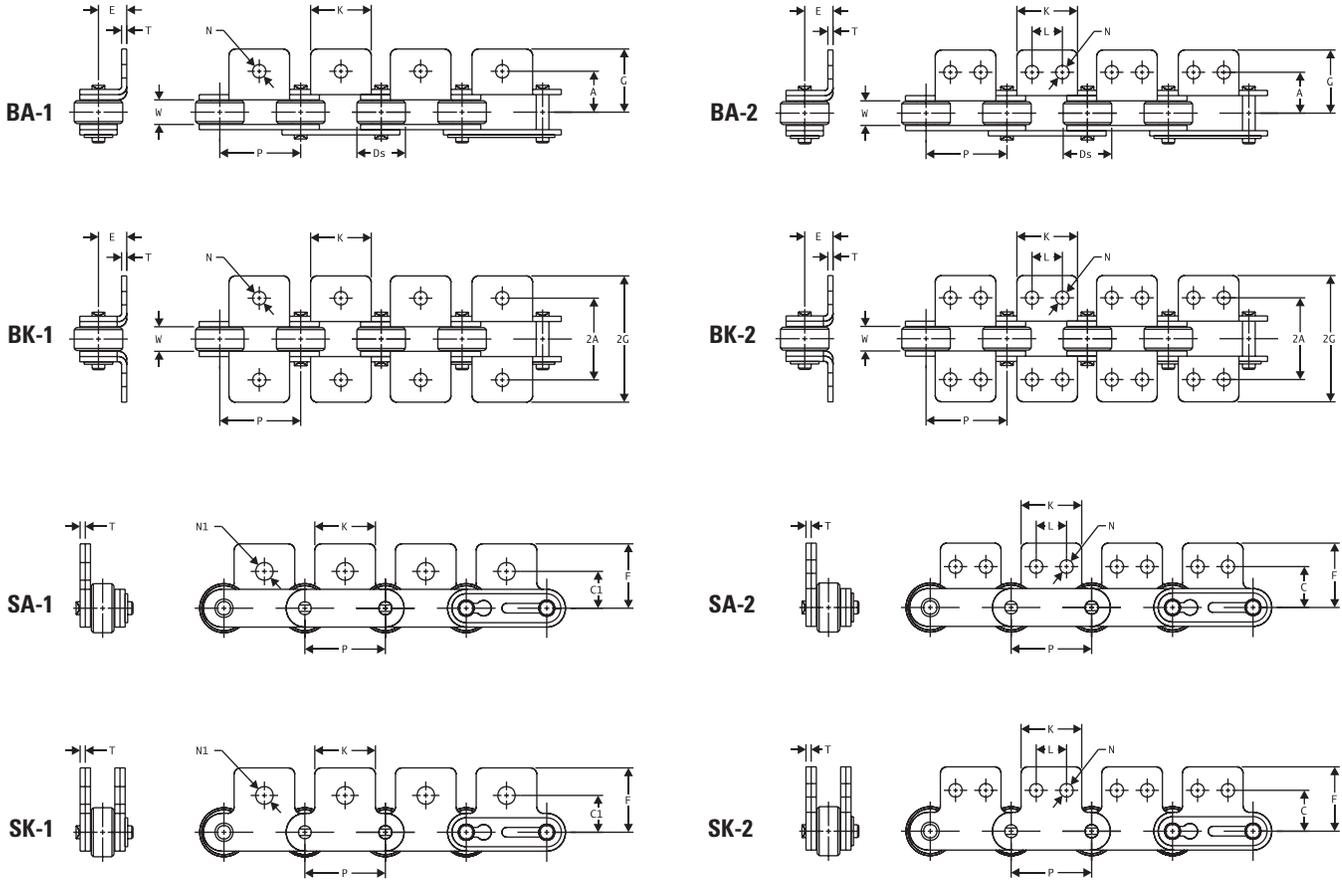
Large roller

TABLE 87. CARBON STEEL DOUBLE-PITCH ROLLER CHAIN – CARRIER ROLLER

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. Ds	Link Plate		Pin			Carbon Max. Allowable Load lbs.	Average Weight lbs./ft.
				H	T	d	L <sub>1</sub>	L <sub>2</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
C2042	1.000	0.312	0.625	0.472	0.060	0.156	0.319	0.382	615	0.580
C2052	1.250	0.376	0.750	0.590	0.080	0.200	0.409	0.477	1,010	0.900
C2062H	1.500	0.500	0.875	0.687	0.125	0.234	0.590	0.660	1,410	1.461
C2082H	2.000	0.626	1.125	0.943	0.156	0.312	0.745	0.845	2,350	2.450
C2102H	2.500	0.750	1.562	1.150	0.187	0.375	0.830	0.980	3,800	3.90
C2122H	3.000	1.000	1.750	1.370	0.219	0.437	1.030	1.210	5,380	5.40
C2162H	4.000	1.250	2.250	1.870	0.281	0.563	1.337	1.514	9,190	9.21

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS



**TABLE 88. CARBON STEEL – DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS**

Chain No.	Pitch P	Link Plate T	BA-SK-SA-SK Type Attachment											Additional Weight Per Attachment			
			K	N	L	A	E	G	2A	2G	C	F	C1	N1	BA-SA	BK-SK	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
C2040 C2042	1.000	0.060	0.750	0.142	0.374	0.500	0.358	0.750	1.000	1.500	0.531	0.780	0.437	0.205	0.006	0.013	
C2050 C2052	1.250	0.080	0.937	0.205	0.469	0.625	0.437	0.953	1.252	1.906	0.625	0.969	0.563	0.268	0.013	0.026	
C2060H C2062H	1.500	0.125	1.126	0.205	0.563	0.844	0.579	1.230	1.688	2.460	0.750	1.205	0.689	0.346	0.037	0.075	
C2080H C2082H	2.000	0.156	1.500	0.268	0.752	1.094	0.750	1.598	2.188	3.196	1.000	1.583	0.874	0.406	0.082	0.163	
C2100H C2102H	2.50	0.189	1.875	0.323	0.937	1.312	0.922	1.950	2.624	3.900	1.250	1.984	1.125	0.516	0.132	0.265	
C2120H C2122H	3.00	0.219	2.250	0.386	1.125	1.562	1.093	2.390	3.124	4.780	1.470	2.361	1.319	0.578	0.221	0.441	
C2160H C2162H	4.00	0.281	3.060	0.516	1.500	2.062	1.437	3.060	5.324	6.120	2.000	3.093	1.75	0.771	0.468	0.895	

