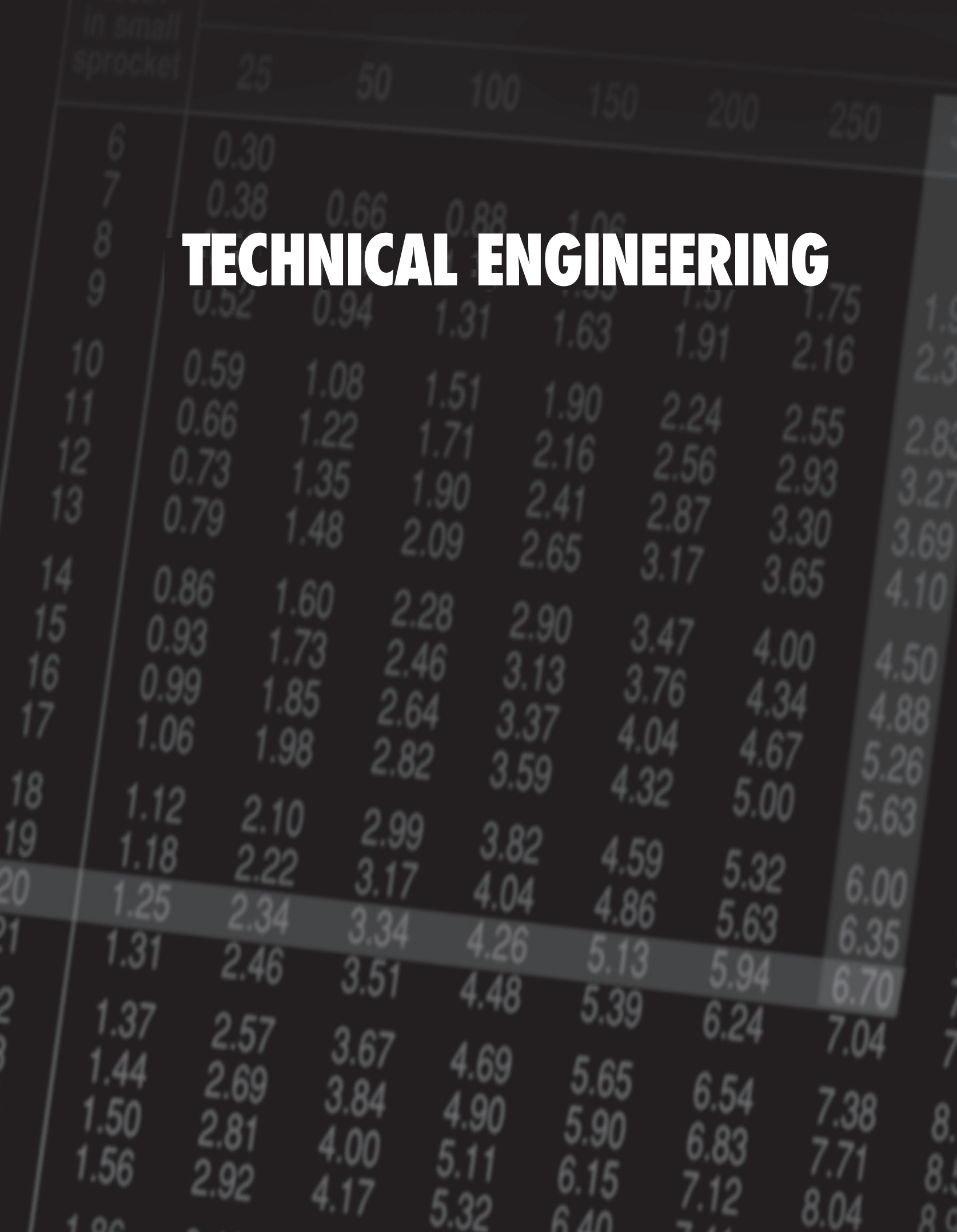
TECHNICAL ENGINEERING

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General Drive Considerations

One of the main advantages of the roller chain drive is its ability to perform well under widely varying conditions. Despite this ability, there are a number of rules of good design practice which, if considered early in the design process, will enable the user to obtain desirable results.

Basic dimensions and minimum ultimate tensile requirements for single-pitch, double-pitch and attachment roller chains are specified by various standards organizations worldwide. ASME/ANSI, The American Society of Mechanical Engineers and The American National Standards Institute, defines dimensions such as: pitch, roller width, roller diameter, link plate height, link plate thickness and pin diameter. The primary purpose of the standard is to ensure that manufacturers will produce chains and sub-assemblies that are similar dimensionally and therefore interchangeable. In addition, the standard does offer the user some assurance of quality by defining a minimum ultimate tensile strength for each model of chain. However, tensile strength is not always a valid method to differentiate one manufacturer's product from another. It is very important to remember that dimensional standardization does not define quality or performance characteristics.

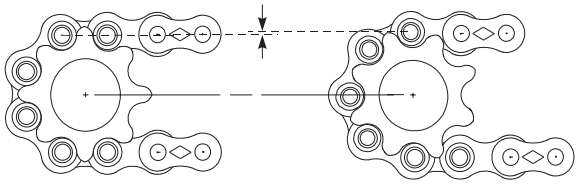
Minimum Ultimate Tensile Strength: Minimum Ultimate Tensile Strength, MUTS, is the static load required to break the chain. Tensile strength values shown in this catalog are *not* allowable working loads. Load or tension applied to the chain in service should never exceed $\frac{1}{6}$th of the UTS. If exceeding this value is necessary for a specific application, contact Diamond Chain. **Warning! A roller chain should never be loaded above 50% of MUTS for even one cycle. Doing so will permanently damage the chain.**

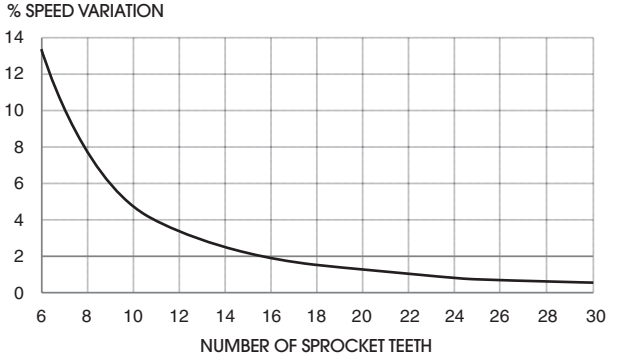
Allowable Working Load: Roller chains with equal tensile strengths can have very different working load capacities. Contrary to popular belief, *there is no consistent relationship between a roller chain's working load capacity and its ultimate tensile strength.* A chain with a higher tensile strength than a Diamond chain could have a much lower working load capacity.

Selecting Chain Size: There may be several suitable selections for any particular application. Loads, speeds, environment, cost, required service life or other factors will determine the final selection. Generally, the lowest cost drive will consist of a single strand chain of the smallest pitch that can accommodate the load. The speed and number of teeth of the smallest sprocket, most commonly the driver sprocket, also have an effect on the selection of chain size. As a rule, the smaller the pitch the higher the permissible operating speed.

Selecting Sprockets

Small Sprocket: The smallest sprocket is usually the driver or input sprocket. As the chain enters and exits, it rises and falls as each pitch engages and disengages the sprockets.





This movement, called chordal action, causes chain speed variations (drive roughness) that may be objectionable in some applications. These speed variations can normally be minimized by increasing the size of the sprockets, as shown.

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General Drive Considerations

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To minimize the negative effects of chordal action, the following are suggested guidelines for the minimum number of teeth in the smallest sprocket:

Slow Speed	(Type A* lubrication region)	12 Teeth
Medium Speed	(Type B* lubrication region)	17 Teeth
High Speed	(Type C* lubrication region)	25 Teeth

* More detail on type A, B and C lubrication can be found in the Roller Chain Lubrication section of this guide.

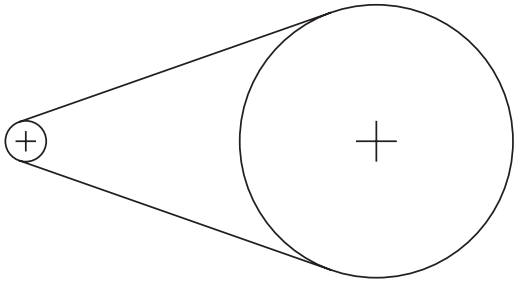
Hardened Teeth: Tooth loading *increases* as the number of teeth in the sprocket *decreases.* Hardening of sprocket teeth is recommended when the number of teeth is 25 or less and/or the sprocket will operate in:

1. Drives that are heavily loaded.
2. Abrasive conditions.
3. High speed drives.
4. Drives requiring extremely long life.

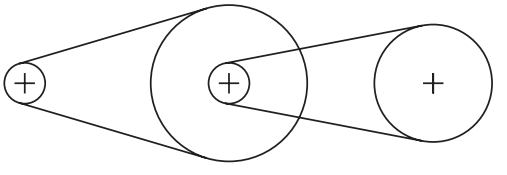
Chain Wrap: The recommended minimum wrap angle on the smallest sprocket in the drive is 120°. Wrap angle can be reduced to 90°, if good chain tension adjustment is maintained. If chain tension is not closely maintained with less than 120° wrap, the chain can jump teeth, resulting in damage to itself and/or the sprocket.

Note: For a ratio of 3:1 or less there will always be 120° or more wrap on the small sprocket, regardless of the center distance.

Drive Ratio: The ratio of the sprocket sizes is determined by the desired speed reduction or increase. The maximum recommended ratio for a single reduction is 7:1. In practice, the practical single reduction limit is affected by: the minimum size of the small sprocket, the maximum size of the large sprocket, and the need for sufficient wrap on the small sprocket. It is possible to utilize a reduction as great as 9:1 but a double reduction is preferable. It is important to remember that drive ratio is a function of the number of teeth on the sprockets, not the sprockets' diameters.



7:1 RATIO



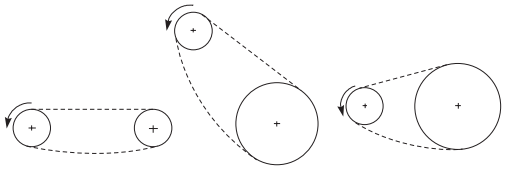
7:1 RATIO (TWO DRIVES)

TECHNICAL ENGINEERING

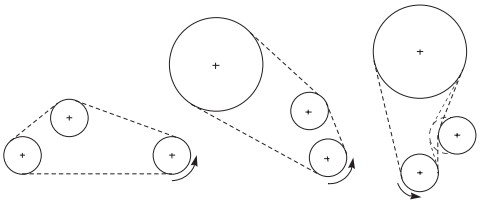
General Drive Considerations

Drive Arrangements

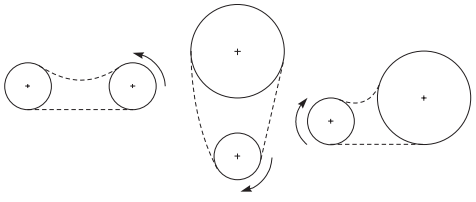
Shown below are recommended, acceptable, and not recommended drive arrangements, along with preferred direction of travel. Every effort should be made to utilize the recommended or acceptable layouts in order to obtain optimum drive life.



RECOMMENDED



ACCEPTABLE



NOT RECOMMENDED

Chain Length: Chain length must be an integral number of pitches (no fractions of pitches). Additionally, every attempt should be made during the design process to define a chain length, which is an even number of pitches including the connecting link. In a fixed center-distance drive this can be done by selecting sprockets that provide a ratio near that desired. In an adjustable center-distance drive this is achieved by providing sufficient adjustment or "take-up" so that an even number of pitches can be used and still operate with proper tension.

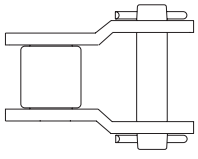
If neither of the above conditions can be met, a chain having an odd number of pitches is required. These designs require the use of offset links or "half links." Offset links are generally costly and will significantly reduce the chain's load carrying capacity.

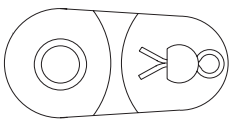
Offset Links

If required, Diamond offers two types of offsets: single-pitch and multiple-pitch.

Single-pitch offsets are constructed using hybrid link plates consisting of half pin link plate and half roller link plate contours. Single-pitch offsets are secured within the chain using a slip-fit pin and cotter keys.

Note: Single-pitch offsets can reduce the load capacity of a roller chain by as much as 30%.





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General Drive Considerations

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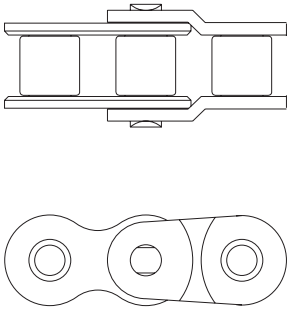
Multiple-pitch offsets, commonly two pitches in length, are constructed with the same basic design as a single-pitch offset, with the exception that the offset link itself is riveted together with a standard roller link assembly. Multiple-pitch offsets afford the user superior performance and generally are less costly than single-pitch offsets. However, multiple-pitch offsets still reduce the load carrying capacity of the chain.

Note: Multiple-pitch offsets can offer virtually the same integrity as the base chain. However, some reduction in load carrying capacity can result from their use.



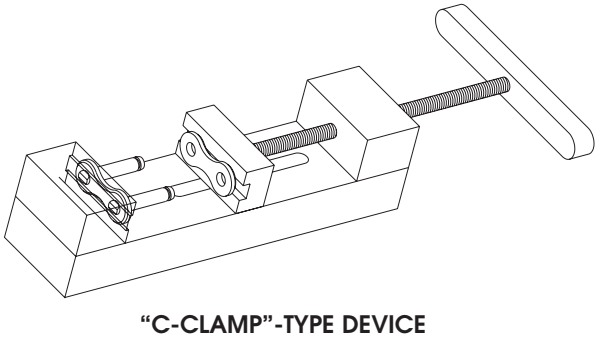
Connecting Links

Connecting links are used to join the ends of the chain together once installed on the drive. Diamond offers two types of cover plates depending upon the application and/or the user's preference: slip-fit or press-fit.

Slip-fit cover sides are supplied when the user prefers ease of assembly and disassembly. The cover plate of a slip-fit connecting link has pitch holes that are larger in diameter than the pins. This allows the user to "slip" the cover plate onto the pins before installing a spring clip or cotters. This style of connecting link is inherently weaker than the base chain because its slip-fit construction does not have the same integrity found in the assembled chain. Note: Slip-fit connecting links can reduce the chain's working load capacity by as much as 30%.

Press-fit cover plates are provided when the integrity of the connecting link needs to be equal to that of the base chain. In this design, the cover plate has pitch holes that are smaller in diameter than the pins. This requires the user to "press" the cover plate onto the pins before installing a spring clip or cotters. While more difficult to install, these links do provide the greatest load carrying capability. Diamond does not provide any specific tool for use with the installation of a press-fit cover plate. However, a modified C-Clamp-type device often makes the job much easier.

Note: Never drill out or enlarge the pitch holes of a press-fit connecting link cover side to make the installation easier.



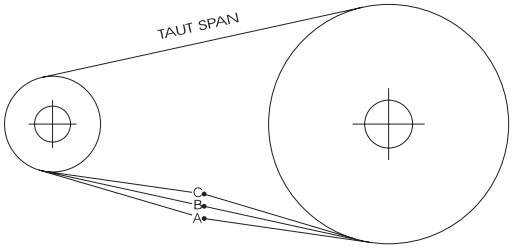
"C-CLAMP"-TYPE DEVICE

TECHNICAL ENGINEERING

General Drive Considerations

Chain Tensioning/Length Adjustment: Proper chain tension is critical to achieving acceptable service life. Chain tensioning may be accomplished by either: adjusting one of the shafts to increase the center distance, using a movable idler sprocket, or removing pitches from the chain to compensate for wear elongation.

For the majority of slow and medium speed chain drives, the total mid-span movement in the slack span should be approximately 4-6% of the drive's center distance. For drives operating at high speeds, impulse or reversing loads, the total movement should be reduced to 2-3% of the center distance. Drives with vertical centers should also be adjusted to the smaller percentage. If the drive incorporates shaft adjustment or an idler, the amount of movement or "take-up" should always allow for the removal of two pitches of chain.

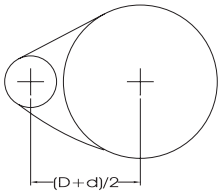


Recommended Possible Mid-Span Movement, A-C, of Slack Span

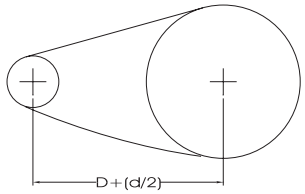
Dimensions in Inches

Drive Center-Line	Tangent Length Between Sprockets								
	5	10	15	20	30	40	60	80	100
Horizontal to 45	0.25	0.50	0.75	1.00	1.50	2.00	3.00	4.00	5.00
Vertical to 45	0.12	0.25	0.38	0.50	0.75	1.00	1.50	2.00	2.50

Drive Center Distance: The distance between driver and driven sprockets on a two-sprocket drive must be greater than one-half the sum of the sprocket outside diameters to avoid tooth interference. The shortest practical center distance is recommended.



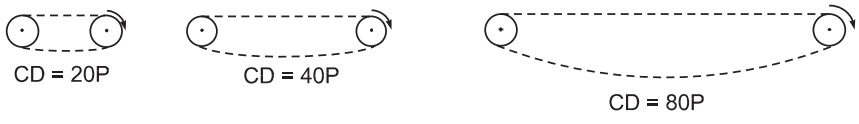
ABSOLUTE MINIMUM CENTER DISTANCE



RECOMMENDED MINIMUM CENTER DISTANCE

General guidelines for the selection or determination of the center distance for any two-sprocket drive are:

1. For the average application, a center distance of approximately 40 pitches of chain represents good practice.
2. A center distance of 80 pitches may be considered as an approved maximum.
3. For high speed or pulsating drives a center distance as short as 20 pitches may be desirable to avoid chain whipping and potential drive damage.



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General Drive Considerations

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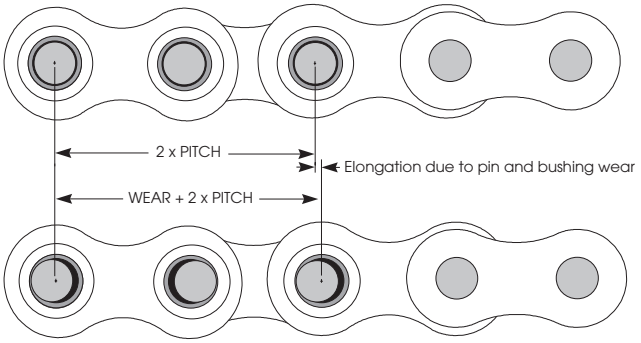
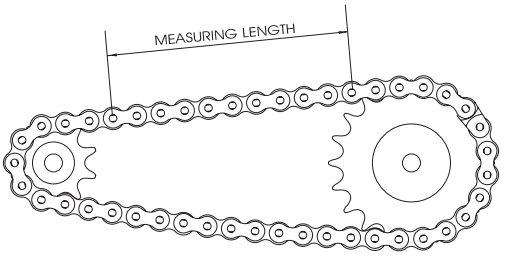
Fixed Centers: When adjustable centers or idlers cannot be used, the exact center distance must be calculated and built into the drive. Drives with fixed centers should be conservatively selected and well lubricated to minimize the rate of chain wear. Adjustment for wear elongation in fixed center distance drives is accomplished *only* by removing links or pitches to compensate for wear elongation.

Chain Wear: The individual joints in a roller chain articulate as they enter and leave the sprockets. This articulation results in wear on the pins and bushings. As material is worn away from these surfaces the chain will gradually elongate.



CHAIN DOES NOT "STRETCH" – MATERIAL IS REMOVED FROM PIN AND BUSHING

Elongation is normal and may be minimized by proper lubrication and drive maintenance. The rate of wear is dependent upon: the relationship between the load and the amount of bearing area between pin and bushing, the material and surface condition of the bearing surfaces, the adequacy of lubrication, and the frequency and degree of articulation between pins and bushings. The latter is determined by the quantity of sprockets in the drive, their speeds, the number of teeth and the length of the chain in pitches.



MEASUREMENT OF CHAIN FOR WEAR ELONGATION

Relatively accurate wear measurements can be made by using the above illustration. Measure as closely as possible from the center of one pin to the center of another. The more pitches (pins) contained within the measurement increase the accuracy. If the measured value exceeds the nominal by more than the allowable percentage the chain should be replaced. The maximum allowable wear elongation is approximately 3% for most industrial applications, based upon sprocket design. The allowable chain wear in percent can be calculated using the relationship: 200/N, where N is the number of teeth in the large sprocket. This relationship is often useful since the normal maximum allowable chain wear elongation of 3% is valid only up to 67 teeth in the large sprocket. In drives having fixed center distances, chains running in parallel or where smoother operation is required, wear should be limited to approximately 1.5%.

For example, if 12 pitches (12 pins) of a #80 chain were measured and the result was 12.360 or greater (using 3% as the maximum allowable wear), the chain should be replaced. Anything less than 12.360 would still be acceptable by most industrial standards.

For a free wear guage to assist you with this procedure, contact your nearest Diamond Chain distributor, or call 1-800-872-4246. See page 138 of this catalog.

TECHNICAL ENGINEERING

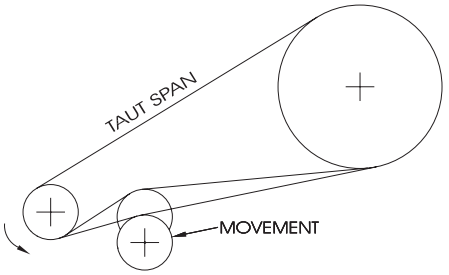
General Drive Considerations

Chain Sag: In long spans, a relatively small amount of excess chain can cause a substantial sag in the slack span. More detailed information concerning the calculation of chain sag can be found in the Conveyor Chain Selection section of this product guide. In designing drives, it is necessary to provide sufficient clearance to prevent interference between the chain and chain case or other parts of the equipment.

Idler Sprockets: Idler sprockets may be used:

1. To take up slack in chain when shaft centers are not adjustable and are not located at a proper distance to provide a snug-fitting chain.
2. To take up slack in chain developed through normal chain wear. Such take-up will be necessary only at infrequent intervals because chain elongation due to wear occurs at a very slow rate when chain is adequately lubricated.
3. To guide the chain clear of any obstructions.
4. To increase the arc of chain wrap on other sprockets.
5. To provide for a reversed direction of rotation of a sprocket, outside a closed chain.

When an idler is required, it is preferable that it engage slack chain span. If the particular design requires that an idler be installed in the taut span of chain, the service life of the chain will most likely be shortened because of the additional articulation of the chain's joints while under load.



Idler sprockets should be mounted rigidly and firmly so that they will remain in position until some change in position is needed.

When an idler is located within the chain loop it should be located near the larger sprocket. When located outside the chain loop it should be located near the smaller sprocket.

Rarely is it desirable or necessary to provide automatic take-up by means of spring-and-ratchet combinations or dead weight mechanisms. The use of such types of idlers imposes additional and unnecessary loading on the chain joints.

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Variable Speed Drives: Many drives must operate over a wide range of speeds and loads. The selected drive must be capable of performing acceptably at any of the required conditions. It is particularly important to be sure the drive is adequate at the most critical operating conditions which are often, but not limited to, the highest and lowest speeds.

Multiple Strand Chains: Used where single strand chains cannot carry the loads. These chains have two or more strands of chain assembled with common pins across the full width of the chain. More information on these types of roller chain can be found in the Multiple Strand Chain section of this guide.

Lubrication: Lubrication is the single most important factor controlling a chain's wear life. Specific methods of lubrication can be found in the Roller Chain Installation section of this guide. However, if the drive is located such that regular lubrication is infrequent or impractical, or if the drive is exposed to contaminants, consider the use of either DURALUBE®, RING LEADER® O-ring or DUST STOPPER™ chain. Details on these products can be found in the Special Lubricated Chain section of this guide.

Environment: If the drive is exposed to water, corrosive agents, contamination, or is in high or low temperature environments, consideration should be given to the use of either Nickel-Plated, Stainless Steel or RING LEADER O-ring chain. More detailed information can be found for these models in the Corrosion/Moisture Resistant and Special Lubricated sections of this product guide.

Temperature Limitations

Standard carbon steel-based chains can routinely be used where temperatures are between 0º and 350º F. For temperatures between 350º and 500º F, specially designed chains having extra internal clearances are recommended. At these temperatures, however, some loss of component hardness and reduced wear life can be expected.

Stainless steel chains should be considered when the operating temperature will be below 0º or above 500º F.

RING LEADER® O-ring chain can be routinely used at temperatures up to 150º F. If temperatures exceed this value, contact Diamond for alternate O-ring materials which may be serviceable up to 450º F.

DURALUBE® roller chains are generally limited to ambient temperatures of 120º F.

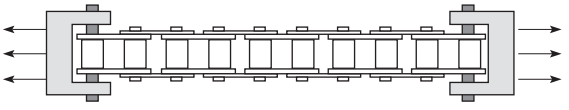
DUST STOPPER™ roller chains are generally limited to ambient temperatures of 120º F.

TECHNICAL ENGINEERING

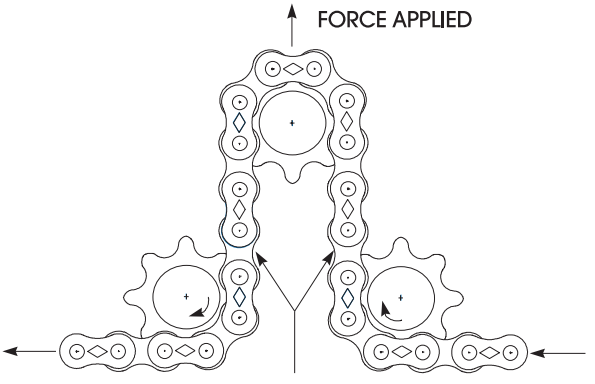
General Drive Considerations

Preloading: After assembly, Diamond applies an initial load to the chains, called preload. This loading approximates the recommended maximum loading in service. Preloading can be done either statically or dynamically. Diamond dynamically preloads all of our ¼" through 2" pitch Standard and Heavy Series single strand roller chains. Preloading is done to align the various chain components such as pins, bushings and link plates.

STATIC PRELOAD



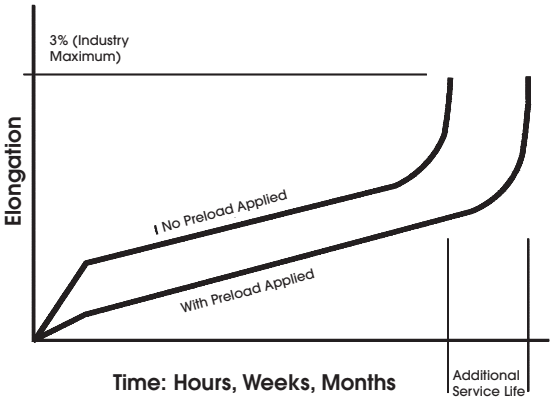
DYNAMIC PRELOAD



CHAIN UNDER TENSION

Benefit of Preloading: Preloading helps to greatly eliminate initial elongation often found in "lesser" chains. Elimination of this initial elongation can increase usable service life.

BENEFIT OF "PRELOADING"



TECHNICAL ENGINEERING

Chain Selection

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Drive Chain

This section offers guidance for the selection of economical roller chain drives, capable of meeting the great majority of drive requirements. However, when information is needed on a special problem, or whenever it seems advisable to have any drive selection confirmed or checked, feel free to contact Diamond's application engineers.

The first step in sizing and selection of a roller chain drive is to assess the known information about the drive's requirements and limitations. The following list represents the information required to adequately select a roller chain which will perform acceptably:

1. Source of input power.
2. Type of driven equipment.
3. Input horsepower available.
4. Size and speed of driving shaft.
5. Size and speed of driven shaft.
6. Center distance between shafts.
7. Available center distance adjustment, if any.
8. Space limitations such as maximum sprocket diameters.
9. Available lubrication methods.
10. Hostile environment, if any.

Additionally, the following information, if available, will enhance the ability to select the most appropriate roller chain for the application:

1. Frequent stops and starts.
2. High starting or inertial loads.
3. Extreme temperatures, i.e., above 150° F or below 0° F.
4. Large cyclic load variations in each revolution.
5. Multiple driven shafts.

TECHNICAL ENGINEERING

Chain Selection

Selecting a Chain Size

Step 1 - Determine Service Factor: In drive design, the nominal horsepower available is usually known. However, the peak horsepower actually realized by the chain may be much greater depending on the power source and the type of equipment being driven.

The service factor allows the user to estimate the maximum horsepower to which the drive may be exposed. This maximum horsepower will normally be a function of both the type of input power available combined with the type of equipment being driven. The following table lists some of the more common driver and driven combinations.

Service Factors

Type of Driven Equipment	Power Source Type A	B	C
Agitators for Liquid	1.0	1.0	1.2
Beaters	1.2	1.3	1.4
Blowers & Fans, Centrifugal	1.0	1.0	1.2
Boat Propellers	1.2	1.3	1.4
Compressors –			
Centrifugal & lobe	1.2	1.3	1.4
Reciprocating, 3+ cylinders	1.2	1.3	1.4
Reciprocating, 1 & 2 cylinders	1.4	1.5	1.7
Conveyors –			
Belt or chain, smoothly loaded	1.0	1.0	1.2
Heavy duty, not uniformly loaded	1.2	1.3	1.4
Clay Working Machinery –			
Pug mills	1.2	1.3	1.4
Brick presses, briquetting machinery	1.4	1.5	1.7
Cranes & Hoists	Consult Diamond		
Crushers	1.4	1.5	1.7
Dredges –			
Cable, reel, & conveyor drives	1.2	1.3	1.4
Cutter head, jig, & screen drives	1.4	1.5	1.7
Elevators, Bucket –			
Smoothly loaded or fed	1.0	1.0	1.2
Not uniformly loaded or fed	1.2	1.3	1.4
Feeders –			
Rotary table	1.0	1.0	1.2
Apron, screw, rotary vane	1.2	1.3	1.4
Reciprocating	1.4	1.5	1.7

Type of Driven Equipment	Power Source Type A	B	C
Food Processing –			
Slicers, dough mixers, grinders	1.2	1.3	1.4
Kilns & Dryers	1.2	1.3	1.4
Machine Tools –			
Drills, grinders, lathes	1.0	1.0	1.2
Boring mills, milling machines	1.2	1.3	1.4
Punch presses, shears	1.4	1.5	1.7
Machinery, General –			
Uniform load, non-reversing	1.0	1.0	1.2
Moderate shock load, non-reversing	1.2	1.3	1.4
Severe shock load, reversing	1.4	1.5	1.7
Mills –			
Ball, pebble, tube	1.2	1.3	1.4
Hammer, rolling	1.4	1.5	1.7
Pumps –			
Centrifugal	1.0	1.0	1.2
Reciprocating, 3+ cylinders	1.2	1.3	1.4
Reciprocating, 1 & 2 cylinders	1.4	1.5	1.7
Paper Industry –			
Pulp grinders	1.2	1.3	1.4
Calendars, mixers, sheeters	1.4	1.5	1.7
Printing Presses, Magazine & Newspaper	1.4	1.5	1.7
Textile Industry –			
Calendars, mangles, nappers	1.2	1.3	1.4
Carding machinery	1.4	1.5	1.7
Woodworking Machinery	1.2	1.3	1.4

A – Internal combustion engine with hydraulic drive.
B – Electric motor or turbine.
C – Internal combustion engine with mechanical drive.

Step 2 - Calculate the Design Horsepower: The design horsepower is determined by multiplying the input horsepower by the service factor obtained above.

Design Horsepower = Input HP x Service Factor

TECHNICAL ENGINEERING

Chain Selection

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Step 3a - Make a Preliminary Chain Selection: There may be several suitable solutions when it comes to selecting a drive. Generally, however, the smallest pitch, single strand chain that will convey the required horsepower is often the most economical. Using the following abridged horsepower ratings, an initial chain size can be identified. Enter this rating table with the approximate RPM of the smallest sprocket, driving or driven, and locate the smallest size chain capable of transmitting the required horsepower.