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

## DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS

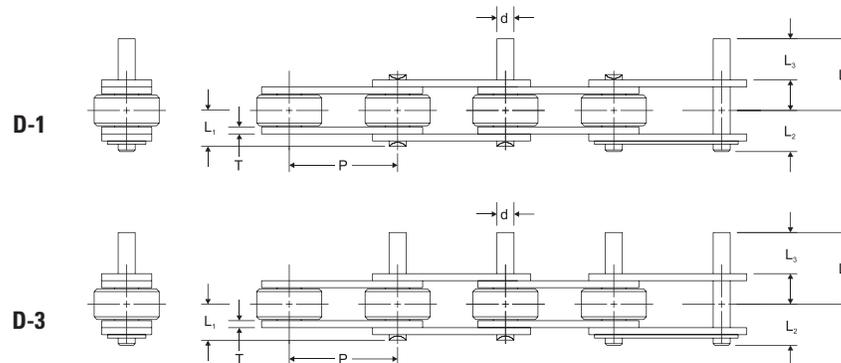


TABLE 89. CARBON STEEL – DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS

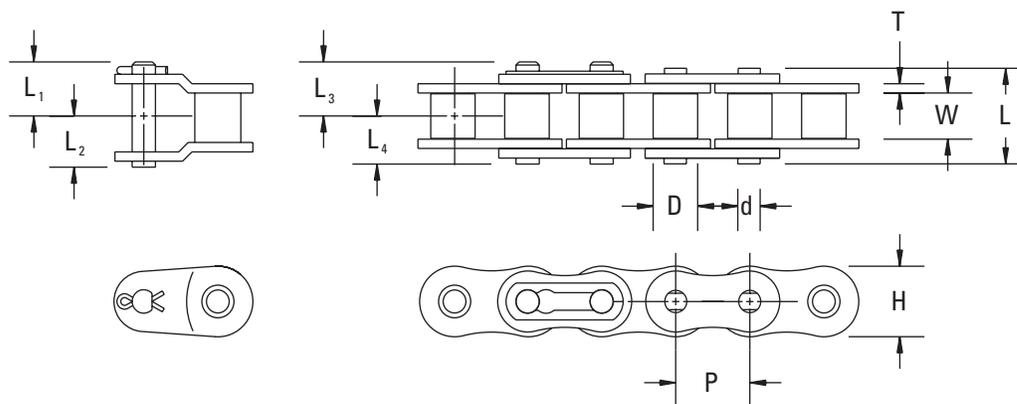
Chain No.	P	T	d	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Additional Weight Per Attachment	
								D-1	D-3
	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
C2040 - C2042	1.000	0.060	0.156	0.317	0.377	0.374	0.661	0.002	0.004
C2050 - C2052	1.250	0.080	0.200	0.399	0.489	0.469	0.827	0.004	0.008
C2060H - C2062H	1.500	0.125	0.234	0.590	0.660	0.563	1.083	0.006	0.012
C2080H - C2082H	2.000	0.156	0.313	0.745	0.845	0.752	1.401	0.020	0.040
C2100H-C2102H	2.500	0.187	0.375	0.830	0.980	0.937	1.687	0.027	0.054
C-2120H-C2122H	3.000	0.219	0.437	1.030	1.210	1.125	2.062	0.044	0.088
C-2160H-C2164H	4.000	0.281	0.562	1.337	1.514	1.500	2.718	0.099	0.198

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### SILVER SHIELD CR® ATTACHMENT CHAIN

We recognize that industry requires an option when the strength of carbon steel and some degree of corrosion resistance is required. For these reasons, we engineered Silver Shield CR. Silver Shield CR is constructed using our standard high-quality carbon components that have been specially coated using a zinc-aluminum compound. After coating, a protective polymer resin is applied and baked to provide resistance to abrasion and flaking. Silver Shield CR is specifically designed to resist corrosion in mildly acidic or caustic environments.

- Equal in strength and wear resistance to carbon steel chains.
- Protective coating is applied to all parts for uniform and comprehensive protection.



**TABLE 90. SILVER SHIELD CR® COATED CHAIN – ANSI WITH STANDARD ATTACHMENTS**

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin						Max. Allowable Load	Average Weight
				H	T	d	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
40CR	0.500	0.312	0.312	0.472	0.060	0.156	0.630	0.404	0.317	0.377	0.315	615	0.420
50CR	0.625	0.376	0.400	0.590	0.080	0.200	0.795	0.489	0.399	0.489	0.398	1,010	0.713
60CR	0.750	0.500	0.469	0.705	0.094	0.234	0.996	0.600	0.498	0.648	0.498	1,410	1.067
80CR	1.000	0.626	0.625	0.943	0.125	0.313	1.283	0.768	0.638	0.857	0.642	2,350	1.868
100CR	1.250	0.755	0.750	1.180	0.156	0.375	1.595	0.908	0.785	0.912	0.785	3,800	2.680
120CR	1.500	1.000	0.875	1.425	0.187	0.437	1.955	1.119	1.071	1.119	0.989	5,380	3.980
140CR	1.750	1.000	1.000	1.663	0.220	0.500	2.136	1.253	1.150	1.253	1.068	7,280	5.030
160CR	2.000	1.250	1.125	1.899	0.250	0.562	2.538	1.454	1.370	1.454	1.209	9,190	6.790

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

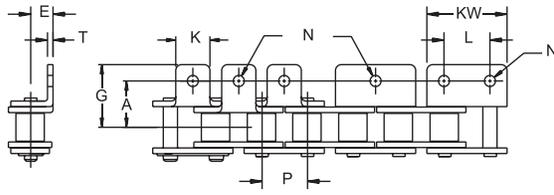
NOTE: Solutions used in wash-down applications may not be compatible with Silver Shield coating. Contact your your Timken Drives representative for more information.

#### **⚠ WARNING**

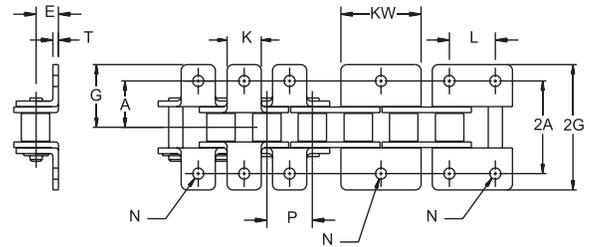
**Failure to observe the following warnings could create a risk of death or serious injury.**

Do not weld to Silver Shield CR® chain as it will release toxic fumes.

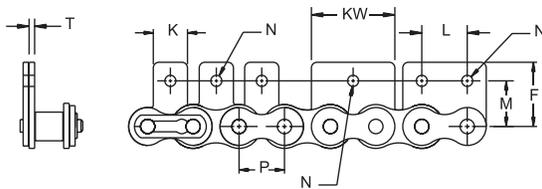
ANSI ROLLER CHAIN WITH ATTACHMENTS



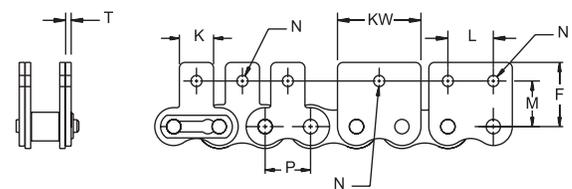
BA-1



BK-1



SA-1



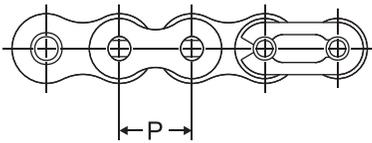
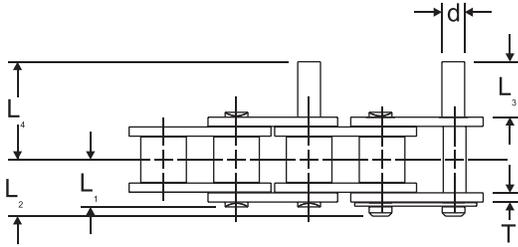
SK-1

TABLE 91. SILVER SHIELD CR COATED CHAIN – ANSI ROLLER CHAIN WITH ATTACHMENTS

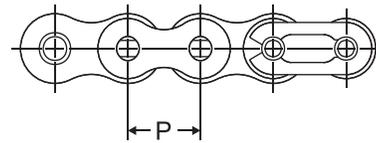
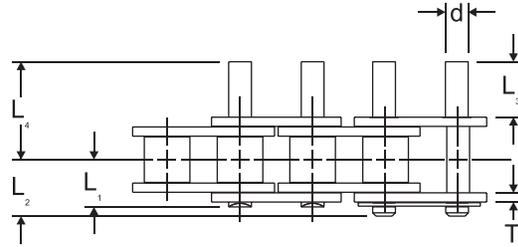
Chain No.	BA-SK-SA-SK Type Attachment													Additional Weight Per Attachment	
	P	T	K	KW	L	N	A	E	G	2A	2G	M	F	BA-SK	BK-SK
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
40CR	0.500	0.060	0.374	0.970	0.500	0.142	0.500	0.311	0.681	1.000	1.362	0.500	0.685	0.0044	0.0088
50CR	0.625	0.080	0.500	1.210	0.625	0.205	0.625	0.406	0.917	1.250	1.834	0.625	0.906	0.0066	0.0132
60CR	0.750	0.094	0.625	1.460	0.750	0.205	0.750	0.469	1.106	1.500	2.212	0.720	1.051	0.0154	0.0308
80CR	1.000	0.125	0.750	1.940	1.000	0.268	1.000	0.625	1.413	2.000	2.826	0.969	1.358	0.0287	0.0574
100CR	1.250	0.156	1.000	–	–	0.343	1.250	0.780	1.768	2.500	3.536	1.252	1.732	0.0572	0.1144
120CR	1.500	0.187	1.250	–	–	0.386	1.500	0.906	2.197	3.000	4.394	1.437	2.081	0.0968	0.1935
140CR	1.750	0.221	1.375	–	–	0.448	1.750	1.125	2.484	3.500	4.968	1.750	2.500	0.1562	0.3124
160CR	2.000	0.250	1.500	–	–	0.516	2.000	1.252	2.827	4.000	5.654	2.000	2.760	0.2134	0.4268

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### ANSI ROLLER CHAIN WITH ATTACHMENTS