Abridged Horsepower Ratings

ASME/ ANSI #	Number of Teeth	Revolutions Per Minute (RPM)													
		100	300	500	700	900	1200	3000	4000	5000	6000	7000	8000	9000	10000
25	17	0.10	0.29	0.47	0.64	0.82	1.08	2.61	2.65	1.90	1.44	1.14	0.94	0.79	0.67
	21	0.12	0.35	0.58	0.80	1.01	1.34	3.22	3.64	2.60	1.98	1.57	1.29	1.08	0.92
	25	0.15	0.42	0.69	0.95	1.21	1.59	3.84	4.73	3.38	2.57	2.04	1.67	1.40	
35	17	0.34	0.97	1.58	2.18	2.77	3.66	5.64	3.67	2.62	2.00	1.58	1.30		
	21	0.42	1.19	1.95	2.69	3.43	4.52	7.75	5.03	3.60	2.74	2.17			
	25	0.50	1.42	2.32	3.21	4.08	5.38	10.07	6.54	4.68	3.56				
40	17	0.80	2.29	3.74	5.16	6.57	8.66	4.17	2.71	1.94	1.47				
	21	0.98	2.83	4.61	6.37	8.11	10.69	5.72	3.71	2.66					
	25	1.17	3.36	5.49	7.59	9.66	12.73	7.43	4.82						
41	17	0.44	1.26	2.05	2.84	3.61	3.29	0.83	0.54	0.39	0.29				
	21	0.54	1.55	2.54	3.51	4.46	4.52	1.14	0.74	0.53					
	25	0.64	1.85	3.02	4.17	5.31	5.87	1.49	0.96						
50	17	1.55	4.45	7.27	10.04	12.78	16.85	4.98	3.23	2.31					
	21	1.92	5.50	8.98	12.40	15.79	20.81	6.84	4.44						
	25	2.28	6.55	10.69	14.77	18.79	24.77	8.88							
60	17	2.66	7.65	12.49	17.26	21.96	22.77	5.76	3.74						
	21	3.29	9.45	15.43	21.32	27.13	31.26	7.91							
	25	3.92	11.25	18.37	25.38	32.30	40.61	10.27							
80	13	4.76	13.66	22.31	30.81	29.51	19.17	4.85	3.15						
	17	6.22	17.86	29.17	40.29	44.13	28.66	7.25							
	21	7.69	22.07	36.03	49.77	60.59	39.36								
	25	9.15	26.27	42.89	59.25	75.42	51.12								
100	13	9.11	26.16	42.72	51.43	35.28	22.92	5.80							
	17	11.92	34.21	55.87	76.91	52.76	34.27								
	21	14.72	42.26	69.01	95.33	72.43	47.05								
	25	17.52	50.31	82.16	113.48	94.09	61.11								
120	13	15.39	44.18	72.14	59.51	40.82	26.51								
	17	20.12	57.77	94.34	88.99	61.04	39.65								
	21	24.86	71.37	116.54	122.18	83.81	54.44								
	25	29.59	84.96	138.74	158.70	108.86	70.71								
140	13	23.81	68.36	111.52	67.32	46.18	29.99								
	17	31.13	89.39	145.97	100.67	69.05	44.85								
	21	38.46	110.42	180.31	138.22	94.81	61.58								
	25	45.79	131.45	214.66	179.53	123.15	79.99								
160	13	34.54	99.17	124.09	74.91	51.38	33.37								
	17	45.17	129.68	185.56	112.02	76.84	49.91								
	21	55.80	160.20	254.77	153.80	105.50	68.52								
180	13	47.70	136.93	136.35	82.31	56.46	36.67								
	17	62.37	179.07	203.90	123.09	84.43	54.84								
	21	77.05	221.20	279.94	169.00	115.92	75.29								
200	13	63.33	181.81	148.34	89.55	61.43	39.90								
	17	82.81	237.75	221.83	133.91	91.86	59.66								
	21	102.29	293.69	304.56	183.86	126.11									
240	13	101.99	292.82	171.64	103.61	71.07	46.16								
	17	133.37	382.92	256.66	154.94	106.28									
	21	164.76	473.02	352.39	212.73	109.86									

Complete horsepower ratings are located in the Horsepower Rating section of this guide.

If the design horsepower exceeds the capacity of single strand chain or if space limitations (i.e. sprocket diameters) are a consideration, then a multiple strand chain may be required.

TECHNICAL ENGINEERING

Chain Selection

Step 3b - Selecting a Multiple Strand Factor (if required): Multiple strand chain construction is described in detail in the Multiple Strand section of this guide. For the purpose of drive selection it is important to remember that multiple strand chain does not have the ability to transmit an even multiple of its single strand's horsepower. Example: a #80-2 chain cannot transmit two times the horsepower that a #80 single strand chain will. This is because the loading on a multiple strand chain cannot be exactly and evenly distributed across the full width of the chain due to many factors. Therefore, multiple strand chains are de-rated according to their number of strands. The following table provides values to be used in determining the single strand equivalent horsepower used in either the abridged horsepower ratings on the previous page or in the complete ASME/ANSI horsepower ratings located in the Horsepower Rating Table section of this guide.

Multiple Strand Rating Tables

Number of Strands	Multiple Strand Factor
2	1.7
3	2.5
4	3.3
5 or more	Contact Diamond

Calculating the equivalent single strand horsepower is accomplished by multiplying the input horsepower by the service factor and dividing that quantity by the multiple strand factor.

$$\text{HP(single strand eq.)} = \frac{(\text{Input Horsepower} \times \text{Service Factor})}{\text{Multiple Strand Factor}}$$

Once a tentative selection is obtained, refer to the complete ASME/ANSI horsepower ratings to more accurately define the small sprocket's required number of teeth to transmit the required design, single strand or single strand equivalent, horsepower.

In either the abridged or complete horsepower ratings, for exact speeds or numbers of teeth not shown, interpolate between the appropriate columns or lines. Studying the ratings will show that increasing the number of teeth on the small sprocket normally allows the use of a smaller pitch chain. Again, selecting the smallest pitch chain that will transmit the required horsepower makes maximum use of the chain's capacity and usually results in a more cost efficient drive.

Step 4 - Selecting the Large Sprocket: Once the chain and small sprocket sizes have been determined using the complete ASME/ANSI horsepower ratings, determine the number of teeth in the large sprocket by multiplying the number of teeth in the small sprocket by the required speed ratio. It is important to remember that roller chain drive ratios are calculated using the number of teeth on the sprockets, not sprocket diameters.

$$\text{Output RPM} = \text{Input RPM} \div \text{Desired Ratio or,}$$

$$\text{Large Sprocket \# of Teeth} = \text{Small Sprocket \# of Teeth} \times \text{Desired Ratio}$$

Once the sprocket sizes have been determined, check to verify that there is no interference if any limitation was given in the initial drive requirements. If interference is confirmed, it may be possible to select a smaller pitch, multiple strand chain capable of transmitting the required horsepower, allowing the use of smaller diameter sprockets.

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Chain Selection

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Step 5a - Calculating Chain Length When Ratio is 1:1: If the drive is a 1:1 ratio then the chain length in pitches can be determined easily using the following relationship: the total number of pitches required (chain length) is equal to two times the center distance in pitches plus the number of teeth on one sprocket.

Chain Length = (2 x Center Distance, in pitches) + the Number of Teeth on One Sprocket

The total chain length, in pitches, should always be an even number including the terminal connecting link. This avoids the use of offset links which significantly reduce the load carrying capacity of the roller chain.

Step 5b - Calculating Chain Length When Ratio is Not 1:1: The following equation and associated table may be used to calculate the required length of chain, in pitches, when the driver and driven sprockets are different sizes.

$$L = 2C + \frac{N+n}{2} + \frac{.1013\,(N-n)^2}{4C}$$

or substituting A for $\frac{.1013\,(N-n)^2}{4}$,

$$L = 2C + \frac{N+n}{2} + \frac{A}{C}$$

Where: L = Total chain length in pitches
n = Number of teeth on smaller sprocket
N = Number of teeth on larger sprocket
C = Center distance between shafts **in pitches**

VALUES OF A FOR CHAIN LENGTH CALCULATION

N - n	A	N - n	A	N - n	A	N - n	A
1	0.03	26	17.12	51	65.88	76	146.31
2	0.10	27	18.47	52	68.49	77	150.18
3	0.23	28	19.86	53	71.15	78	154.11
4	0.41	29	21.30	54	73.86	79	158.09
5	0.63	30	22.80	55	76.62	80	162.11
6	0.91	31	24.34	56	79.44	81	166.19
7	1.24	32	25.94	57	82.30	82	170.32
8	1.62	33	27.58	58	85.21	83	174.50
9	2.05	34	29.28	59	88.17	84	178.73
10	2.53	35	31.03	60	91.19	85	183.01
11	3.06	36	32.83	61	94.25	86	187.34
12	3.65	37	34.68	62	97.37	87	191.73
13	4.28	38	36.58	63	100.39	88	196.10
14	4.96	39	38.53	64	103.75	89	200.64
15	5.70	40	40.53	65	107.02	90	205.18
16	6.48	41	42.58	66	110.34	91	209.76
17	7.32	42	44.68	67	113.71	92	214.40
18	8.21	43	46.84	68	117.13	93	219.08
19	9.14	44	49.04	69	120.60	94	223.82
20	10.13	45	51.29	70	124.12	95	228.61
21	11.17	46	53.60	71	127.69	96	233.44
22	12.26	47	55.95	72	131.31	97	238.33
23	13.40	48	58.36	73	134.99	98	243.27
24	14.59	49	60.82	74	138.71	99	248.26
25	15.83	50	63.33	75	142.48	100	253.30

Step 5c - Calculating Chain Length (three or more sprocket drive): For three or more sprocket drives, the required chain length must be determined graphically using a layout drawing or by analyzing the drive using Diamond's Drive Selection Software.

Step 6 - Determining the Type of Lubrication Required: The ASME/ANSI horsepower ratings will indicate the recommended type of lubrication: Manual, Oil Bath or Flood-type lubrication depending upon the operating range of the chain selected. More information on lubrication and maintenance can be found in the Installation and Maintenance sections of this guide.

TECHNICAL ENGINEERING

Chain Selection

Drive Selection Example

The first step is to obtain the necessary information in order to accurately select a chain.

For this example, the following requirements are known:

Source of power	-	Mechanically driven internal combustion engine
Driven equipment	-	Two-cylinder pump
Horsepower available	-	25
Driving shaft size	-	2-¼ inches
Driving shaft speed	-	900 rpm
Driven shaft size	-	2 inches
Driven shaft speed	-	300 rpm
Center distance	-	To be determined
Drive arrangement	-	Horizontal shafts on horizontal centers
Space limitations	-	Yes, large sprocket cannot exceed 20 inches in diameter.
Lubrication	-	To be determined
Harsh Environment	-	None

Solution:

1. Select an appropriate service factor from the Service Factors table located in this section.

   The service factor for a two-cylinder pump, driven by an internal combustion engine with mechanical drive, is 1.7.

2. Calculate the Design Horsepower from the equation,

   Design Horsepower = Input HP x Service Factor or,

   Design Horsepower = 25 x 1.7 = 42.5

3. Refer to the *abridged* Horsepower Ratings in this section and see that the 42.5 design horsepower, at 900 RPM, falls within the area for #80 chain. This is the smallest single strand chain which, with a 17-tooth sprocket, will transmit the required power.

4. Refer to the complete ASME/ANSI horsepower rating rating for #80 chain and note that a #80 chain will transmit 44.13 horsepower at 900 rpm on a 17-tooth sprocket.

# of teeth on small sprocket	Revolutions Per Minute - Small Sprocket															
	10	25	50	75	88	100	200	300	400	500	600	700	800	900	1000	1200
11	0.44	1.06	2.07	3.05	3.56	4.03	7.83	11.56	15.23	18.87	22.48	26.07	27.41	22.97	19.61	14.92
12	0.48	1.16	2.26	3.33	3.88	4.39	8.54	12.61	16.62	20.59	24.53	28.44	31.23	26.17	22.35	17.00
13	0.52	1.26	2.45	3.61	4.21	4.76	9.26	13.66	18.00	22.31	26.57	30.81	35.02	29.51	25.20	19.17
14	0.56	1.35	2.63	3.89	4.53	5.12	9.97	14.71	19.39	24.02	28.62	33.18	37.72	32.98	28.16	21.42
15	0.60	1.45	2.82	4.16	4.86	5.49	10.68	15.76	20.77	25.74	30.66	35.55	40.41	36.58	31.23	23.76
16	0.64	1.55	3.01	4.44	5.18	5.86	11.39	16.81	22.16	27.45	32.70	37.92	43.11	40.30	34.41	26.17
17	0.68	1.64	3.20	4.72	5.50	6.22	12.10	17.86	23.54	29.17	34.75	40.29	45.80	44.13	37.68	28.66
18	0.72	1.74	3.39	5.00	5.83	6.59	12.81	18.91	24.93	30.88	36.79	42.66	48.49	48.08	41.05	31.23
19	0.76	1.84	3.57	5.28	6.15	6.95	13.53	19.96	26.31	32.60	38.84	45.03	51.19	52.15	44.52	33.87
20	0.80	1.93	3.76	5.55	6.47	7.32	14.24	21.01	27.70	34.32	40.88	47.40	53.88	56.32	48.08	36.58

Excerpt from Complete ASME/ANSI #80 HP Rating

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Chain Selection

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In the General Selection Information section of this guide, it was recommended that the smallest sprocket in a medium speed drive should have a minimum of 17 teeth. So, the 17-tooth sprocket should be suitable for this drive. Consult a sprocket manufacturer's catalog to verify that the 17-tooth #80 sprocket has a maximum bore that will accommodate the required 2-¼" driver shaft. For the purpose of this example, it will. (If it had not, then a larger number of teeth would have been required for the driver sprocket.)

5. The *driver* speed is 900 rpm and the *driven* speed is to be 300 rpm, so the speed ratio, or reduction, is 900/300 = 3:1. Therefore, the large sprocket should have 17 x 3 = 51 teeth. Again, check with a sprocket manufacturer's guide to be sure that the bore capacity of the sprocket is adequate for a two inch shaft.

6. In the General Selection Information section it is recommended that the center distance be as short as 20 pitches for pulsating drives or D + d/2. Using data from the Sprocket Information section, the recommended minimum center distance would be 16.81 + 5.95/2 = 19.79 inches. An acceptable start would be to select 20 pitches (#80 =1.00 inch) or 20 inches. Based on the 17/51 tooth sprockets and a center distance of 20 pitches (inches), a chain 76 pitches long including connecting link is required. This calculation was made using the chain length equation presented earlier.

7. Again, referring to the complete ASME/ANSI horsepower ratings for #80 chain, Type B lubrication is required based upon the speed and number of teeth of the 17-tooth sprocket. Oil bath lubrication will be acceptable.

8. Review the initial design requirements to see if this selection is acceptable. The only constraint that was given was that the large sprocket's diameter could not exceed 20 inches. By referring to the Sprocket Information section located in this guide we can verify that the 51-tooth, #80 sprocket has an outside diameter of 16.81 inches, well within the limitation.

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth
6	2.000	2.33	1.375
7	2.305	2.68	1.622
8	2.613	3.01	1.988
9	2.924	3.35	2.254
10	3.236	3.68	2.611
11	3.550	4.01	2.888
12	3.864	4.33	3.239
13	4.179	4.66	3.523
14	4.494	4.98	3.869
15	4.810	5.30	4.158
16	5.126	5.63	4.501
17	5.442	5.95	4.794
18	5.759	6.27	5.134
19	6.076	6.59	5.430
20	6.392	6.91	5.767
21	6.710	7.24	6.066
22	7.027	7.56	6.402
23	7.344	7.88	6.702
24	7.661	8.20	7.036
25	7.979	8.52	7.338
26	8.296	8.84	7.671
27	8.614	9.16	7.974
28	8.931	9.48	8.306
29	9.249	9.80	8.611
30	9.567	10.11	8.942
31	9.985	10.43	9.247
32	10.202	10.75	9.577
33	10.520	11.07	9.883
34	10.838	11.39	10.213
35	11.156	11.71	10.520
36	11.474	12.03	10.849
37	11.792	12.35	11.156
38	12.110	12.67	11.485
39	12.428	12.99	11.792
40	12.746	13.31	12.121
41	13.064	13.63	12.429
42	13.382	13.94	12.757
43	13.700	14.26	13.065
44	14.018	14.58	13.393
45	14.336	14.90	13.702
46	14.654	15.22	14.029
47	14.972	15.54	14.338
48	15.290	15.86	14.665
49	15.608	16.18	14.975
50	15.926	16.50	15.301
51	16.244	16.81	15.611
52	16.562	17.13	15.937
53	16.880	17.45	16.248

Excerpt from Sprocket Diameters - USA Standard #80 Roller Chain

TECHNICAL ENGINEERING

Chain Selection

Slow Speed Drives Selection

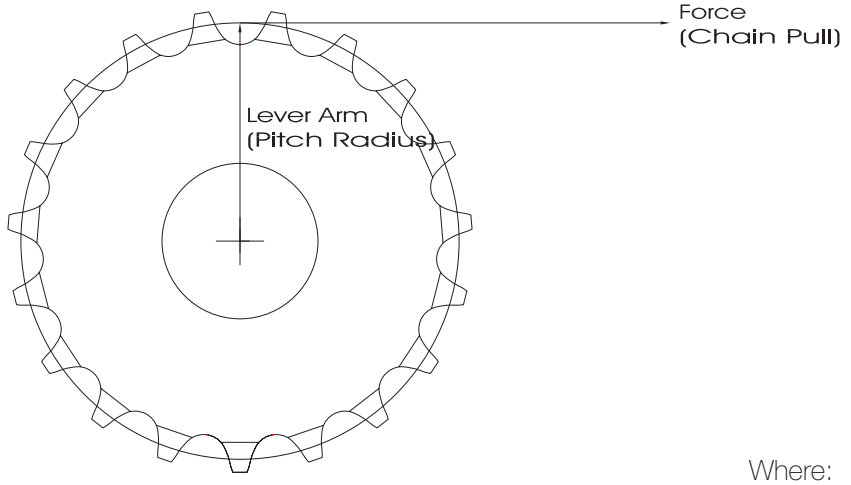
For drives operating at speeds lower than those shown in the horsepower ratings, chains may be selected on the basis of chain pull.

If chain pull is not known directly, determine it from the amount of horsepower to be transmitted by referring to equations below. By using the input horsepower, RPM and pitch radius of the sprocket (one-half pitch diameter), an approximate chain pull can be determined. An appropriate chain can be selected by comparing chain tensile strengths against the chain pull.

Important - Chain pull must not exceed $\frac{1}{6}$th of the ultimate tensile strength when the chain is connected using press-fit connecting links and no offset links are used. Chain pull must not exceed $\frac{1}{9}$th of the ultimate tensile strength when slip-fit connecting links or offset links are used in the chain.

Horsepower, Chain Pull, and Torque Equations

Torque = Force x Lever Arm = Chain Pull x Pitch Radius



$$H = \frac{L \times S}{33000} = \frac{Q \times N}{5252} = \frac{q \times N}{63025}$$

$$L = \frac{H \times 33000}{S} = \frac{H \times 396000}{P \times T \times N} = \frac{H \times 126050}{D \times N}$$

$$Q = \frac{H \times 5252}{N} \text{ or } q = \frac{H \times 63025}{N}$$

$$S = \frac{T \times P \times N}{12}$$

Where:

D = Pitch diameter of sprocket (inches)

H = Horsepower to be transmitted

L = Load or chain pull (pounds)

N = Speed of sprocket (rev./min.)

P = Pitch of chains (inches)

Q = Torque (foot-pounds)

q = Torque (inch-pounds)

S = Speed of chain (feet/min)

T = Number of teeth on sprocket

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Chain Selection

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Example of Slow Speed Drive Selection

Again, the first step is to obtain the necessary information.

For this example, the following requirements are known:

Horsepower available	-	2
Driving shaft size	-	2-¼ inches
Driving shaft speed	-	9 rpm
Driven shaft size	-	2-¼ inches
Driven shaft speed	-	3 rpm
Center distance	-	To be determined
Drive arrangement	-	Horizontal shafts on horizontal centers
Space limitations	-	None
Lubrication	-	Manual or Drip
Harsh environment	-	None
Inventory	-	Yes, there is an abundance of #80 chain on the shelf.

Solution:

Determine if the #80 chain will be acceptable and if so, select driver and driven sprocket sizes and center distance.

If we first use the following equation:

$$H = \frac{q \times N}{63025}$$

Where H is the horsepower available, q is the torque in inch-pounds and N is the smallest sprocket's speed in revolutions per minute.

Torque, q, in inch-pounds can also be represented by F x d where F is the force or tension in the chain, and d is the lever arm, or in this case, the pitch radius of the smallest sprocket.

Applying our known values into the equation we have:

$$2HP = \frac{q \times 9\ RPM}{63025}$$ which can be rearranged to

$$q = \frac{(2\ HP \times 63025)}{9\ RPM}$$ or $q = 14{,}006$ inch-pounds

TECHNICAL ENGINEERING

Chain Selection

From the previous statement that chain pull should not exceed 1/6 to 1/9 of the chain's tensile strength and we are tentatively trying to use #80 chain, let's assume the more conservative condition and apply 1/9 to the tensile of #80 chain to arrive at our maximum working load.

Working load = chain tensile strength x 1/9

= 14,500 pounds x 1/9

= 1,611 pounds

Since q = F x d, then 14,006 = 1,611 x d or,

$$d \text{ (pitch radius of the sprocket)} = \frac{q}{F} = \frac{14{,}006}{1{,}611} = 8.694 \text{ inches } (\times 2 = \text{pitch diameter})$$

To determine what size sprocket this equates to, we need to again refer to the Sprocket Information section for #80 chain.

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth
54	17.198	17.77	16.573
55	17.517	18.09	16.884
56	17.835	18.41	17.210
57	18.153	18.73	17.521
58	18.471	19.04	17.846
59	18.789	19.36	18.158
60	19.107	19.68	18.482
61	19.426	20.00	18.794
62	19.744	20.32	19.119
63	20.062	20.64	19.431
64	20.380	20.96	19.755
65	20.698	21.27	20.067
66	21.016	21.59	20.391
67	21.335	21.91	20.704
68	21.653	22.23	21.028
69	21.971	22.55	21.340
70	22.289	22.87	21.664
71	22.607	23.19	21.977
72	22.926	23.50	22.301
73	23.244	23.82	22.613
74	23.562	24.14	22.937
75	23.880	24.46	23.250
76	24.198	24.78	23.573
77	24.517	25.10	23.887
78	24.835	25.42	24.210
79	25.153	25.73	24.523
80	25.471	26.05	24.846
81	25.790	26.37	25.160
82	26.108	26.69	25.483
83	26.426	27.01	25.796
84	26.744	27.33	26.119
85	27.063	27.64	26.433
86	27.381	27.96	26.756
87	27.699	28.28	27.070
88	28.017	28.60	27.392

Excerpt from Sprocket Diameters - USA Standard #80 Roller Chain

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From this, we see that in order for a #80 chain to be used, the smallest sprocket would need to have a pitch diameter (diameter is twice the pitch radius) of 17.517, or 55 teeth! This is probably not acceptable because in order to arrive at the desired speed reduction, the driver sprocket would need to be 159 teeth.

It is safe to say that the inventory of #80 chain will have to be used on another drive and we should perhaps take another look at this selection process.

From the General Selection section, we know that slow speed drives are recommended to have at least a 12-tooth sprocket. A good approach at this time would be to examine the Sprocket Information section and determine what the diameters are (actually we want the radius) of 12-tooth sprockets for some sizes greater than #80.

Doing this, we note that:

#100 12-tooth, pitch diameter of 4.83", radius of 2.42"
#120 12-tooth, pitch diameter of 5.79", radius of 2.90"
#140 12-tooth, pitch diameter of 6.76", radius of 3.38"

And, by applying our 1/9 criteria to the tensile strengths of those three models we find:

#100 working load is 2,666 pounds
#120 working load is 3,777 pounds
#140 working load is 5,111 pounds

Now we can replace the above values into the q = F x d equation.

For #100, F = q/d = 14,006/2.42 = 5,787 pounds which EXCEEDS the recommended working load for #100 chain.

For #120, F = q/d = 14,006/2.90 = 4,829 pounds which EXCEEDS the recommended working load for #120 chain.

For #140, F = q/d = 14,006/3.38 = 4,143 pounds which IS BELOW the recommended working load for #140 chain.

Based on the above, #140 chain operating on a 12-tooth driver is an acceptable solution. In practice, either a larger sprocket or using a smaller multiple strand chain could have resulted in an acceptable solution as well.

The selection of the driven sprocket is done in the same manner as the general drive selection by multiplying the drive ratio by the small sprocket's number of teeth. In this case, the desired ratio is 3:1 so the driven sprocket size will be 3 x 12 teeth or 36 teeth.

Center distance is calculated as before using 20 pitches as an acceptable minimum. 20 pitches x 1.75 inches per pitch = 35.00 inches. Verifying that the sprockets selected will fit into that envelope, using the formula, minimum center distance equals D + d/2; 21.05 + 7.58/2 = 24.84 inches. So, 20 pitches should be fine for center distance.

The required chain length can again be calculated using the chain length equation presented earlier for a resulting chain length of 65 pitches. This length would require the use of an offset link which should be avoided whenever possible. Incorporating enough center distance adjustment into the design, permitting the use of a chain either 64 or 66 pitches long, would result in a more desirable design.

TECHNICAL ENGINEERING

Chain Selection

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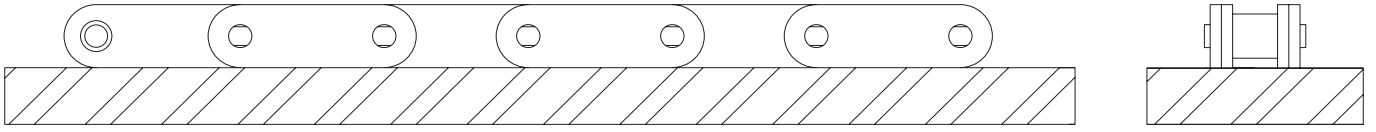
Conveyor Chains

Conveyor designers will find the attributes of precision roller chain valuable in the design and application of a broad spectrum of conveyor or material handling systems. High strength-to-weight ratios combine with precision machined and hardened parts to provide excellent performance, long life and minimized power requirements, all resulting in lower cost/high productivity operations.

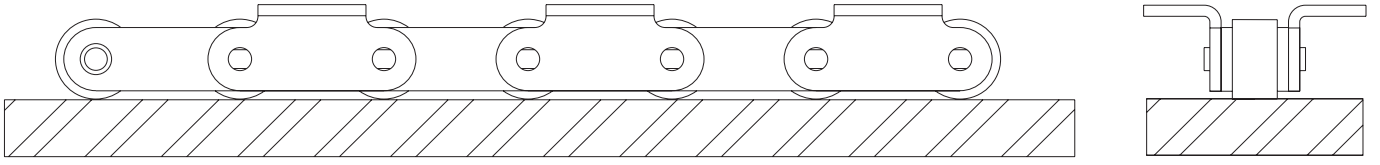
Standard Series, single-pitch roller chain built in accordance with ASME/ANSI B29.1, is available with a variety of attachments. These attachments, and details about the chains' configurations, can be found in either the Attachment Chain section or Made-To-Order section of this guide. Standard Series chains range in size from ¼" pitch up to 2" pitch and are commonly used where speeds are relatively high and smooth operation is required. Standard Series chains are very versatile in that attachments with almost any desired spacing can be provided. Stainless steel chains, in many sizes, are also available for installations requiring corrosion resistance or for operation in extreme temperatures.

Double-Pitch Conveyor chains, built in accordance with ASME/ANSI B29.4, are available in sizes ranging from 1" pitch up to 4" pitch. Double-Pitch chains are most often used when speeds are slow to moderate, as their operation is generally not as smooth as single-pitch chains. Additionally, when relatively long shaft centers are present, double-pitch chains can be less costly because their construction requires only half as many components.

Double-Pitch Conveyor chains can be supplied with standard diameter rollers when the design calls for the chain to transport the conveyed product with the chain sliding on the edges of the oval contour link plates.



Double-Pitch Conveyor chains can be supplied with oversized carrier rollers when the load is to rest on an attachment but be supported by the rollers. Chains with oversized rollers are recommended when it is necessary to reduce friction by "rolling" rather than "dragging" the product. This type of design can dramatically reduce the power required to operate the conveyor.



Double-Pitch Conveyor chains are available with a wide variety of standard or made-to-order attachments. Details on attachments and the chains' configurations can be found in either the Standard Attachment Chain section or Made-To-Order section of this guide. Additionally, depending on the model of conveyor chain required, many are available in stainless steel if the environment requires corrosion resistance or when operating temperatures are extreme.

In conveyor applications, roller chains are usually applied at lower speeds and with fewer joint articulations than in power transmission "drive" applications. Therefore, different design considerations and selection procedures are used in selecting conveyor chains.

TECHNICAL ENGINEERING

Chain Selection

Sprockets

Size: Sprockets for conveyors are usually the same size for the head shaft and tail shaft. Sprockets having the largest practical number of teeth are desirable to reduce chordal action, provide for smooth operation and obtain maximum chain wear life. It is recommended that sprockets have a minimum of 15 effective teeth. The number of effective teeth is the number of teeth engaged by the chain rollers in one revolution of the sprocket. If a single-pitch conveyor chain is used the effective teeth equals the number of sprocket teeth. When using double-pitch chain, use single-pitch sprockets only when more than 15 effective (30 actual) teeth are designed in. For drives with less than 30 actual (15 effective) teeth, use special cut double-pitch sprockets for maximum chain and sprocket life. Additionally, if a single-pitch sprocket is used on a double-pitch chain conveyor, an odd number of teeth in the sprocket is desirable. This allows for the chain to engage alternate teeth each revolution, thus distributing the tooth wear more evenly throughout the life of the chain and sprocket.

Hardness: The guidelines for hardening conveyor sprocket teeth are similar to those of power transmission drive sprocket teeth. For drives which are heavily loaded, drives that possess sprockets with a minimum number of teeth, or drives that are exposed to abrasives such as dirt or paper dust, consideration should be given to hardening the sprocket teeth to prolong both chain and sprocket life.

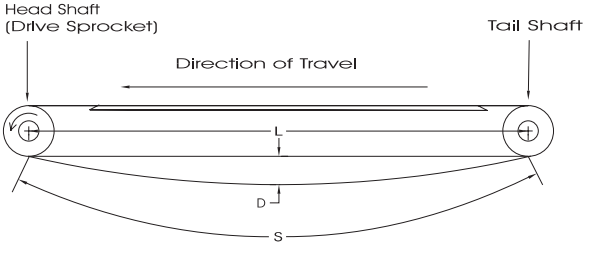
Alignment: Head and tail shafts as well as sprockets should always be aligned using procedures outlined in the Installation section of this guide. Additionally, because the majority of conveyors are designed and operate with two or more strands of chain operating in parallel, head shaft sprockets should be keyed to a common shaft so that the teeth of each sprocket are in alignment to assure equal load distribution on all chains in the conveyor. When chains in a conveyor are connected together with cross-members such as rolls or slats, it is suggested that the tail shaft sprockets also be keyed to the shaft to assure alignment of the sprocket teeth.

Chain Length Matching

With most conveyor applications, chains are expected to operate in parallel and their relationship to one another is critical. Information provided in either the Standard Attachment Chain section or the Made-To-Order section of this guide will describe Diamond's ability to control length uniformity. Please review either of these sections prior to ordering chain.

Take-ups: Take-ups are used to adjust or compensate for the chain's elongation in service. The maximum allowable wear elongation, based upon sprocket design, for most single-pitch chain is approximately 3%. The maximum allowable wear elongation, based on sprocket design, for most double-pitch conveyor chain is approximately 1.5%. Therefore, the amount of take-up required should be either of the above values, depending on the base chain used, or the design should incorporate the ability to remove an entire attachment "cycle" from the chain(s) if necessary to accommodate wear elongation.

Screw-type take-ups are ordinarily used and are located on the tail shaft end of the conveyor if possible. Chain should not be operated with both top and bottom strands taut because lubricant is never allowed to "flow" within the pin/bushing joint, re-establishing a barrier against wear. However, where constant tension is required, such as on conveyors subjected to wide temperature variations, spring- or gravity-type take-ups are acceptable, recognizing that some reduced wear life may result.



An alternate method of maintaining chain tension and allowing for wear elongation is to incorporate a catenary in the design. The most common design allows the chain to be unsupported in the return span of the conveyor. As the chain wears during service the excess lineal length is allowed to "sag" and thus no physical take-up is necessary.

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This type of design can have some negative effects on the operation of the conveyor. First, there may not be sufficient clearance between the conveyor and floor to accommodate the excess chain. This is particularly true if the conveyor is long. Second, there may be a considerable amount of catenary tension. This tension is distributed throughout the entire chain and is added to the working tension. In some cases, it may be great enough to exceed the working load of the chain defined initially in the selection process. Catenary tension must be considered when calculating chain working loads, bearing loads and shaft diameters, but is not a factor in determining the horsepower required to operate the conveyor.