**D-1**



**D-3**

**TABLE 92. SILVER SHIELD CR COATED CHAIN – ANSI ROLLER CHAIN WITH ATTACHMENTS**

Chain No.	P	T	d	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Additional Weight Per Attachment	
								D-1	D-3
	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
40CR	0.500	0.060	0.156	0.317	0.377	0.374	0.661	0.002	0.004
50CR	0.625	0.080	0.200	0.399	0.489	0.469	0.827	0.004	0.008
60CR	0.750	0.094	0.234	0.498	0.648	0.563	1.018	0.006	0.012
80CR	1.000	0.125	0.313	0.638	0.857	0.752	1.335	0.020	0.040
100CR	1.250	0.156	0.325	0.785	0.912	0.937	1.698	0.027	0.054
120CR	1.500	0.187	0.437	0.989	1.119	1.126	2.024	0.044	0.088
140CR	1.750	0.220	0.500	1.068	1.253	1.311	2.264	0.066	0.132
160CR	2.000	0.250	0.562	1.263	1.454	1.500	2.654	0.099	0.198

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

DOUBLE-PITCH ROLLER CHAIN

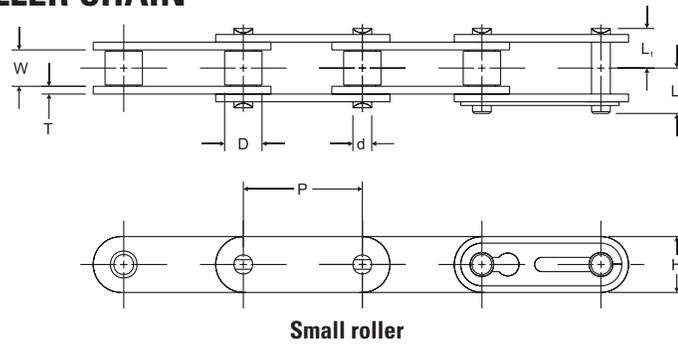


TABLE 93. SILVER SHIELD CR COATED DOUBLE-PITCH ROLLER CHAIN – STANDARD ROLLER

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin			Carbon Max. Allowable Load	Average Weight
				H	T	d	L <sub>1</sub>	L <sub>2</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
C2040CR	1.000	0.312	0.312	0.472	0.060	0.156	0.319	0.382	615	0.340
C2050CR	1.250	0.376	0.400	0.590	0.080	0.200	0.409	0.477	1,010	0.580
C2060HCR	1.500	0.500	0.469	0.687	0.125	0.234	0.590	0.660	1,410	1.010
C2080HCR	2.000	0.626	0.625	0.943	0.156	0.312	0.745	0.845	2,350	1.770
C2100HCR	2.500	0.750	0.250	1.150	0.187	0.375	0.830	0.980	3,800	2.380
C2120HCR	3.000	1.000	0.875	1.370	0.219	0.437	1.030	1.210	5,380	3.410
C2160HCR	4.000	1.250	1.125	1.870	0.281	0.563	1.337	1.514	9,190	6.020

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

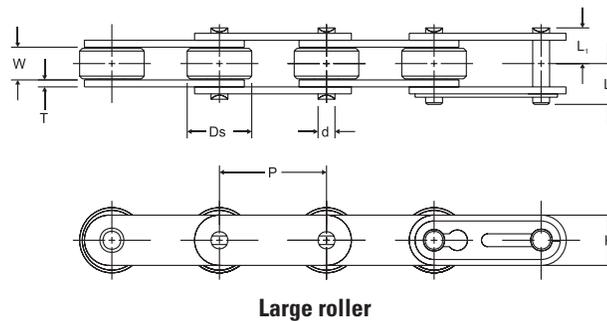
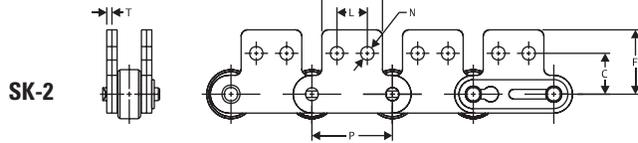
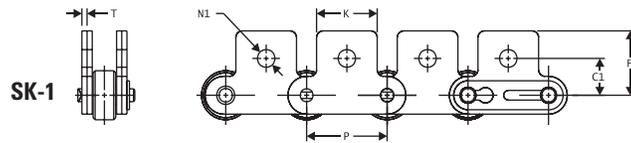
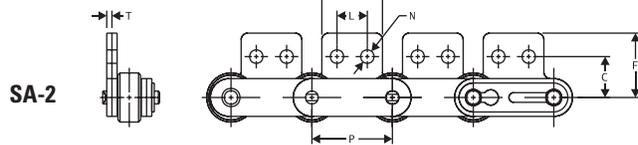
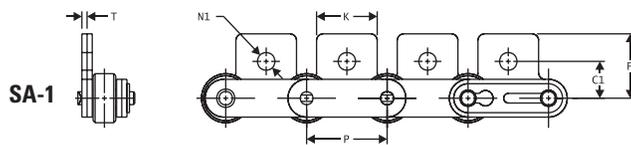
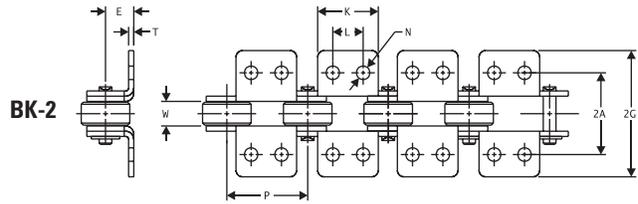
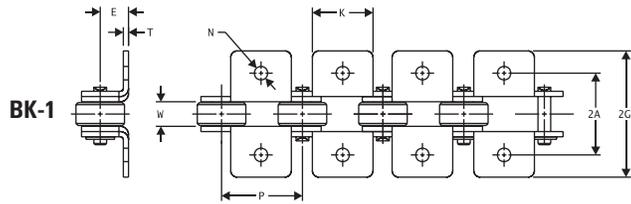
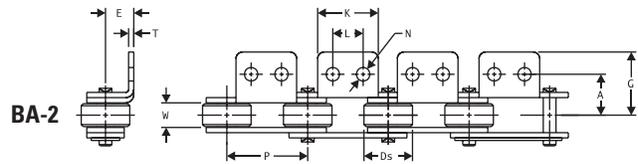
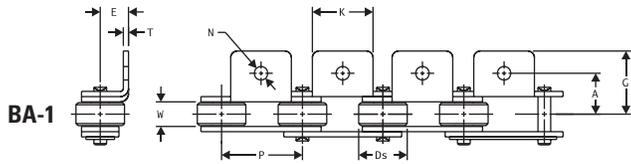


TABLE 94. SILVER SHIELD CR COATED DOUBLE-PITCH ROLLER CHAIN – CARRIER ROLLER

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. Ds	Link Plate		Pin			Carbon Max. Allowable Load	Average Weight
				H	T	d	L <sub>1</sub>	L <sub>2</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs./ft.
C2042CR	1.000	0.312	0.625	0.472	0.060	0.156	0.319	0.382	615	0.580
C2052CR	1.250	0.376	0.750	0.590	0.080	0.200	0.409	0.477	1,010	0.900
C2062HCR	1.500	0.500	0.875	0.687	0.125	0.234	0.590	0.660	1,410	1.461
C2082HCR	2.000	0.626	1.125	0.943	0.156	0.312	0.745	0.845	2,350	2.450
C2102HCR	2.500	0.750	1.562	1.150	0.187	0.375	0.830	0.980	3,800	3.90
C2122HCR	3.000	1.000	1.750	1.370	0.219	0.437	1.030	1.210	5,380	5.40
C2162HCR	4.000	1.250	2.250	1.870	0.281	0.563	1.337	1.514	9,190	9.21

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS



**TABLE 95. SILVER SHIELD CR COATED CHAIN – DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS**

Chain No.	Pitch P	Link Plate T	BA-SK-SA-SK Type Attachment												Additional Weight Per Attachment	
			K	N	L	A	E	G	2A	2G	C	F	C1	N1	BA-SA	BK-SK
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
C2040CR C2042CR	1.000	0.060	0.750	0.142	0.374	0.500	0.358	0.750	1.000	1.500	0.531	0.780	0.437	0.205	0.006	0.013
C2050CR C2052CR	1.250	0.080	0.937	0.205	0.469	0.625	0.437	0.953	1.252	1.906	0.625	0.969	0.563	0.268	0.013	0.026
C2060HCR C2062HCR	1.500	0.125	1.126	0.205	0.563	0.844	0.579	1.230	1.688	2.460	0.750	1.205	0.689	0.346	0.037	0.075
C2080HCR C2082HCR	2.000	0.156	1.500	0.268	0.752	1.094	0.750	1.598	2.188	3.196	1.000	1.583	0.874	0.406	0.082	0.163
C2100HCR C2102HCR	2.50	0.189	1.875	0.323	0.937	1.312	0.922	1.950	2.624	3.900	1.250	1.984	1.125	0.516	0.132	0.265
C2120HCR C2122HCR	3.00	0.219	2.250	0.386	1.125	1.562	1.093	2.390	3.124	4.780	1.470	2.361	1.319	0.578	0.221	0.441
C2160HCR C2162HCR	4.00	0.281	3.060	0.516	1.500	2.062	1.437	3.060	5.324	6.120	2.000	3.093	1.75	0.771	0.468	0.895

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

## DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS

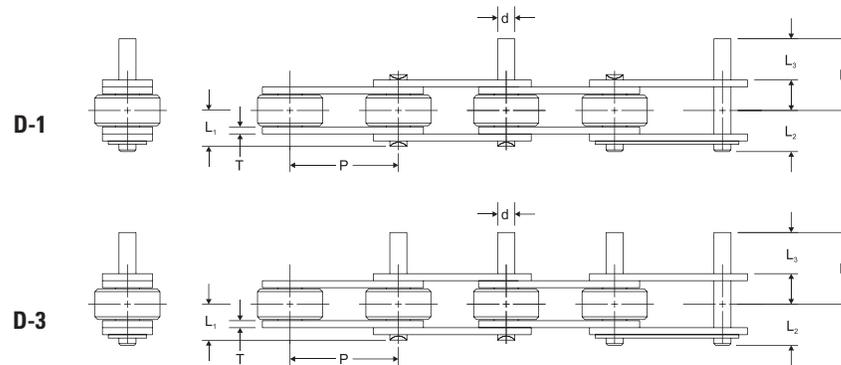


TABLE 96. SILVER SHIELD CR COATED CHAIN – DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS

Chain No.	P	T	d	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Additional Weight Per Attachment	
								D-1	D-3
	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
C2040 - C2042CR	1.000	0.060	0.156	0.317	0.377	0.374	0.661	0.002	0.004
C2050 - C2052CR	1.250	0.080	0.200	0.399	0.489	0.469	0.827	0.004	0.008
C2060H - C2062HCR	1.500	0.125	0.234	0.590	0.660	0.563	1.083	0.006	0.012
C2080H - C2082HCR	2.000	0.156	0.313	0.745	0.845	0.752	1.401	0.020	0.040
C2100H - C2102HCR	2.500	0.187	0.375	0.830	0.980	0.937	1.687	0.027	0.054
C-2120H - C2122HCR	3.000	0.219	0.437	1.030	1.210	1.125	2.062	0.044	0.088
C-2160H - C2162CR	4.000	0.281	0.562	1.337	1.514	1.500	2.718	0.099	0.198

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### STAINLESS STEEL ATTACHMENT CHAIN

We produce 600SS (AS) series stainless steel attachment chains that provide excellent resistance to most corrosive agents and temperature extremes beyond the capability of carbon steel chain. Chain construction uses 600SS pins, bushings and rollers with 300SS side plates.

- Provides corrosion resistance superior to either nickel-plated or coated-series chains.
- Provides for operation in temperature ranges above and below where carbon steel base chains can operate.
- Up to 50 percent higher working load compared to all 304SS chains.
- Better expected wear life compared to all 304SS chains.
- 304SS (PS) or 316SS (NS) chains are available upon request.



### ANSI CHAIN SIZES AVAILABLE WITH STANDARD ATTACHMENTS

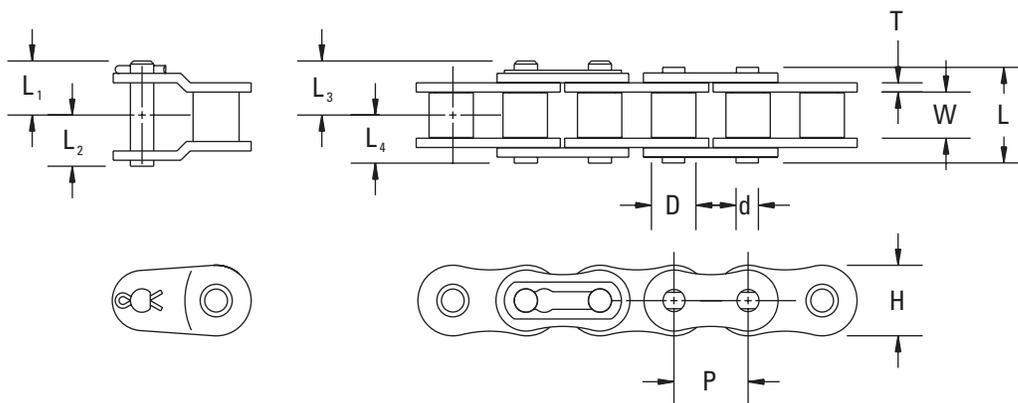
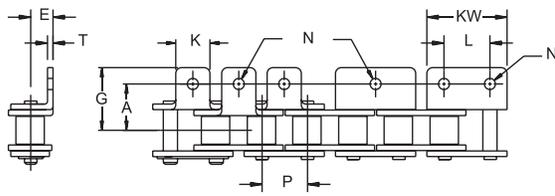


TABLE 97. STAINLESS STEEL ANSI CHAIN – AVAILABLE WITH STANDARD ATTACHMENTS

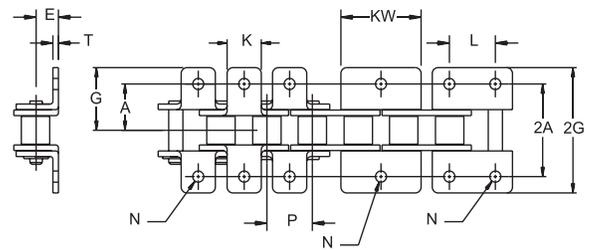
Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin						Max. Allowable Load AS(600SS) lbs.	Average Weight lbs./ft.
				H	T	d	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		
40AS	0.500	0.312	0.312	0.472	0.060	0.156	0.630	0.404	0.317	0.377	0.315	155	0.420
50AS	0.625	0.376	0.400	0.590	0.080	0.200	0.795	0.489	0.399	0.489	0.398	230	0.713
60AS	0.750	0.500	0.469	0.705	0.094	0.234	0.996	0.600	0.498	0.648	0.498	350	1.067
80AS	1.000	0.626	0.625	0.943	0.125	0.313	1.283	0.768	0.638	0.857	0.642	600	1.868
100AS	1.250	0.755	0.750	1.180	0.156	0.375	1.595	0.908	0.785	0.912	0.785	850	2.680
120AS	1.500	1.000	0.875	1.425	0.187	0.437	1.955	1.119	1.071	1.119	0.989	1,278	3.980
140AS	1.750	1.000	1.000	1.663	0.220	0.500	2.136	1.253	1.150	1.253	1.068	1,535	5.030
160AS	2.000	1.250	1.125	1.899	0.250	0.562	2.538	1.454	1.370	1.454	1.209	2,100	6.790