The values for depth of sag as well as catenary tension can be approximated from the following equations:

$$\text{Depth of Sag, } D = \frac{\sqrt{3S^2 - 3L^2}}{4}$$

Where:

D = Depth of chain sag in inches

L = Straight line between points of support, normally shaft centers, in inches

S = Actual amount of chain in return strand in inches
(number of links between points of support x chain pitch)

$$\text{Catenary tension, } T = \frac{W}{12}\left[\frac{S^2}{8D} + \frac{D}{2}\right]$$

Where:

T = Catenary tension in pounds

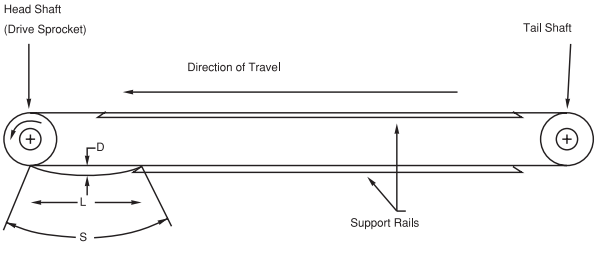
W = Weight of chain in pounds per foot

S = Actual amount of chain in return strand in inches
(number of links between points of support x chain pitch)

D = Depth of chain sag in inches

If the depth of sag or the amount of catenary tension exceeds the capacity of the machine's design or the chain's working load then a support rail can often be installed under the return span to direct the chain sag or to reduce the magnitude of catenary tension.

It is normal practice not to support the entire return span but to leave a short unsupported section for accumulation of chain slack.



Input Power

It is recommended that the drive sprocket be located on the head shaft so that only the span transporting product will be under maximum tension.

Temperature Limits

For operating limits of conveyor chains, refer to the General Design Considerations section of this guide.

TECHNICAL ENGINEERING

Chain Selection

Lubrication: To attain maximum service life, all chains should be kept clean, free from grit, and well-lubricated. Conveyors commonly operate at slow speed with light loads and as such, lubrication application is not defined as with power transmission drive chains. Generally, lubricant applied to the chain by either manual or drip-type lubrication systems will be satisfactory. The specific grade of lubricant may depend upon the temperature and construction of the conveyor. For extremely high or low temperatures, special lubricants such as synthetic oils or molybdenum disulfide-based lubricants may be required. More information on lubricants and lubrication can be found in the Lubrication section of this guide.

If lubrication is not possible or the chain must operate in a contaminated environment, consideration should be given to either DURALUBE® or RING LEADER® O-ring chain. Information on these products is located in the Special Lubricated section of this guide.

Conveyor Chain Selection

Conveyor chains usually are selected for specific operating conditions on the basis of the maximum anticipated chain pull. However, the spacing of attachments, if required, may be the determining factor in selecting the size of the chain.

The following steps outline the selection of most commonly designed conveyor drives:

1. Obtain required information.
2. Calculate preliminary chain pull.
3. Adjust preliminary chain pull for conveyor speed.
4. Make preliminary chain selection.
5. Finalize chain size selection.
6. Select required sprocket sizes.
7. Calculate total chain length.
8. Determine required horsepower.
9. Determine required lubrication system.

Step 1 - Obtain Required Information: The following information is necessary to properly select most conveyor chains:

1. Conveyor arrangement, i.e., horizontal, vertical or inclined.
2. Required speed in feet per minute.
3. Weight of conveyed material in pounds per foot of conveyor length.
4. Material being conveyed, i.e., wooden pallet, paper box, etc.
5. Weight of attachments or “flights” per foot, if applicable.
6. Size of sprockets.
7. Shaft center distance in feet.
8. Type of operating environment, i.e., clean, dirty, corrosive, etc.
9. Available or allowable lubrication.

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Step 2 - Calculate Preliminary Chain Pull: The preliminary required chain pull may be calculated from the following:

1 . For horizontal conveyors:

$$P = [(Wm + 2Wc) \times L \times Fx] + Wm \times L \times Fm$$

2. For inclined conveyors:

$$P = [(Wm \times 2Wc) \times L \times Fx] + (Wm + Wc) \times H + Wm \times L \times Fm$$

3. For vertical conveyors:

$$P = (Wm + Wc)\ H$$

Where:

P = Chain pull, in pounds

Wm = Weight of conveyed material in pounds per foot

L = Conveyor length, commonly shaft center distance, in feet

Fx = Coefficient of friction between chain and conveyor obtained from the Coefficients of Sliding Friction table (if chain is expected to convey the material by sliding on the edges of the link plates) or, from the Coefficients of Rolling Friction table (if the chain is expected to convey the material by rolling on oversized carrier rollers).

Fm = Coefficient of friction between chain and conveyed material. This value can vary significantly and therefore, it is recommended to refer to an engineering handbook for the appropriate value.

L = Horizontal length of conveyor, in feet

H = Vertical height of conveyor, in feet

Wc = Weight of chain and attachments in pounds per foot

TECHNICAL ENGINEERING

Chain Selection

Rolling Coefficients of Friction

Chain Number	Static		Rolling	
	Dry	Lubricated	Dry	Lubricated
C-2042	0.17	0.12	0.14	0.10
C-2052	0.16	0.11	0.13	0.09
C-2062H	0.16	0.11	0.13	0.09
C-2082	0.15	0.10	0.12	0.08
C-2102H	0.14	0.09	0.11	0.07
C-2122H	0.14	0.09	0.11	0.07
C-2162H	0.13	0.08	0.10	0.07

Sliding Coefficients of Friction

	Dry	Lubricated
Static	0.33	0.24
Sliding	0.27	0.21

In the preliminary calculations of chain pull, ignore (Wc) because the required chain size has not been established.

When the conveyed load is supported on the chain rollers, large diameter rollers are recommended.

For multiple strand conveyors, assuming each chain is equally loaded, divide the total chain pull calculated by the number of chains in the conveyor to obtain the equivalent single strand chain pull.

Step 3 - Adjust the Preliminary Chain Pull Based Upon Conveyor Speed: Multiply the calculated single strand chain pull by the load factor for the conveyor chain speed from the Load Factors for Conveyor Speed table.

Load Factors for Conveyor Speed

Chain Speed (feet per minute)	Load Factor	Chain Speed (feet per minute)	Load Factor
Up to 50	1.00	200 to 300	2.2
50 to 100	1.15	300 to 400	3.2
100 to 200	1.50	400 to 500	4.6

Step 4 - Make Preliminary Chain Selection: Using the preliminary chain pull, adjusted for conveyor speed, select a chain with an adequate working load from the Working Loads for Conveyor Chains table. If the conveyor operates in an abrasive or corrosive environment, consider using RING LEADER® O-ring or Stainless Steel chain. Remember that the preliminary chain pull calculations still ignored the weight of the chain and attachments.

Working Loads for Conveyor Chains

ASME/ANSI Chain Number	Pitch (Inches)	Carbon Steel	Heat Treated Stainless	Non-Heat Treated Stainless
25	1/4	125	....	30
35	3/8	300	150	75
40	1/2	530	260	130
41	1/2	260	130	65
50	5/8	870	430	215
60	3/4	1210	600	300
80	1	2070	1030	515
100	1 1/4	3420	....	....
120	1 1/2	4850	....	....
140	1 3/4	6570	....	....
160	2	8580	....	....
C2040, C2042	1	530	260	130
C2050, C2052	1 1/4	870	430	215
C2060, C2062	1 1/2	....	600	300
C2080, C2082	2	....	1030	515
C2060H, C2062H	1 1/2	1210	....	....
C2080H, C2082H	2	2070	....	....
C2100H, C2102H	2 1/2	3420	....	....
C2120H, C2122H	3	4850	....	....
C2160H, C2162H	4	8580	....	....

TECHNICAL ENGINEERING

Chain Selection

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Step 5 - Finalize Chain Size Selection: After a preliminary chain has been selected, recalculate the chain pull including the weight of the chain, including attachments, per foot. Nominal values for chain weight and attachment weight can be obtained from the Chain and Attachment Weight table below.

Chain and Attachment Weight

ASME/ANSI or Diamond Number	Weight per Foot Base Chain	Weight for each Straight or Bent Attachment	Weight for each Extended Pin Attachment
25	.0840	.0007	....
35	.2100	.0019	.0015
41	.2600	.0033	.0015
40	.4100	.0030	.0020
50	.6800	.0090	.0037
60	.9900	.0120	.0062
80	1.7300	.0250	.0150
100	2.5100	.0650	.0250
120	3.6900	.1000	.0450
140	5.0000	.1800	.0670
160	6.5300	.2500	.0960

ASME/ANSI or Diamond Number	Weight per Foot Base Chain	Weight for each Straight or Bent Attachment	Weight for each Extended Pin Attachment
C2040	.3400	.0068	.0019
C2042	.5000	.0068	.0019
C2050	.5800	.0130	.0037
C2052	.8100	.0130	.0037
C2060H	1.0500	.0310	.0062
C2062H	1.4200	.0310	.0062
C2080H	1.4000	.0680	.0150
C2082H	2.1300	.0680	.0150
C2100H	2.4800	.1180	.0250
C2102H	3.5100	.1180	.0250
C2120H	3.6000	.1860	.0450
C2122H	5.4800	.1860	.0450
C2160H	6.1800	.4700	.0960
C2162H	9.3400	.4700	.0960

Calculate the catenary tension from the formula previously shown. Confirm that the catenary tension does not exceed the working load of the preliminary chain selection's chain. If it does exceed the capability of the preliminary selection either increase the size of the selected chain, recalculate catenary tension and compare again or consider installing support rails to minimize the amount of chain in the unsupported span.

Step 6 - Select Required Sprocket Sizes: Select the sprockets for the conveyor using the guidelines previously listed in this section.

Step 7a - Calculate Required Chain Length: If both the headshaft and tailshaft sprockets have the same number of teeth, the total chain length can be calculated from the formula:

L = Number of teeth on one sprocket + (2 x center distance in pitches)

Where:

L = total chain length required, in pitches.

Chain length should be an even number of pitches. The total chain length must be exactly divisible by the attachment spacing. For example, if the attachments are located every fourth pitch then the total chain length must be divisible by four.

TECHNICAL ENGINEERING

Chain Selection

Step 7b - Calculate Required Chain Length: If the headshaft and tailshaft sprockets are of unequal size, total chain length can be calculated from the formula:

$$L = 2C + \frac{N + n}{2} + \frac{.1013\,(N - n)^2}{4C}$$ or substituting A for $$\frac{.1013\,(N - n)^2}{4}$$, $$L = 2C + \frac{N + n}{2} + \frac{A}{C}$$

Where: L= Total chain length in pitches
n = Number of teeth on smaller sprocket
N = Number of teeth on larger sprocket
C = Center distance between shafts **in pitches**

Values of A For Chain Length Calculation

N - n	A	N - n	A	N - n	A	N - n	A
1	0.03	26	17.12	51	65.88	76	146.31
2	0.10	27	18.47	52	68.49	77	150.18
3	0.23	28	19.86	53	71.15	78	154.11
4	0.41	29	21.30	54	73.86	79	158.09
5	0.63	30	22.80	55	76.62	80	162.11
6	0.91	31	24.34	56	79.44	81	166.19
7	1.24	32	25.94	57	82.30	82	170.32
8	1.62	33	27.58	58	85.21	83	174.50
9	2.05	34	29.28	59	88.17	84	178.73
10	2.53	35	31.03	60	91.19	85	183.01
11	3.06	36	32.83	61	94.25	86	187.34
12	3.65	37	34.68	62	97.37	87	191.73
13	4.28	38	36.58	63	100.39	88	196.10
14	4.96	39	38.53	64	103.75	89	200.64
15	5.70	40	40.53	65	107.02	90	205.18
16	6.48	41	42.58	66	110.34	91	209.76
17	7.32	42	44.68	67	113.71	92	214.40
18	8.21	43	46.84	68	117.13	93	219.08
19	9.14	44	49.04	69	120.60	94	223.82
20	10.13	45	51.29	70	124.12	95	228.61
21	11.17	46	53.60	71	127.69	96	233.44
22	12.26	47	55.95	72	131.31	97	238.33
23	13.40	48	58.36	73	134.99	98	243.27
24	14.59	49	60.82	74	138.71	99	248.26
25	15.83	50	63.33	75	142.48	100	253.30

Again, the total chain length must be exactly divisible by the attachment spacing. For example, if the attachments are located every fourth pitch then the total chain length must be divisible by four.

Step 8 - Determine the Required Input Horsepower: The required input horsepower can be calculated from the formula:

$$HP = \frac{\text{chain pull x \# of chains x conveyor speed in feet per minute}}{33{,}000}$$

Step 9 - Determine the Required Lubrication System: Refer to the guidelines for conveyor lubrication provided earlier in this section.

TECHNICAL ENGINEERING

Chain Selection

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Example Conveyor Chain Selection

Given

A horizontal conveyor transports machine components on wooden pallets at 56 feet per minute using two parallel roller chains joined every 12 inches by a steel flight weighing 0.75 pounds each. The maximum weight of a pallet, including the machine components, is 120 pounds. The overall size of the pallet is 36 inches x 36 inches. The length of the conveyor, from center of headshaft to center of tailshaft is 75 feet, allowing a maximum of 25 pallets to be transported at one time. It is desired to utilize a roller chain constructed with oversized carrier rollers. There is no take-up currently designed for the conveyor as the excess chain will be accumulated using a catenary between head and tail shafts.

Determine

Size of roller chain required

Size of sprockets

Recommended method of lubrication

Required input horsepower

Step 1: Obtain the required information. From the given information, we know the following:

Horizontal conveyor.

Speed is to be **56 feet per minute.**

Shaft centers are located **75 feet apart.**

Weight of **conveyed material** is 120 pounds over a 36 inch span, or **40 pounds per foot** of conveyor length.

Conveyed material is a wooden pallet.

The drive is intended to have **two chains** connected with metal flights weighing .75 pounds each, every 12 inches. So, the **weight of the flights is .75 pounds per foot** of conveyor length.

The flights will be attached to the chains every 12 inches. Therefore the **attachments will be spaced every 12 inches.**

No specific sprockets have been defined but must be recommended.

TECHNICAL ENGINEERING

Chain Selection

Step 2: Calculate preliminary chain pull.

Using the equation, P = [(Wm + 2Wc) x L x Fx] + Wm x L x Fm, and the known information, the preliminary chain pull is:

P=[(40 + 2 x 0) x 75 x 0.1] + 40 x 75 x .5 = 1800 pounds

Remember we omit the weight of the chain, Wc, in the preliminary chain pull calculation. Additionally, because the given information requested a roller chain having oversized carrier rollers, we selected an average Fx of .1 from the Coefficients of Rolling Resistance table. Because there is a possibility that the pallets may "accumulate," forcing the chain to "slide" along the bottom surface of the pallets, an approximate coefficient of friction between wood and steel of 0.5 was selected from an engineering handbook.

Step 3: Adjust the preliminary chain pull for conveyor speed. Using the values in the Load Factors for Conveyor Speed table, we would use the factor 1.5, as the given information tells us that the conveyor's speed will be 56 feet per minute.

P= preliminary chain pull calculation x speed factor

P= 1800 pounds x 1.5 = 2700 pounds

Step 4: Make preliminary chain selection. To arrive at the single strand chain pull, we divide the total chain pull by the number of strands employed. In the example it was stated that the conveyor was to have two chains connected by flights. Therefore, the total chain pull of 2700 pounds can be divided by two to arrive at the single strand chain pull.

Single Strand Pull = Chain pull/number of chains in drive

P= 2700/2 = 1350 pounds.

Using this value we can select a chain size from the Working Loads for Conveyor Chains table. In this example, no specific environment was defined so we can assume carbon steel chains will be acceptable. Based upon the 1350 pound single strand chain pull calculated above, a C2082H chain would be acceptable based on its recommended working load of 2070 pounds.

TECHNICAL ENGINEERING

Chain Selection

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Step 5: Finalize chain selection. Now we include the weight of the selected chain and attachments along with the correct coefficient of rolling resistance for C2080H in the chain pull equation to verify that our selection is acceptable. We will assume that the design calls for bent attachments on both sides of the chain at 6-6 spacing (6 pitches of C2082H = 12 inches). Using the equation:

P = [(Wm + 2Wc) x L x Fx] + Wm x L x Fm along with information extracted from the Chain and Attachment Weight table, and the given information, the finalized chain pull is:

P=[(40 + 2 x 2.266) x 75 x 0.08] + 40 x 75 x .5 = 1767 pounds

Multiplying this by the speed factor of 1.5 gives results in 1767 x 1.5 = 2650 pounds.

But, because this drive is to be composed of two parallel chains, the single strand chain pull is 2650/2 or 1325 pounds. This is still well within the limitations for C2082H conveyor chain.

Because there is no take-up designed into the drive other than a catenary under the conveyor, depth of sag and catenary tension must be calculated and considered in the drive's selection.