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

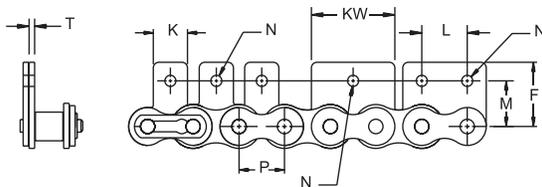
### ANSI ROLLER CHAIN WITH ATTACHMENTS



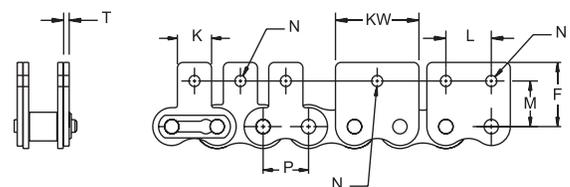
**BA-1**



**BK-1**



**SA-1**



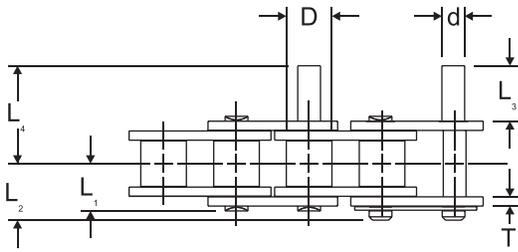
**SK-1**

**TABLE 98. STAINLESS STEEL ANSI CHAIN WITH ATTACHMENTS**

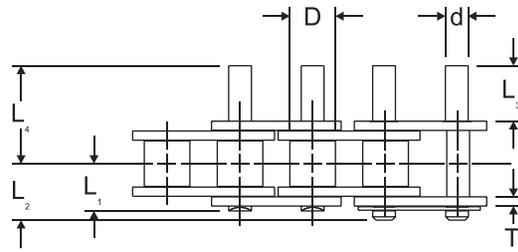
Chain No.	BA-SK-SA-SK Type Attachment													Additional Weight Per Attachment	
	P	T	K	KW	L	N	A	E	G	2A	2G	M	F	BA-SK	BK-SK
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
40AS	0.500	0.060	0.374	0.970	0.500	0.142	0.500	0.311	0.681	1.000	1.362	0.500	0.685	0.0044	0.0088
50AS	0.625	0.080	0.500	1.210	0.625	0.205	0.625	0.406	0.917	1.250	1.834	0.625	0.906	0.0066	0.0132
60AS	0.750	0.094	0.625	1.460	0.750	0.205	0.750	0.469	1.106	1.500	2.212	0.720	1.051	0.0154	0.0308
80AS	1.000	0.125	0.750	1.940	1.000	0.268	1.000	0.625	1.413	2.000	2.826	0.969	1.358	0.0287	0.0574
100AS	1.250	0.156	1.000	—	—	0.343	1.250	0.780	1.768	2.500	3.536	1.252	1.732	0.0572	0.1144
120AS	1.500	0.187	1.250	—	—	0.386	1.500	0.906	2.197	3.000	4.394	1.437	2.081	0.0968	0.1935
140AS	1.750	0.221	1.375	—	—	0.448	1.750	1.125	2.484	3.500	4.968	1.750	2.500	0.1562	0.3124
160AS	2.000	0.250	1.500	—	—	0.516	2.000	1.252	2.827	4.000	5.654	2.000	2.760	0.2134	0.4268

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### ANSI ROLLER CHAIN WITH ATTACHMENTS



**D-1**



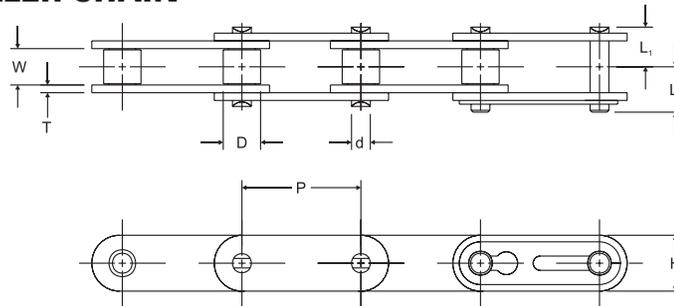
**D-3**

**TABLE 99. STAINLESS STEEL CHAIN – ANSI ROLLER CHAIN WITH ATTACHMENTS**

Chain No.	P	T	d	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Additional Weight Per Attachment	
								D-1	D-3
	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
40AS	0.500	0.060	0.156	0.317	0.377	0.374	0.661	0.002	0.004
50AS	0.625	0.080	0.200	0.399	0.489	0.469	0.827	0.004	0.008
60AS	0.750	0.094	0.234	0.498	0.648	0.563	1.018	0.006	0.012
80AS	1.000	0.125	0.313	0.638	0.857	0.752	1.335	0.020	0.040
100AS	1.250	0.156	0.325	0.785	0.912	0.937	1.698	0.027	0.054
120AS	1.500	0.187	0.437	0.989	1.119	1.126	2.024	0.044	0.088
140AS	1.750	0.220	0.500	1.068	1.253	1.311	2.264	0.066	0.132
160AS	2.000	0.250	0.562	1.263	1.454	1.500	2.654	0.099	0.198

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

## DOUBLE-PITCH ROLLER CHAIN

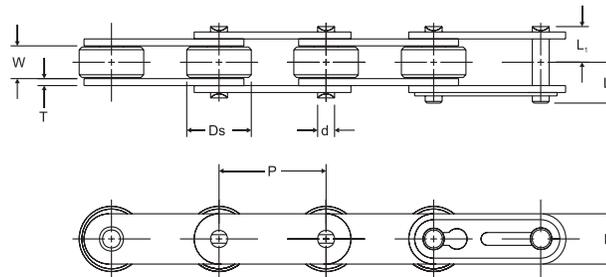


Standard roller

TABLE 100. STAINLESS STEEL DOUBLE-PITCH ROLLER CHAIN – STANDARD ROLLER

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin			Max. Allowable Load AS(600SS) lbs.	Average Weight lbs./ft.
				H	T	d	L <sub>1</sub>	L <sub>2</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.		
C2040AS	1.000	0.312	0.312	0.472	0.060	0.156	0.319	0.382	155	0.340
C2050AS	1.250	0.376	0.400	0.590	0.080	0.200	0.409	0.477	230	0.580
C2060HAS	1.500	0.500	0.469	0.687	0.125	0.234	0.590	0.660	375	1.010
C2080HAS	2.000	0.626	0.625	0.943	0.156	0.312	0.745	0.845	625	1.770
C2100HAS	2.500	0.750	0.250	1.150	0.187	0.375	0.830	0.980	900	2.380
C2120HAS	3.000	1.000	0.875	1.370	0.219	0.437	1.030	1.210	1,340	3.410
C2160HAS	4.000	1.250	1.125	1.870	0.281	0.563	1.337	1.514	2,170	6.020

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.