Using the equations for both sag and tension, and considering the maximum allowable elongation of 1.5% (approximately 27.00 inches), the following values are determined:

Depth of Sag, $D = \frac{\sqrt{3S^2 - 3L^2}}{4}$

$D = \frac{\sqrt{3(927)^2 - 3(900)^2}}{4}$

D = 96.17 inches

Catenary tension, $T = \frac{W}{12}\left[\frac{S^2}{8D} + \frac{D}{2}\right]$

$T = \frac{2.26}{12}\left[\frac{927^2}{8D} + \frac{96.17}{2}\right]$

T= 219.41 pounds tension due to the catenary

219.41 pounds is well within the capabilities of C2082H's working load. Therefore C2082H can be selected for use on this drive.

TECHNICAL ENGINEERING

Chain Selection

Step 6: Select required sprocket sizes. Using information provided earlier in this section, sprockets having at least 15 effective teeth should be acceptable.

Step 7: Calculate chain length. Both head and tail shafts will have sprockets of equal size. Therefore, chain length can be calculated using the formula:

Lc = Number of teeth (pitches) on one sprocket + (2 x center distance in pitches)

Lc = 15 + [2 x (75 x 6)] = 915 pitches

Chain length must be a.) an even number of pitches and b.) evenly divisible by the spacing of the attachments. Therefore, 918 pitches is required as the spacing must be evenly divisible by 6.

It is possible to recalculate the depth of sag, D, and the catenary tension, T, using the new chain length, but it would not significantly affect the existing calculations.

Step 8: Determine the required input horsepower. Using the equation:

$$HP = \frac{\text{chain pull x \# of chains x conveyor speed in feet per minute}}{33{,}000}$$

$$HP = \frac{1325 \times 2 \times 56}{33{,}000} = 4.49 \text{ HP}$$

Step 9: Determine the required lubrication. As stated earlier, the majority of conveyor systems will provide satisfactory service life when lubricated using manual or drip lube systems. Therefore, unless the conveyor is operating in an unusually harsh or contaminated environment, type A or manual lubrication should serve satisfactorily.

TECHNICAL ENGINEERING

Roller Chain Installation

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Roller chain, properly selected, installed and maintained, is an extremely versatile means of power transmission. It is possible, however, to greatly reduce a chain's life and even induce failure if the chain is abused through improper installation, operation, or maintenance procedures. In certain applications, chain failure can lead to personal injury or property damage.

A chain's installation, lubrication and maintenance are generally quite simple but as with most similar systems, proper preparation will add greatly to the overall ease and effectiveness of the task.

Areas to be considered prior to, as well as after installation are:

1. Safety.
2. Chain, sprockets, and other drive components.
3. Shaft and sprocket alignment.
4. Chain and connecting link installation.
5. Initial correct tension and provisions for adjustment during service.
6. Provision for adequate lubrication.
7. Appropriate protective guarding.

Safety: When installing or connecting/disconnecting a roller chain:

1. Always lock out equipment power switch before removing or installing chains.
2. ALWAYS USE SAFETY GLASSES to protect your eyes.
3. Wear protective clothing, gloves and safety shoes as appropriate.
4. Support the equipment to prevent uncontrolled movement of chain and parts.
5. Use of pressing equipment is recommended to remove or install press-fit-type connecting/pin links. Tooling must be in good condition and properly used.
6. Do not attempt to connect or disconnect chain unless you know the chain's construction, including the correct direction for connecting link removal or insertion.

Note: These instructions are available in 30 languages. Call us.

TECHNICAL ENGINEERING

Roller Chain Installation

Condition of Components: Shafts, sprockets, bearings, and any other relevant machine framing should be thoroughly examined. Any evidence of damage or wear should be repaired prior to the chain's installation.

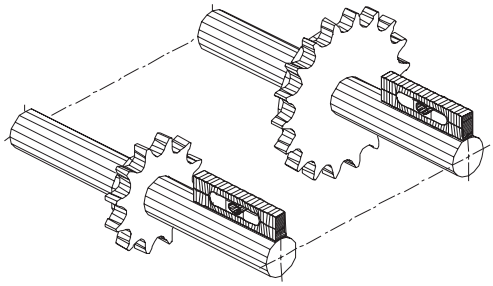
Chain Inspection: When reinstalling an existing chain, care should be taken to ensure that it is free of grit and dirt. If necessary, wash the chain in an approved solvent, paying particular attention to flexing the chain's joints while submerged, as this will allow contaminants within the chain's joints to be rinsed away. The chain should be allowed to thoroughly dry, removing any solvents that could reduce the operating lubricant's ability to protect the internal wear surfaces. Once dry, it is critical that the chain be relubricated prior to installation. Suggested lubricants can be determined from a list located later in this section.

When installing a new chain, the manufacturer's lubricant should not be removed. These lubricants were applied under special conditions to provide the best balance between initial wear resistance and surface protection.

Drive Alignment

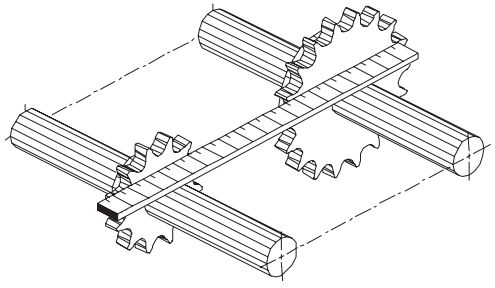
Misalignment results in uneven loading across the width of the chain and may cause damage ranging from roller link plate and sprocket tooth wear up to and including premature failure from link plate fatigue. Proper drive alignment can be divided into two categories: parallel shafts and parallel sprockets.

Aligning Shafts: Shafts should be parallel and level. This condition may be checked by the use of a feeler bar and a level.



Aligning Sprockets: Sprocket axial alignment can be checked with a straight edge which will extend across the finished sides of the two sprockets. Normally, it is good practice to align the sprockets as close to the shaft bearings as possible. For long center distances, use a taut cord or wire long enough to extend beyond each of the sprockets.

Note: When shafts have appreciable "end float," sprockets should be aligned for the normal running position. Recheck after short running period for any signs of wear on inner faces of roller link plates.



Recheck all preceding adjustments and be certain all sprocket set-screws, as well as any additional hardware, are secure.

TECHNICAL ENGINEERING

Roller Chain Installation

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Chain and Connecting Link Installation

Installing the Chain: Fit chain around the sprockets in the drive and bring the free ends together, normally on one of the sprockets, for final connection. If the ends cannot be brought together on a common sprocket, the use of Diamond's chain connecting tool may be employed. Refer to the Chain Tools section of this guide for more detailed information on the connecting tool.

Installing the Connecting Link: The connecting link, depending upon the size and type of chain, may employ either a slip-fit or press-fit cover plate, combined with either a spring clip or cotters as the final retainer.

Press-fit cover plates, discussed in the General Drive Considerations section, are those which have an interference fit on the pins and provide integrity equal to the base chain itself. They do, however, present their own unique degree of difficulty at assembly.

To assemble the press-fit cover plates:

1. Insert the "Master Link," the portion of the link that contains the pins, and provide support or backing to resist the forces needed to drive the cover plate on.
2. Place the press-fit cover plate over the exposed pin ends and ensure that it is aligned properly.
3. Drive the cover plate on until it is flush with the ends of the pins.
4. Obtain a hollow punch (perhaps a small piece of pipe or a discarded chain's roller) and locate it over/around the flush pin end.
5. Alternately from one pitch hole to the other, continue to drive the ends of the link plate onto the pins until it is clear of the spring clip groove or cotter hole. Care should be taken not to drive the plate on so far as to squeeze against or pinch the roller links. This will result in stiff or binding joints.
6. Install the retaining device, either spring clip or cotter.

Caution: Never drill out or enlarge the pitch holes of a press-fit cover plate to make the installation easier. This will lower the integrity of the link.

Slip-fit cover plates, discussed in the General Drive Considerations section, are those which have a clearance fit on the pins. These connecting links are far easier to install but reduce the working load capacity of the chain.

To assemble the slip-fit cover plate:

1. Insert the "Master Link," the portion of the link that contains the pins, into the chain.
2. Slide the plate over the pin ends to a location which clears either the spring clip groove or cotter hole.
3. Install the retaining device, either spring clip or cotter.

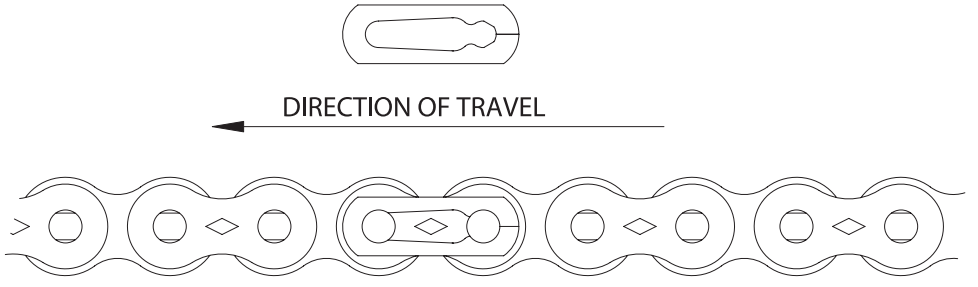
Note: When a slip-fit cover plate is used, a chain's working capacity can be reduced as much as 30%.

TECHNICAL ENGINEERING

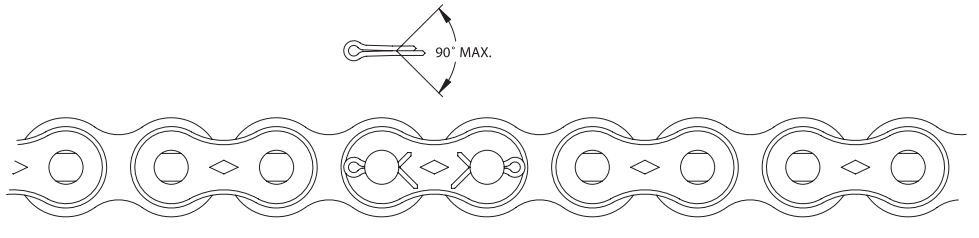
Roller Chain Installation

Retaining Devices

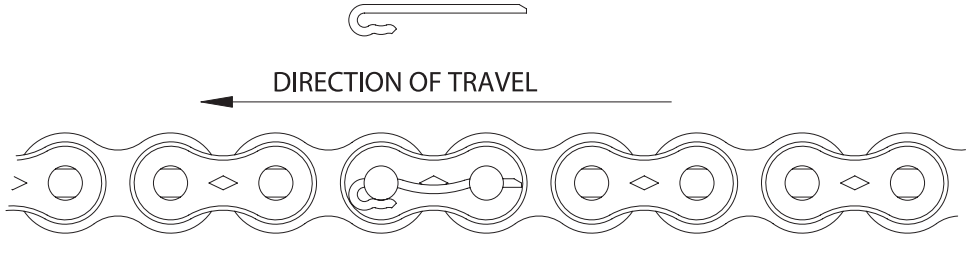
Spring clips are provided for chain models #25-#60 and provide a quick and easy method for securing the cover plate. Installation is performed by first determining the direction of chain travel and locating the closed end of the clip over the leading pin's groove. Final installation is performed by "snapping" the clip over the trailing pin locking it into the groove. Care should be taken not to bend or deform the clip during installation as this may cause it to come loose during operation.



Staggered-leg cotters are normally provided on #80 and larger models' connecting links as the method of retaining the cover plate. Diamond manufactures cotters and specially heat treats them to obtain specific properties which are beneficial in service. After insertion, the legs should not be spread in excess of 90° (included angle) and if removed should not be reused. It is not recommended to use commercial cotters as they may not provide satisfactory performance in severe applications.



Shepherd's crooks are available upon request for chain models #120-#160. These retaining devices secure the cover plate by passing through both pins of a connecting link with just a single pin. To install, first determine the direction of chain travel and then orient such that the hook-end of the device snaps onto the leading pin of the connecting link. The shepherd's crook should then be crimped slightly in the middle to minimize fretting.



TECHNICAL ENGINEERING

Roller Chain Installation

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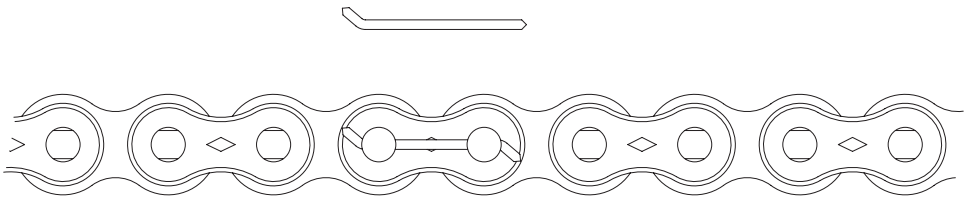
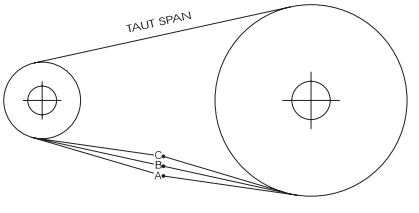
Retaining Devices

Z-pin cotters are available upon request for chain models #120-#200. These retaining devices are another single-pin method of securing the cover plate. The pins are supplied bent on one end. To retain the cover plate, simply install the z-pin cotter through both pins of a connecting link until the bend stops insertion, then bend the leading end in the opposite direction.



Proper Chain Tension: It should be expected that new chains will elongate slightly more during the first few days of service than in the months of subsequent operation. This is due to the "running-in" of the chain which removes minute imperfections from the surfaces of the pins and bushings. Diamond chains are pre-stressed prior to shipment to remove the majority of this "run-in" but some slight amount should still be expected. Because of this, it is good practice to establish and adjust center distances or idlers for an initially snug-fitting chain. After the initial run-in period, the drive should always be adjusted so that there is some degree of slack in the unloaded section of chain. This slack is very important as it allows the pin/bushing joint to relubricate itself prior to entering the working or loaded portion of the drive.

The following represents recommended mid-span movements for a properly tensioned drive.



Recommended Possible Mid-Span Movement, A-C, of Slack Span

Dimensions in Inches

Drive Center-Line	Tangent Length Between Sprockets								
	5	10	15	20	30	40	60	80	100
Horizontal to 45	0.25	0.50	0.75	1.00	1.50	2.00	3.00	4.00	5.00
Vertical to 45	0.12	0.25	0.38	0.50	0.75	1.00	1.50	2.00	2.50

TECHNICAL ENGINEERING

Roller Chain Lubrication

Roller chain drives suffer more harm from faulty lubrication than from years of normal service!!!
A roller chain consists of a series of connected journal bearings which must be properly lubricated to obtain the maximum service life. Although many slow speed drives operate successfully with little or no lubrication beyond that initially applied at the time of manufacture, continued proper lubrication will greatly extend the useful life of every chain drive.

Chain drives require lubrication for six primary purposes:

1. Resist wear of the pin-bushing joint.
2. Cushion impact loads.
3. Dissipate heat.
4. Flush away foreign materials.
5. Lubricate chain-sprocket contact surfaces.
6. Prevent rust or corrosion.

In selecting a lubricant, a good grade of clean petroleum oil without additives is most commonly recommended. Certain additives in oil can leave a varnish or gum buildup which will prevent additional lubricant from entering chain joints.

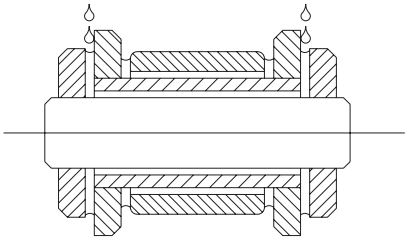
The viscosity of the lubricant greatly affects its ability to flow into the internal areas; therefore, the highest viscosity oil which will flow between the chain link plates and fill the pin-bushing areas will provide the greatest film thickness and best wear life.

Greases, applied to the exterior of the chain, serve no purpose with the exception of protecting the external surfaces from rust or corrosion and should not be relied upon to provide any internal lubricating benefits.

The following table provides a guideline for selecting the proper lubricant viscosity at various ambient temperatures:

Ambient Temperature Degrees F	Recommended Lubricants				
	SUS Viscosity 100 F	SAE Engine Oil	SAE Gear Oil	ISO	AGMA
20-40	200-400	20	80W	46 or 68	1 or 2
40-100	400-650	30	85W	100	3
100-120	650-950	40	90	150	4
120-140	950-1450	50	90	220	5

The elongation of roller chain is the result of wear caused by friction between th
less of the size or type of chain, in order
for any lubricant to reach the critical pin/bushing area it should be applied
to the upper edges of link plates in the slack span. Lubricant applied only to th
adequate supply to the internal wearing surfaces. However, the chain's rollers v
to spillage over the link plate edges when lubricant is properly applied.