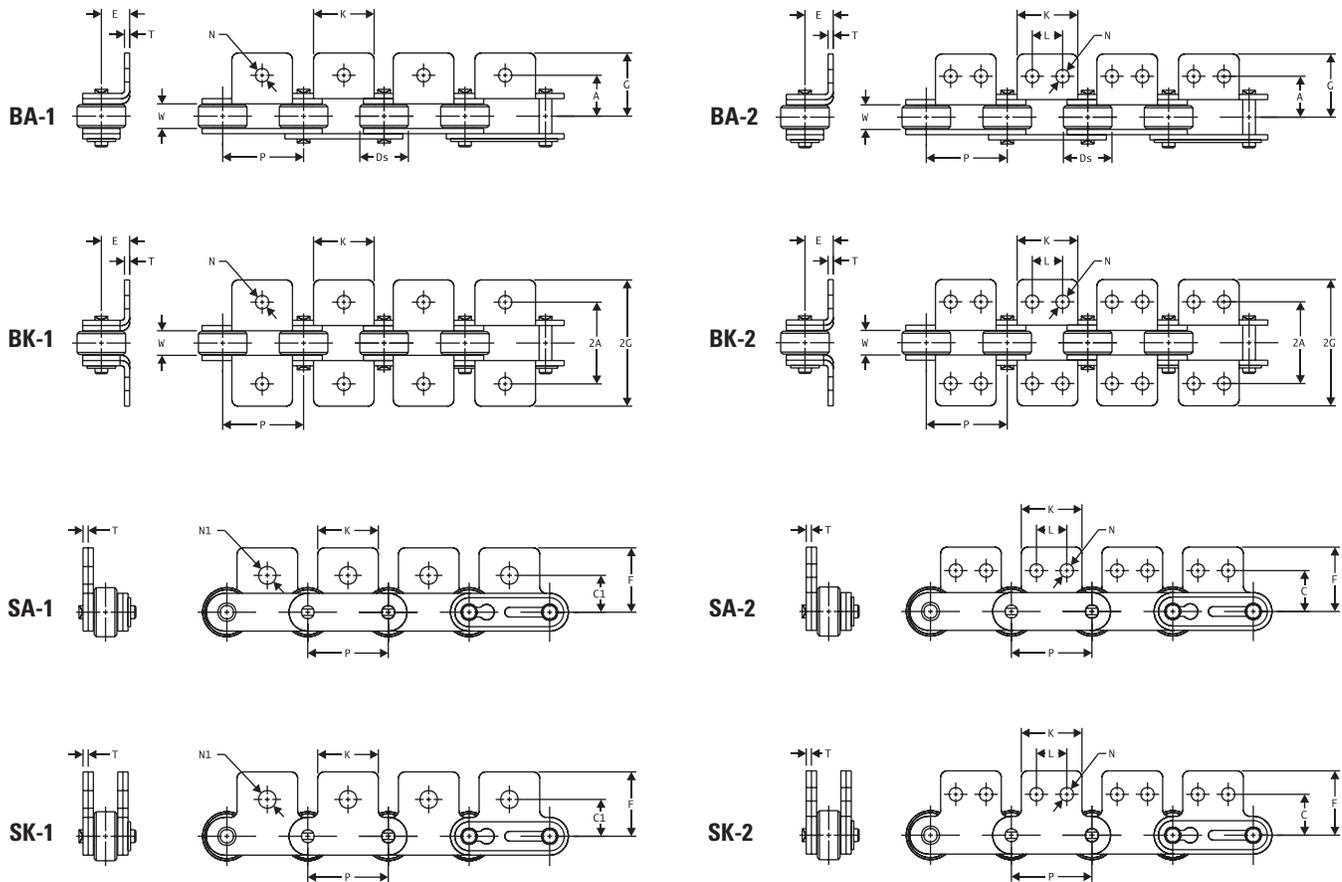
Large roller

TABLE 101. STAINLESS STEEL DOUBLE-PITCH ROLLER CHAIN – CARRIER ROLLER

Chain No.	Pitch P	Main Roller Link Inside Width W	Roller Dia. D	Link Plate		Pin			Max. Allowable Load AS(600SS) lbs.	Average Weight lbs./ft.
				H	T	d	L <sub>1</sub>	L <sub>2</sub>		
	in.	in.	in.	in.	in.	in.	in.	in.		
C2042AS	1.000	0.312	0.625	0.472	0.060	0.156	0.319	0.382	155	0.580
C2052AS	1.250	0.376	0.750	0.590	0.080	0.200	0.409	0.477	230	0.900
C2062HAS	1.500	0.500	0.875	0.687	0.125	0.234	0.590	0.660	375	1.461
C2082HAS	2.000	0.626	1.125	0.943	0.156	0.312	0.745	0.845	625	2.450
C2100HAS	2.500	0.750	1.562	1.150	0.187	0.375	0.830	0.980	900	3.90
C2120HAS	3.000	1.000	1.750	1.370	0.219	0.437	1.030	1.210	1,340	5.40
C2160HAS	4.000	1.250	2.250	1.870	0.281	0.563	1.337	1.514	2,170	9.21

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

### DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS



**TABLE 102. STAINLESS STEEL CHAIN – DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS**

Chain No.	Pitch P	Link Plate T	BA-SK-SA-SK Type Attachment											Additional Weight Per Attachment			
			K	N	L	A	E	G	2A	2G	C	F	C1	N1	BA-SA	BK-SK	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
C2040AS C2042AS	1.000	0.060	0.750	0.142	0.374	0.500	0.358	0.750	1.000	1.500	0.531	0.780	0.437	0.205	0.006	0.013	
C2050AS C2052AS	1.250	0.080	0.937	0.205	0.469	0.625	0.437	0.953	1.252	1.906	0.625	0.969	0.563	0.268	0.013	0.026	
C2060HAS C2062HAS	1.500	0.125	1.126	0.205	0.563	0.844	0.579	1.230	1.688	2.460	0.750	1.205	0.689	0.346	0.037	0.075	
C2080HAS C2082HAS	2.000	0.156	1.500	0.268	0.752	1.094	0.750	1.598	2.188	3.196	1.000	1.583	0.874	0.406	0.082	0.163	
C2100HAS C2102HAS	2.50	0.189	1.875	0.323	0.937	1.312	0.922	1.950	2.624	3.900	1.250	1.984	1.125	0.516	0.132	0.265	
C2120HAS C2122HAS	3.00	0.219	2.250	0.386	1.125	1.562	1.093	2.390	3.124	4.780	1.470	2.361	1.319	0.578	0.221	0.441	
C2160HAS C2162HAS	4.00	0.281	3.060	0.516	1.500	2.062	1.437	3.060	5.324	6.120	2.000	3.093	1.75	0.771	0.468	0.895	

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.

## DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS

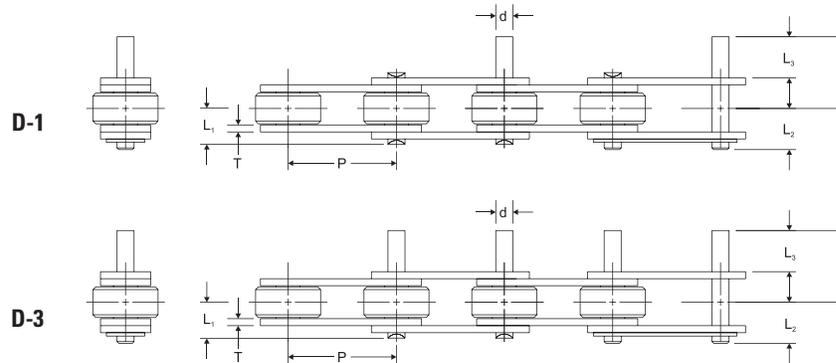


TABLE 103. STAINLESS STEEL CHAIN – DOUBLE-PITCH ROLLER CHAIN WITH ATTACHMENTS

Chain No.	P	T	d	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Additional Weight Per Attachment	
								D-1	D-3
	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.
C2040 - C2042AS	1.000	0.060	0.156	0.317	0.377	0.374	0.661	0.002	0.004
C2050 - C2052AS	1.250	0.080	0.200	0.399	0.489	0.469	0.827	0.004	0.008
C2060H - C2062HAS	1.500	0.125	0.234	0.590	0.660	0.563	1.083	0.006	0.012
C2080H - C2082HAS	2.000	0.156	0.313	0.745	0.845	0.752	1.401	0.020	0.040
C2100H - C2102HAS	2.500	0.187	0.375	0.830	0.980	0.937	1.687	0.027	0.054
C-2120H - C2122HAS	3.000	0.219	0.437	1.030	1.210	1.125	2.062	0.044	0.088
C-2160H - C2164HAS	4.000	0.281	0.562	1.337	1.514	1.500	2.718	0.099	0.198

NOTE: Dimensions are subject to change. Contact your Timken Drives representative to obtain certified prints for design and construction.



## GLOSSARY

### A

**Angle of Flex:** The total angle of chain joint articulation as a chain enters or leaves a sprocket or wheel. The angle is equal to 360 degrees divided by the number of teeth in the sprocket.

**ANSI/ASME:** The abbreviation for “American National Standards Institute” and “American Society of Mechanical Engineers” – the organization that sets the standards by which chains should be manufactured.

**Articulation (v, “articulate”):** The action of a chain joint flexing from straight, to an angle and back to straight as the joint enters and leaves the sprocket or other path, causing it to flex.



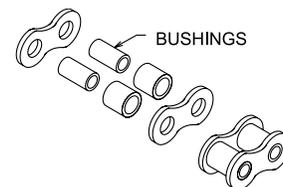
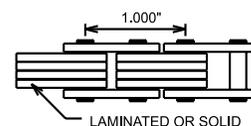
### B

**Backlash:** Movement (if any) of the chain along the pitch line of the sprocket when the direction of chain travel is reversed.

**Block Chain:** An alternative name used by some manufacturers for bar-link chain or for certain styles of leaf chain.

**Bottom Diameter:** The diameter of a circle measured between one tooth gap and the opposite gap for a sprocket with even an number of teeth.

**Bushing:** Internal component in a roller chain that the pin articulates around and the roller rotates on.



### C

**Cable Chain:** See Leaf Chain.

**Caliper Diameter:** The distance measured between one tooth gap and the nearest opposite gap for a sprocket with an odd number of teeth.

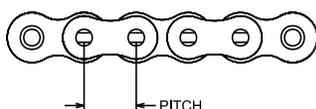
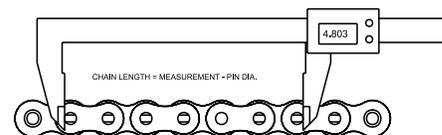
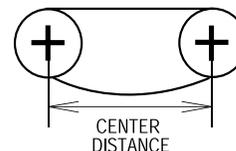
**Caterpillar Drive Chain:** Chain with pushers that is used to drive drop forged chain.

**Center Distance:** The distance between the centers of the shafts of a chain drive.

**Chain Casing:** An oil-retaining safety enclosure around a chain drive.

**Chain Guard:** An open guard of sheet metal, expanded metal or similar construction around a chain drive.

**Chain Length:** The actual chain length between the joint centers at each end of a taut chain strand. This distance is usually expressed in feet and/or inches or in pitches.



**Chain Pitch (Nominal):** The average distance between the joints (except for staggered pitch chains) of an assembled chain. In some cases, “joint,” as defined here, will be a center of flexure not specifically identified with individual parts of the chain.

**Chain Pitch Elongation or Chain Elongation:** Increase in measured length due to wear or excessive load. Normally expressed in percent of length.

**Chain Take-up:** A mechanical device that takes-up chain slack. This could be an idler sprocket or similar device mounted on an adjustable bracket to adjust the slack in a chain installation.

**Chain Width:** Defined somewhat differently for various chains, but usually the inside width of the chain between the roller link plates.

**Chordal Effect (Chordal Action):** The effect produced by the chain joint centers being forced to follow arcs instead of chords of the sprocket pitch circle.

**Clevis Connector:** A connector used to connect a strand of leaf chain that has an inner-link end to a clevis block that has an inner-link configuration.

**Clevis Pin:** A pin used to connect a strand of leaf chain that has an inner link end to a clevis block that has an outer-link configuration. The clevis manufacturer should supply this part to help ensure that it will be compatible with the clevis block.

**Compressive Stresses:** Stresses that act to compress a material and place the material in compression.

**Connecting Link:** For a roller chain, a pin link made with one link plate that is easily detachable to facilitate connecting or disconnecting the chain.

**Cotter Key:** The retaining pin for a connecting link.

**Creep:** The flow of plastic deformation of metals held for long periods of time at stresses lower than the normal yield strength. The effect is particularly important if the temperature of stressing is in the vicinity of the re-crystallization temperature of the metal.

**Crescent Chain:** Standard chain with a crescent-shaped top plate.

**Curve Chain:** Chain designed to bend around curves in the horizontal position.

**Cycle:** Change in load level as a chain completes a cycle around a system. Usually the change is from negligible load to a load peak on a regular basis as the chain undergoes a complete operation cycle.

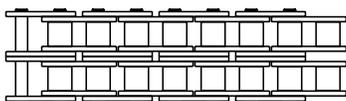
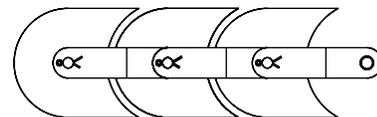
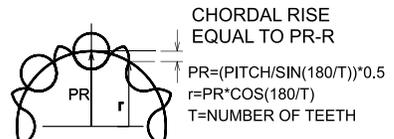
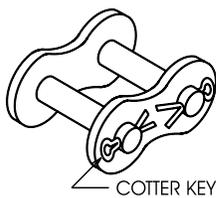
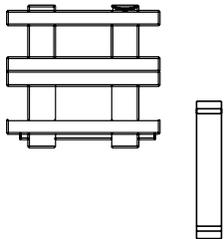
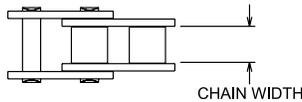
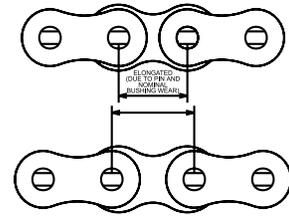
## D

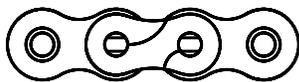
**Deep Link Conveyor Chain:** Chain design with a carrier roller that protrudes down below the side bar but does not protrude above the side bar.

**Design Horsepower:** The specified horsepower for a chain drive multiplied by a service factor. It is the value used to select the chain size for the drive.

**Double-Pitch Roller Chain:** A roller chain having double the pitch of a standard roller chain, but otherwise having standard pins and bushings, and standard or over-size rollers.

**Duplex Roller Chain:** Double strand chain (80-2) (double strand).

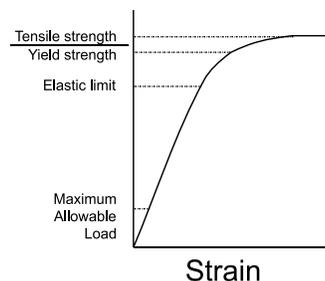




**E**

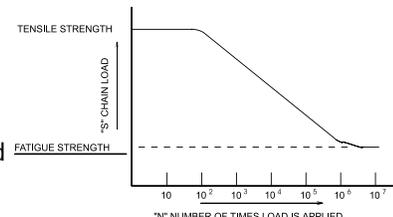
**Elastic Limit:** The highest load a part (e.g. chain strand) can sustain without incurring a permanent change in length.

**Embrittlement:** Reduction in ductility of materials due to exposure to certain environments or temperatures.



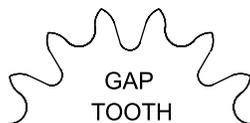
**F**

**Fatigue Strength:** Fatigue is the phenomenon leading to fracture under repeated fluctuating stresses having a maximum value less than the yield strength of material. Fatigue strength is the maximum stress that can be sustained for a specified number of cycles (10E7) without failure.



**G**

**Galling:** A condition on the load-bearing surface of a pin or bushing of a chain where excessive friction between high spots results in localized welding with subsequent tearing and a further roughening of the contact surfaces.



**Gap Tooth Sprocket:** An even-number tooth sprocket designed with clearance for a through rod or saddle. D-5 or GK1 attachment chains are used on this style sprocket.

**H**

**Hardness:** Chain hardness is typically measured in Vickers, Brinell or Rockwell.

**Hoist Chain:** Chain manufactured strictly for a lifting application.

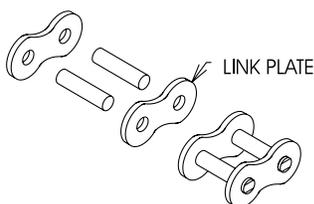
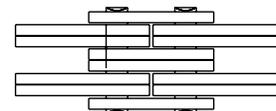
**Hollow Pin Roller Chain:** Chain manufactured using a bushing as the pin holding the pin link plates. This chain is generally used in pairs with the two strands running parallel and a through rod tying them together.

**J**

**Joining Link:** See Connecting Link.

**L**

**Leaf Chain:** A chain consisting of interlacing side plates and riveted pins. These chains are manufactured in accordance with ANSI/ASME standard B29.8. This chain is typically used in lifting and/or tensioning applications.



**Length Tolerance:** The length new chain must be within when measured under a given load.

**Link Plate:** One of the side plates of either a pin link or a roller link in a roller chain.

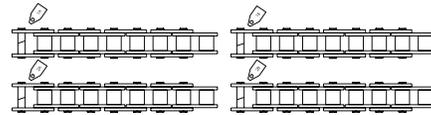
**Load Classification:** A classification of drive loads based on the intensity of shock that is imposed on the drive.

**Loading Frequency (Time):** Loading frequency is the number of times per unit of time that the chain is exposed to a complete cycle of loading. A complete loading cycle normally occurs when a particular link moves completely around the system and returns to its starting point.

## M

**Master Link:** See Connecting Link.

**Matching and Tagging:** When chains are required for multiple-strand operation, it is important to specify to



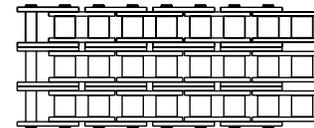
the manufacturer “matched and tagged chain” together with the number of strands required. The chains will then be measured at the factory and a number tag attached to each strand. Each matching group of strands is tagged with the same number and, whenever possible, will be wired and shipped together. The tags should not be removed until the chain is assembled. The strands must be coupled so that those with the same number are installed side by side. All standard chains must meet standard length tolerances. Matching chain strands ensures that sections of chain with lengths at opposite ends of the tolerance range are not placed together in the conveyor.

**Maximum Allowable Load:** The maximum tension a chain may safely be subjected to. This value should never be exceeded by actual design load factored by speed, temperature, and dynamic adjustments as applicable.

**Measuring Load:** The specified standard load under which a chain is to be measured for length (1 percent of tensile strength).

Number of Roller Chain Strands	Multiple Strand Factor
2	1.7
3	2.5
4	3.3
5	3.9
6	4.6

**Multiple-Strand Chain:** In multiple strand, two or more chains are assembled side by side on common pins that maintain the alignment of the rollers in the several strands.