LUBRICANT FLOW INTO THE CHAIN JOINT

TECHNICAL ENGINEERING

Roller Chain Lubrication

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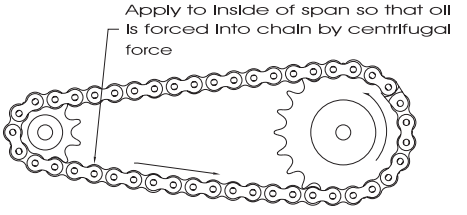
Note: When applying lubricant to multiple strand chain, it is important that lubricant be directed to each row of chain link plates, not just the outermost rows; and, in conveying applications, oil should be directed between the rollers and bushings as well as between the chain link plates, as significant wear can result from external loading.

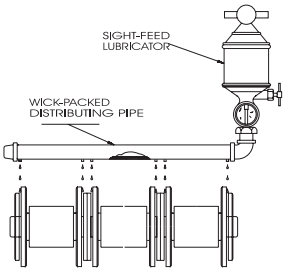


APPLICATION OF LUBRICANT TO CHAIN

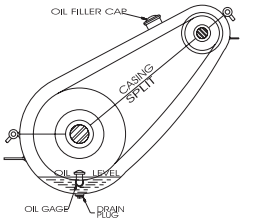
Methods of Lubrication

There are three basic methods of lubrication for roller chain drives. Close adherence to these recommended types of lubrication is essential in obtaining the maximum service life of a chain drive. These recommended types of lubrication, as shown in the horsepower rating tables, are determined by the chain speed and the amount of power transmitted.

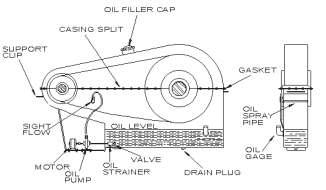
Manual or Drip Lubrication (Type A): Lubricant applied manually with an oil can or brush is acceptable for slow speed drives, generally not over 600 feet per minute. When lubrication must be accomplished with a minimum amount of oil, it is advisable to equip the system with either felt pads or brushes which are fed by lubricant from a reservoir and carefully positioned to direct oil into the clearances between each row of link plates in the slack span of chain.



Bath Lubrication (Type B): Lubricant is applied to the chain by allowing the oil level within an enclosed casing to cover the chain at approximately the pitch line at its lowest point of operation. This is by far the most desirable method for chains operating at up to approximately 1500 feet per minute.



Forced or Circulating Lubrication (Type C): This is similar to bath lubrication with the exception that the lubricant is pumped onto the chain under pressure. The oil should be delivered to the upper edges of each row of link plates across the lower span of chain just prior to the chain's entry into one of the sprockets.



The following table can be used as a guide for determining the type of lubricating system based upon the speed of the chain in feet per minute. The final selection should, however, be based upon the type of lubrication system recommended in the horsepower rating tables for the specific chain, sprocket, speed and horsepower transmitted.

Chain Speed in Feet/Minute

Chain No.	35	40	50	60	80	100	120	140	160	200
Type A	350	300	250	215	165	145	125	110	100	80
Type B	2650	2200	1900	1750	1475	1250	1170	1050	1000	865
Type C	Use for speeds higher than Type B limits									

TECHNICAL ENGINEERING

Roller Chain Maintenance

All chain drives should receive regular maintenance. Each drive should be inspected after the initial 100 hours of operation. Thereafter, most drives may be inspected at 500-hour intervals. However, drives subjected to shock loads or severe operating conditions should be inspected at more frequent intervals. This section will provide guidance as to what items should be evaluated during regular inspection intervals.

Drive Guarding

The strongest chain, built to the highest quality standards, still can break in normal service due to the effects of wear, fatigue, or unexpected overloads. Therefore, a roller chain drive should have adequate guarding to prevent personal injury or property damage.

If a roller chain breaks on a drive while operating at speed, the chain can be thrown off the sprockets with considerable force. The user should either provide adequate guarding to contain a broken chain, or prevent personnel from entering an area where a broken chain could strike them.

There are applications where a broken chain could release a load and cause personal injury or property damage. Provisions for a brake or other restraining device which will stop and hold the load in the event of a broken chain should be incorporated into the machinery's design.

Regular Inspections: At each inspection, the following items should be checked, the condition corrected, or the chain replaced as necessary:

1. **Check Lubrication**

   On slow speed drives, be sure the lubrication schedule is being followed and if the chain is covered with dirt and debris, clean the chain with an approved solvent and relubricate it. If drip lubrication is used, check for adequate oil flow and be sure it is being applied at the proper location on the chain. (Refer to the Lubrication section.)

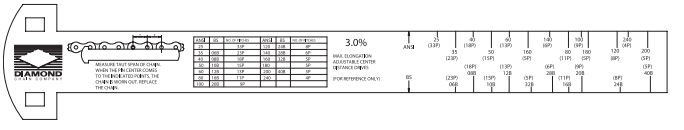
   With bath or pump lubrication, check oil level and add oil if needed. Check oil for contamination and change oil as needed. It is recommended to change the oil after the first 100 hours of operation and each 500 hours thereafter. If pump lubrication is used, check each orifice to be sure it is clear and is directing oil onto the chain properly.

2. **Check Chain Tension**

   Refer to the Installation section and check chain tension. Adjust the drive as needed to maintain the proper sag in the slack span. If elongation exceeds the available adjustment, remove two pitches of chain and reconnect.

3. **Check Chain Wear**

   Roller chains should be replaced promptly when worn (elongated beyond 3%) or when the chain rollers begin to "ride high" near the tips of the teeth on relatively large sprockets. If the chain is worn excessively, replace the entire chain. Do not connect or splice a new section to a worn chain. Do not continue to run a chain, worn in excess of 3% (or less in some applications), because the chain will not engage the sprockets properly and increased damage to the sprockets may occur.



Contact Diamond Chain for your free wear guage.

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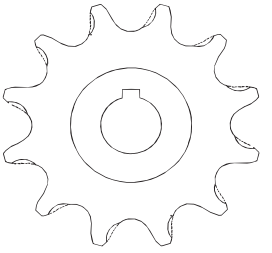
4. Check Sprocket Tooth Wear

Check for roughness or binding when the chain engages or disengages from the sprocket. Inspect the sprocket teeth for reduced tooth section and "hooked" tooth tips. If these conditions are present, the sprocket teeth are excessively worn and the sprocket should be replaced. Do not run new chain on worn sprockets as it will cause the new chain to wear rapidly. Conversely, do not run a worn chain on new sprockets as it will cause the new sprockets to wear rapidly. As a *general* rule, replace the sprockets with every third chain replacement.



TOOTH FORM ALTERED DUE TO WEAR

5. Check Sprocket Alignment

If there is noticeable wear on the inside surfaces of the chain roller link plates, the sprockets may be misaligned. Realign the sprockets as outlined in the Installation section to prevent further abnormal chain and sprocket wear.

6. Check for Drive Interference

Check for interference between the drive and other parts of the equipment. If there is any, correct it immediately. Interference can cause abnormal and potentially destructive wear on the chain or the interfering part. If the edges of the chain link plates impact against a rigid part, link plate fatigue and chain failure can result.

Check for and eliminate any buildup of debris or foreign material between the chain and sprockets. A relatively small amount of debris in the sprocket roll seat can cause tensile loads great enough to break the chain if forced through the drive.

7. Check for Failure

Inspect the chain for cracked, broken, or deformed parts. If any of these conditions are found, **replace the entire chain.** Even though portions of the chain may appear to be in good condition, in all likelihood, the entire chain has been damaged.

Warning: Roller chains that have been damaged under excessive loading due to an accident, or otherwise, should be completely replaced because the chain, as well as the damaged component, has been loaded to a degree that has impaired its ability to transmit normal loading.

8. Evidence of Lubrication

One of the first indications that a roller chain is not receiving adequate lubrication is that the external areas around the joints will most likely have a reddish/brown (rusty) color. The inadequate lubrication can be confirmed by removing a link (most commonly the connecting link) and examining the surface of the pins. The color of the pins will generally be dark brown, even blue, if the chain has been running with inadequate lubrication. Additionally, the surface of poorly lubricated pins will be rough, grooved, or even show evidence of galling.

Properly lubricated chains will not exhibit the rusty color at the joints, and the pins of the connecting links, when removed, will be generally smooth, shiny and have an obvious coating of lubricant on the surface.

TECHNICAL ENGINEERING

Horsepower Rating Tables

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The Horsepower Rating Tables found on the following pages cover Standard Series, Heavy Series and Double-Pitch roller chains. Additionally, Horsepower Rating Tables for Diamond's RING LEADER® O-ring chains, from 5/8" through 1-1/4" pitch are also included.

The power transmission capacity rating listed in the following tables are based upon these conditions:

1. A service factor of one.
2. Chain length of 100 pitches.
3. The use of recommended methods of lubrication.
4. A two-sprocket drive, properly aligned and mounted on parallel horizontal shafts.
5. A non-abrasive environment.

Under the above conditions, a service life of approximately 15,000 hours can be expected.

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 25

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	50	100	300	365	500	700	900	1200	1500	1800	2100	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000	10000	11000	12000
11	0.03	0.06	0.19	0.22	0.30	0.42	0.53	0.70	0.87	1.03	1.20	1.42	1.69	1.69	1.38	1.16	0.99	0.86	0.75	0.60	0.49	0.41	0.35	0.30	0.27
12	0.04	0.07	0.20	0.24	0.33	0.46	0.58	0.76	0.95	1.13	1.31	1.55	1.84	1.92	1.57	1.32	1.12	0.97	0.86	0.68	0.56	0.47	0.40	0.34	0.30
13	0.04	0.08	0.22	0.26	0.36	0.49	0.63	0.83	1.03	1.22	1.42	1.67	1.99	2.17	1.77	1.49	1.27	1.10	0.96	0.77	0.63	0.53	0.45	0.39	0.34
14	0.04	0.08	0.24	0.28	0.38	0.53	0.68	0.89	1.10	1.32	1.52	1.80	2.15	2.42	1.98	1.66	1.42	1.23	1.08	0.86	0.70	0.59	0.50	0.43	0.38
15	0.05	0.09	0.25	0.30	0.41	0.57	0.72	0.95	1.18	1.41	1.63	1.93	2.30	2.67	2.20	1.84	1.57	1.36	1.20	0.95	0.78	0.65	0.56	0.48	0.42
16	0.05	0.09	0.27	0.32	0.44	0.61	0.77	1.02	1.26	1.50	1.74	2.06	2.45	2.85	2.42	2.03	1.73	1.50	1.32	1.05	0.86	0.72	0.61	0.53	0.47
17	0.05	0.10	0.29	0.35	0.47	0.64	0.82	1.08	1.34	1.60	1.85	2.19	2.61	3.02	2.65	2.22	1.90	1.64	1.44	1.14	0.94	0.79	0.67	0.58	0.51
18	0.05	0.11	0.30	0.37	0.49	0.68	0.87	1.15	1.42	1.69	1.96	2.32	2.76	3.20	2.89	2.42	2.07	1.79	1.57	1.25	1.02	0.86	0.73	0.63	0.56
19	0.06	0.11	0.32	0.39	0.52	0.72	0.92	1.21	1.50	1.78	2.07	2.45	2.91	3.38	3.13	2.62	2.24	1.94	1.70	1.35	1.11	0.93	0.79	0.69	
20	0.06	0.12	0.34	0.41	0.55	0.76	0.97	1.27	1.58	1.88	2.18	2.58	3.07	3.56	3.38	2.83	2.42	2.10	1.84	1.46	1.20	1.00	0.86	0.74	
21	0.06	0.12	0.35	0.43	0.58	0.80	1.01	1.34	1.66	1.97	2.29	2.70	3.22	3.74	3.64	3.05	2.60	2.26	1.98	1.57	1.29	1.08	0.92		
22	0.07	0.13	0.37	0.45	0.60	0.83	1.06	1.40	1.73	2.07	2.40	2.83	3.37	3.91	3.90	3.27	2.79	2.42	2.12	1.69	1.38	1.16	0.99		
23	0.07	0.13	0.39	0.47	0.63	0.87	1.11	1.46	1.81	2.16	2.51	2.96	3.53	4.09	4.17	3.50	2.98	2.59	2.27	1.80	1.47	1.24	1.04		
24	0.07	0.14	0.40	0.49	0.66	0.91	1.16	1.53	1.89	2.25	2.61	3.09	3.68	4.27	4.45	3.73	3.18	2.76	2.42	1.92	1.57	1.32	0.22		
25	0.08	0.15	0.42	0.51	0.69	0.95	1.21	1.59	1.97	2.35	2.72	3.22	3.84	4.45	4.73	3.96	3.38	2.93	2.57	2.04	1.67	1.40			
26	0.08	0.15	0.44	0.53	0.71	0.99	1.26	1.65	2.05	2.44	2.83	3.35	3.99	4.62	5.01	4.20	3.59	3.11	2.73	2.17	1.77	1.49			
28	0.08	0.16	0.47	0.57	0.77	1.06	1.35	1.78	2.21	2.63	3.05	3.61	4.30	4.98	5.60	4.70	4.01	3.47	3.05	2.42	1.98				
30	0.09	0.18	0.50	0.61	0.82	1.14	1.45	1.91	2.37	2.82	3.27	3.86	4.60	5.34	6.07	5.21	4.45	3.85	3.38	2.68	1.98				
32	0.10	0.19	0.54	0.65	0.88	1.21	1.55	2.04	2.52	3.01	3.49	4.12	4.91	5.69	6.47	5.74	4.90	4.25	3.73	2.96	0.35				
35	0.11	0.21	0.59	0.71	0.96	1.33	1.69	2.23	2.76	3.29	3.81	4.51	5.37	6.23	7.08	6.56	5.60	4.86	4.26	2.76					
40	0.12	0.23	0.67	0.81	1.10	1.52	1.93	2.55	3.15	3.76	4.36	5.15	6.14	7.11	8.09	8.02	6.85	5.93	4.91						
45	0.14	0.26	0.76	0.91	1.24	1.71	2.17	2.86	3.55	4.23	4.90	5.79	6.90	8.00	9.10	9.57	8.17	5.23	1.38						
	TYPE A LUBRICATION				TYPE B LUBRICATION									TYPE C LUBRICATION											

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

TECHNICAL ENGINEERING

Horsepower Rating Tables

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 35

# of teeth in small sprocket	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	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	0.57	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	0.64	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	0.73	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	0.81	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	0.90	
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	0.44	
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		
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		
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		
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			
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				
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				
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					
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					
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					
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						
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							
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							
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								
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								
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									
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										
	TYPE A LUBE			TYPE B LUBRICATION							TYPE C LUBRICATION														