In multiple strands, center plates are located between the strands of roller links. Center plates may be slip-fit or press-fit on the pin as agreed between the chain manufacturer and user. The hyphenated number suffix in the chain number denotes the number of strands: 2 a double strand; 3 a triple strand; 4 a quadruple strand chain; etc.

**Multiple Strand Factor:** A factor by which the horsepower rating of a single-strand chain is multiplied to obtain the horsepower capacity of a chain with two or more strands.

## O

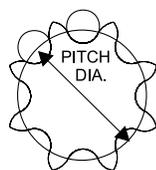
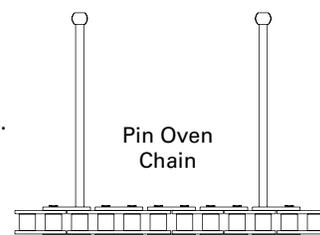
**Offset Link:** A special offset link, as termed in roller chain descriptions, made for use in straight link chain when an uneven number of links in the total strand is required.

**Offset Section:** For a roller chain, a factory-assembled section, made up of a roller link and an offset link. Offset sections are used to connect strands of chain having an odd number of pitches.

**Overchaining:** A drive is overchained when it incorporates a chain of substantially higher rating than that indicated by normal selection procedures to had been necessary.

**P**

**Pin Oven Chain:** A chain used to convey cans through a drying oven. Typically 60 chain with an extended pin every 7th pitch is used.



**Pitch:** See Chain Pitch; Pitch Diameter.

**Pitch Diameter:** The diameter of the sprocket pitch circle.

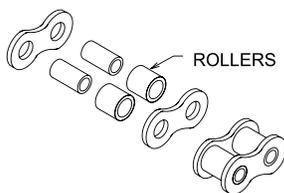
**Press Fit:** Standard designed interference fit between side-plate pitch hole and pin/bushing.

**Prestressing (Dynamic):** Dynamic prestressing is the process of subjecting chain to a load as it is articulated or wrapped around multiple sprockets. Dynamic prestressing is done to seat the chain components and to reduce initial (break-in) elongation in chain drives.

**Prestressing (Static):** Static prestressing is the process of subjecting chain to a load at a minimum of 20 percent of the ultimate strength. The chain is pulled in a straight line. Static prestressing is done to seat the chain components and to minimize the variation in strand lengths of attachment chain used in pairs.

**Pulsation:** Fluctuations of a cyclic nature in load or speed (See Chordal Action).

**R**



**Rollers:** The component on the chain which engages the sprocket. The roller allows the chain to roll into the sprocket. The roller rotates on the bushing.

**Root Diameter:** The theoretical bottom diameter of a sprocket, equal to the pitch diameter minus the chain roller or barrel diameter (See Bottom Diameter).

**Run-in:** The initial period of operation of any mechanism, during which the component parts seat themselves.

**S**



**Scoring:** Marring or scratching of a pin or bushing caused by metallic debris being picked up in the contact surfaces on one of the parts.

**Seating Curve:** A specific term for the pocket curve of a roller chain sprocket.

**Seizing:** Stiffening (or freezing) of a chain joint as a result of roughness and high friction caused by galling. This occurs between the pin and bushing and/or link plates.

**Semi-Press Fit (Tap Fit):** Minimum interference fit between side plate and pin.

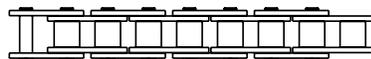
**Service Factor:** A factor by which the specified horsepower or working load of a chain is multiplied to compensate for operating conditions.

**Sheave:** A grooved wheel or pulley. Typically used with leaf chain to change its direction.

**Shot Peening:** Process which is used on the side plates to improve fatigue strength.

**Sidebar:** Another name for Link Plate.

**Side Bow Chain:** See Curve Chain.



**Simplex Roller Chain:** Single-strand chain (80) (single strand).

**Sinter Bushing:** Bushing made from powdered metal and then oil impregnated.

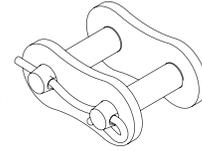
**Skip Tooth:** A sprocket designed such that the chain engages only every other tooth on the sprocket. Typically used with staggered pitch chain.

**Slip-Fit:** No interference fit between side plate and pin.

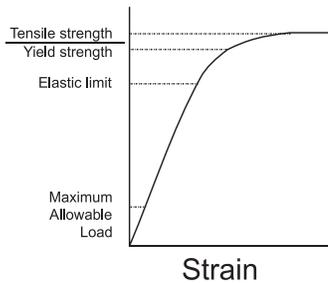
**Slip Stick:** Slip stick occurs when the motor drives continually and the sprocket rotates, but the chain moves ahead by stopping and starting at intervals. This could be caused by the following:

- Fluctuations in the coefficient of friction between bushing and rollers (i.e. rotating, sticking, rotating, sticking).
- Insufficient chain hardness on conveyor lines.
- Insufficient drive equipment or frame hardness.

**Special Hook Cotter:** The retaining pin for cotter-style chain and connecting links.



**Staggered Pitch Chain:** A chain with alternate links of differing pitches, one usually being considerably greater than the other.

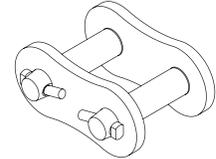


## T

**Tensile Strength:** See Ultimate Strength.

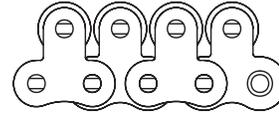
**Tension Linkage:** A chain application primarily transmitting motion back and forth or up and down at low speeds. A typical example is a forklift reciprocating system.

**T-pin/T-head:** The retaining pin for cotter-style chain and connecting links.



**Tight Joint or Stiff Joint:** Chain joint that does not articulate freely.

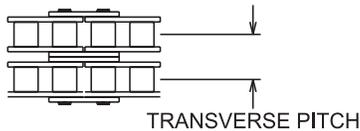
**Top Roller Chain:** Chain which has a roller on top to allow for accumulation of product on top of chain while the chain is moving.



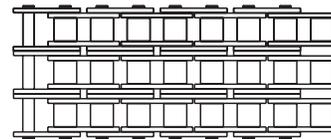
**Torque:** Torsional force, expressed in inch-pounds in chain calculations, which is the product of chain pull and one-half the sprocket pitch diameter.

**Transverse Clearance:** Clearance between roller link plate and pin link plate.

**Transverse Pitch:** The lateral distance between the centerlines of each strand of multiple strand chain, or between the tooth profiles on a sprocket for a multiple strand chain.



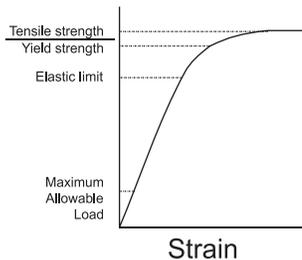
**Triplex Roller Chain:** Triple strand chain (80-3) (triple strand).



## U

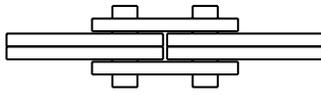
**Ultimate Strength:** The ultimate strength of a chain is the single maximum load that breaks the chain. Typically specified as either average or minimum.

**Underchaining:** A drive is underchained when it incorporates a chain of substantially lower rating than that indicated to be needed from normal selection procedures.



**W**

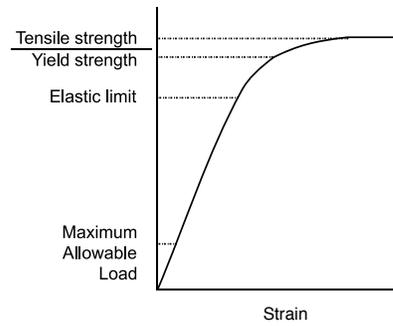
**Working Load:** An allowable suggested chain load used on conveyors, drives with nonstandard chains, or other applications of lower relative speed.



**Wrench Chain:** Wrench chains are leaf chains with pins extending beyond both sides of the chain. It serves as a tension linkage for holding pipe securely in pipe wrenches. The extended pins permit this chain to support a load not in line with the chain without danger of pulling the link plates off the pins. The pins are used to lock onto a mechanism to accommodate various pipe sizes.

**Y**

**Yield Strength:** The elastic limit or yield strength of a chain is the load that causes permanent elongation of the chain.





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