Horsepower Ratings – Single Strand Roller Chain No. 40

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																							
	10	25	50	100	180	200	300	500	700	900	1000	1200	1400	1600	1800	2100	2500	3000	3500	4000	5000	6000	7000	8000	9000
11	0.06	0.14	0.27	0.52	0.91	1.00	1.48	2.42	3.34	4.25	4.70	5.60	6.49	5.57	4.66	3.70	2.85	2.17	1.72	1.41	1.01	0.77	0.61	0.50	
12	0.06	0.15	0.29	0.56	0.99	1.09	1.61	2.64	3.64	4.64	5.13	6.11	7.09	6.34	5.31	4.22	3.25	2.47	1.96	1.60	1.15	0.87	0.69	0.57	
13	0.07	0.16	0.31	0.61	1.07	1.19	1.75	2.86	3.95	5.02	5.56	6.62	7.68	7.15	5.99	4.76	3.66	2.79	2.21	1.81	1.29	0.98	0.78		
14	0.07	0.17	0.34	0.66	1.15	1.28	1.88	3.08	4.25	5.41	5.98	7.13	8.27	7.99	6.70	5.31	4.09	3.11	2.47	2.02	1.45	1.10	0.87		
15	0.08	0.19	0.36	0.70	1.24	1.37	2.02	3.30	4.55	5.80	6.41	7.64	8.86	8.86	7.43	5.89	4.54	3.45	2.74	2.24	1.60	1.22	0.97		
16	0.08	0.20	0.39	0.75	1.32	1.46	2.15	3.52	4.86	6.18	6.84	8.15	9.45	9.76	8.18	6.49	5.00	3.80	3.02	2.47	1.77	1.34			
17	0.09	0.21	0.41	0.80	1.40	1.55	2.29	3.74	5.16	6.57	7.27	8.66	10.04	10.69	8.96	7.11	5.48	4.17	3.31	2.71	1.94	1.47			
18	0.09	0.22	0.43	0.84	1.48	1.64	2.42	3.96	5.46	6.95	7.69	9.17	10.63	11.65	9.76	7.75	5.97	4.54	3.60	2.95	2.11	1.60			
19	0.10	0.24	0.46	0.89	1.57	1.73	2.56	4.18	5.77	7.34	8.12	9.68	11.22	12.64	10.59	8.40	6.47	4.92	3.91	3.20	2.29	0.09			
20	0.10	0.25	0.48	0.94	1.65	1.82	2.69	4.39	6.07	7.73	8.55	10.18	11.81	13.42	11.44	9.07	6.99	5.31	4.22	3.45	2.47				
21	0.11	0.26	0.51	0.98	1.73	1.91	2.83	4.61	6.37	8.11	8.98	10.69	12.40	14.10	12.30	9.76	7.52	5.72	4.54	3.71	2.66				
22	0.11	0.27	0.53	1.03	1.81	2.01	2.96	4.83	6.68	8.50	9.40	11.20	12.99	14.77	13.19	10.47	8.06	6.13	4.87	3.98	2.85				
23	0.12	0.28	0.55	1.08	1.90	2.10	3.10	5.05	6.98	8.89	9.83	11.71	13.58	15.44	14.10	11.19	8.62	6.55	5.20	4.26	3.05				
24	0.12	0.30	0.58	1.12	1.98	2.19	3.23	5.27	7.28	9.27	10.26	12.22	14.17	16.11	15.03	11.93	9.18	6.99	5.54	4.54	0.87				
25	0.13	0.31	0.60	1.17	2.06	2.28	3.36	5.49	7.59	9.66	10.69	12.73	14.76	16.78	15.98	12.68	9.76	7.43	5.89	4.82					
26	0.13	0.32	0.63	1.22	2.14	2.37	3.50	5.71	7.89	10.04	11.11	13.24	15.35	17.45	16.95	13.45	10.36	7.88	6.25	5.12					
28	0.14	0.35	0.67	1.31	2.31	2.55	3.77	6.15	8.50	10.82	11.97	14.26	16.53	18.79	18.94	15.03	11.57	8.80	6.99	5.72					
30	0.15	0.37	0.72	1.41	2.47	2.74	4.04	6.59	9.11	11.59	12.82	15.28	17.71	20.14	21.01	16.67	12.84	9.76	7.75	6.34					
32	0.16	0.40	0.77	1.50	2.64	2.92	4.31	7.03	9.71	12.36	13.68	16.30	18.89	21.48	23.14	18.37	14.14	10.76	8.54	1.41					
35	0.18	0.43	0.84	1.64	2.88	3.19	4.71	7.69	10.62	13.52	14.96	17.82	20.67	23.49	26.30	21.01	16.17	12.30	9.76						
40	0.21	0.50	0.96	1.87	3.30	3.65	5.38	8.79	12.14	15.45	17.10	20.37	23.62	26.85	30.06	25.67	19.76	15.03							
45	0.23	0.56	1.08	2.11	3.71	4.10	6.06	9.89	13.66	17.39	19.24	22.92	26.57	30.20	33.82	30.63	23.58	5.53							
	TYPE A LUBE				TYPE B LUBRICATION									TYPE C LUBRICATION											

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

TECHNICAL ENGINEERING

Horsepower Rating Tables

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 41

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																							
	10	25	50	100	180	200	300	500	700	900	1000	1200	1400	1600	1800	2100	2500	3000	3500	4000	5000	6000	7000	8000	9000
11	0.03	0.07	0.15	0.28	0.50	0.55	0.81	1.33	1.84	2.34	2.25	1.71	1.36	1.11	0.93	0.74	0.57	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	1.45	2.00	2.55	2.57	1.95	1.55	1.27	1.06	0.84	0.65	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	1.57	2.17	2.76	2.89	2.20	1.75	1.43	1.20	0.95	0.73	0.56	0.44	0.36	0.26	0.20	0.16		
14	0.04	0.10	0.19	0.36	0.63	0.70	1.04	1.69	2.34	2.97	3.23	2.46	1.95	1.60	1.34	1.06	0.82	0.62	0.49	0.40	0.29	0.22	0.17		
15	0.04	0.10	0.20	0.39	0.68	0.75	1.11	1.81	2.50	3.19	3.53	2.73	2.17	1.77	1.49	1.18	0.91	0.69	0.55	0.45	0.32	0.24	0.19		
16	0.05	0.11	0.21	0.41	0.73	0.80	1.18	1.93	2.67	3.40	3.76	3.01	2.39	1.95	1.64	1.30	1.00	0.76	0.60	0.49	0.35	0.27			
17	0.05	0.12	0.23	0.44	0.77	0.85	1.26	2.05	2.84	3.61	4.00	3.29	2.61	2.14	1.79	1.42	1.10	0.83	0.66	0.54	0.39	0.29			
18	0.05	0.12	0.24	0.46	0.82	0.90	1.33	2.18	3.00	3.82	4.23	3.59	2.85	2.33	1.95	1.55	1.19	0.91	0.72	0.59	0.42	0.32			
19	0.05	0.13	0.25	0.49	0.86	0.95	1.41	2.30	3.17	4.04	4.47	3.89	3.09	2.53	2.12	1.68	1.29	0.98	0.78	0.64	0.46	0.09			
20	0.06	0.14	0.27	0.52	0.91	1.00	1.48	2.42	3.34	4.25	4.70	4.20	3.33	2.73	2.29	1.81	1.40	1.06	0.84	0.69	0.49				
21	0.06	0.14	0.28	0.54	0.95	1.05	1.55	2.54	3.51	4.46	4.94	4.52	3.59	2.94	2.46	1.95	1.50	1.14	0.91	0.74	0.53				
22	0.06	0.15	0.29	0.57	1.00	1.10	1.63	2.66	3.67	4.67	5.17	4.85	3.85	3.15	2.64	2.09	1.61	1.23	0.97	0.80	0.57				
23	0.07	0.16	0.30	0.59	1.04	1.15	1.70	2.78	3.84	4.89	5.41	5.18	4.11	3.37	2.82	2.24	1.72	1.31	1.04	0.85	0.61				
24	0.07	0.16	0.32	0.62	1.09	1.20	1.78	2.90	4.01	5.10	5.64	5.52	4.38	3.59	3.01	2.39	1.84	1.40	1.11	0.91	0.65				
25	0.07	0.17	0.33	0.64	1.13	1.25	1.85	3.02	4.17	5.31	5.88	5.87	4.66	3.81	3.20	2.54	1.95	1.49	1.18	0.96					
26	0.07	0.18	0.34	0.67	1.18	1.30	1.92	3.14	4.34	5.52	6.11	6.23	4.94	4.05	3.39	2.69	2.07	1.58	1.25	1.02					
28	0.08	0.19	0.37	0.72	1.27	1.40	2.07	3.38	4.67	5.95	6.58	6.96	5.52	4.52	3.79	3.01	2.31	1.76	1.40	1.14					
30	0.08	0.20	0.40	0.77	1.36	1.50	2.22	3.63	5.01	6.37	7.05	7.72	6.13	5.01	4.20	3.33	2.57	1.95	1.55	1.27					
32	0.09	0.22	0.42	0.82	1.45	1.60	2.37	3.87	5.34	6.80	7.52	8.50	6.75	5.52	4.63	3.67	2.83	2.15	1.71	1.40					
35	0.10	0.24	0.46	0.90	1.59	1.76	2.59	4.23	5.84	7.44	8.23	9.80	7.72	6.32	5.29	4.20	3.23	2.46	1.95						
40	0.11	0.27	0.53	1.03	1.81	2.01	2.96	4.83	6.68	8.50	9.40	11.20	9.43	7.72	6.47	5.13	3.95	3.01							
45	0.13	0.31	0.60	1.16	2.04	2.26	3.33	5.44	7.51	9.56	10.58	12.60	11.25	9.21	7.72	6.13	4.72	3.59							
	TYPE A LUBRICATION				TYPE B LUBRICATION									TYPE C LUBRICATION											

Horsepower Ratings – Single Strand Roller Chain No. 50

# of teeth in small sprocket	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	
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		
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			
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	0.28			
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				
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					
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					
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						
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						
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							
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							
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							
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							
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								
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								
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									
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									
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									
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										
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 A LUBRICATION				TYPE B LUBRICATION						TYPE C LUBRICATION														

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

TECHNICAL ENGINEERING

Horsepower Rating Tables

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 60

# of teeth in small sprocket	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	
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	
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		
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		
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			
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			
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				
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				
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				
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					
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					
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						
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						
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						
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						
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						
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							
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							
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							
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							
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								
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								
	TYPE A LUBRICATION				TYPE B LUBRICATION							TYPE C LUBRICATION													

Horsepower Ratings – Single Strand Roller Chain No. 60H

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	10	25	50	90	100	200	300	400	500	600	800	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000	4500	5000	5500	6000
11	0.22	0.53	1.02	1.80	1.99	3.87	5.72	7.53	9.33	11.12	14.66	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	
12	0.24	0.57	1.12	1.96	2.17	4.23	6.24	8.22	10.18	12.13	15.99	17.75	13.51	10.72	8.77	7.35	6.28	4.49	3.42	2.71	2.22	1.86	1.59		
13	0.26	0.62	1.21	2.13	2.35	4.58	6.76	8.90	11.03	13.14	17.32	20.02	15.23	12.08	9.89	8.29	7.08	5.06	3.85	3.06	2.50	2.10	1.79		
14	0.28	0.67	1.30	2.29	2.53	4.93	7.27	9.59	11.88	14.15	18.65	22.37	17.02	13.51	11.05	9.26	7.91	5.66	4.31	3.42	2.80	2.34			
15	0.30	0.72	1.40	2.45	2.71	5.28	7.79	10.27	12.73	15.16	19.99	24.76	18.87	14.98	12.26	10.27	8.77	6.28	4.77	3.79	3.10	2.60			
16	0.32	0.77	1.49	2.62	2.90	5.63	8.31	10.96	13.58	16.17	21.32	26.41	20.79	16.50	13.51	11.32	9.66	6.91	5.26	4.17	3.42				
17	0.34	0.81	1.58	2.78	3.08	5.99	8.83	11.64	14.43	17.18	22.65	28.06	22.77	18.07	14.79	12.40	10.58	7.57	5.76	4.57	3.74				
18	0.36	0.86	1.67	2.94	3.26	6.34	9.35	12.33	15.27	18.20	23.98	29.71	24.81	19.69	16.11	13.51	11.53	8.25	6.28	4.98	1.06				
19	0.38	0.91	1.77	3.11	3.44	6.69	9.87	13.01	16.12	19.21	25.32	31.36	26.91	21.35	17.48	14.65	12.50	8.95	6.81	5.40					
20	0.40	0.96	1.86	3.27	3.62	7.04	10.39	13.70	16.97	20.22	26.65	33.01	29.06	23.06	18.87	15.82	13.51	9.66	7.35	5.83					
21	0.42	1.00	1.95	3.44	3.80	7.39	10.91	14.38	17.82	21.23	27.98	34.66	31.26	24.81	20.31	17.02	14.53	10.40	7.91	4.87					
22	0.44	1.05	2.05	3.60	3.98	7.75	11.43	15.07	18.67	22.24	29.31	36.32	33.52	26.60	21.77	18.25	15.58	11.15	8.48						
23	0.46	1.10	2.14	3.76	4.16	8.10	11.95	15.75	19.52	23.25	30.65	37.97	35.84	28.44	23.28	19.51	16.66	11.92	9.07						
24	0.48	1.15	2.23	3.93	4.34	8.45	12.47	16.44	20.37	24.26	31.98	39.62	38.20	30.31	24.81	20.79	17.75	12.70	9.66						
25	0.50	1.20	2.33	4.09	4.52	8.80	12.99	17.12	21.21	25.27	33.31	41.27	40.61	32.23	26.38	22.11	18.87	13.51	10.27						
26	0.52	1.24	2.42	4.25	4.71	9.15	13.51	17.81	22.06	26.28	34.64	42.92	43.07	34.18	27.98	23.44	20.02	14.32	4.17						
28	0.56	1.34	2.61	4.58	5.07	9.86	14.55	19.18	23.76	28.30	37.31	46.22	48.14	38.20	31.26	26.20	22.37	16.01							
30	0.60	1.43	2.79	4.91	5.43	10.56	15.59	20.55	25.46	30.33	39.97	49.52	53.38	42.36	34.67	29.06	24.81	17.75							
32	0.64	1.53	2.98	5.23	5.79	11.27	16.63	21.92	27.15	32.35	42.64	52.82	58.81	46.67	38.20	32.01	27.33	11.45							
35	0.69	1.67	3.26	5.73	6.33	12.32	18.19	23.97	29.70	35.38	46.63	57.77	67.27	53.38	43.69	36.62	31.26								
40	0.79	1.91	3.72	6.54	7.24	14.08	20.79	27.40	33.94	40.43	53.30	66.03	78.66	65.22	53.38	44.74	29.65								
45	0.89	2.15	4.19	7.36	8.14	15.84	23.38	30.82	38.18	45.49	59.96	74.28	88.49	77.83	63.70	37.00									
	TYPE A LUBE				TYPE B LUBRICATION							TYPE C LUBRICATION													

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

TECHNICAL ENGINEERING

Horsepower Rating Tables

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 80

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	10	25	50	75	88	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000	4500
11	0.44	1.06	2.07	3.05	3.56	4.03	7.83	11.56	15.23	18.87	22.48	26.07	27.41	22.97	19.61	14.92	11.84	9.69	8.12	6.93	4.96	3.77	3.00	2.45	
12	0.48	1.16	2.26	3.33	3.88	4.39	8.54	12.61	16.62	20.59	24.53	28.44	31.23	26.17	22.35	17.00	13.49	11.04	9.25	7.90	5.65	4.30	3.41	2.79	
13	0.52	1.26	2.45	3.61	4.21	4.76	9.26	13.66	18.00	22.31	26.57	30.81	35.02	29.51	25.20	19.17	15.21	12.45	10.43	8.91	6.37	4.85	3.85	3.15	
14	0.56	1.35	2.63	3.89	4.53	5.12	9.97	14.71	19.39	24.02	28.62	33.18	37.72	32.98	28.16	21.42	17.00	13.91	11.66	9.96	7.12	5.42	4.30	3.52	
15	0.60	1.45	2.82	4.16	4.86	5.49	10.68	15.76	20.77	25.74	30.66	35.55	40.41	36.58	31.23	23.76	18.85	15.43	12.93	11.04	7.90	6.01	4.77		
16	0.64	1.55	3.01	4.44	5.18	5.86	11.39	16.81	22.16	27.45	32.70	37.92	43.11	40.30	34.41	26.17	20.77	17.00	14.25	12.16	8.70	6.62	5.25		
17	0.68	1.64	3.20	4.72	5.50	6.22	12.10	17.86	23.54	29.17	34.75	40.29	45.80	44.13	37.68	28.66	22.75	18.62	15.60	13.32	9.53	7.25			
18	0.72	1.74	3.39	5.00	5.83	6.59	12.81	18.91	24.93	30.88	36.79	42.66	48.49	48.08	41.05	31.23	24.78	20.29	17.00	14.51	10.39	7.90			
19	0.76	1.84	3.57	5.28	6.15	6.95	13.53	19.96	26.31	32.60	38.84	45.03	51.19	52.15	44.52	33.87	26.88	22.00	18.44	15.74	11.26	0.36			
20	0.80	1.93	3.76	5.55	6.47	7.32	14.24	21.01	27.70	34.32	40.88	47.40	53.88	56.32	48.08	36.58	29.03	23.76	19.91	17.00	12.16				
21	0.84	2.03	3.95	5.83	6.80	7.69	14.95	22.07	29.08	36.03	42.92	49.77	56.58	60.59	51.73	39.36	31.23	25.56	21.42	18.29	13.09				
22	0.88	2.13	4.14	6.11	7.12	8.05	15.66	23.12	30.47	37.75	44.97	52.14	59.27	64.97	55.47	42.20	33.49	27.41	22.97	19.61	14.03				
23	0.92	2.22	4.33	6.39	7.45	8.42	16.37	24.17	31.85	39.46	47.01	54.51	61.97	69.38	59.30	45.11	35.80	29.30	24.55	20.97	15.00				
24	0.96	2.32	4.52	6.66	7.77	8.78	17.09	25.22	33.24	41.18	49.06	56.88	64.66	72.40	63.21	48.08	38.16	31.23	26.17	22.35	15.99				
25	1.00	2.42	4.70	6.94	8.09	9.15	17.80	26.27	34.62	42.89	51.10	59.25	67.35	75.42	67.20	51.12	40.57	33.20	27.83	23.76	8.16				
26	1.04	2.51	4.89	7.22	8.42	9.52	18.51	27.32	36.01	44.61	53.14	61.62	70.05	78.43	71.27	54.22	43.02	35.22	29.51	25.20					
28	1.12	2.71	5.27	7.77	9.06	10.25	19.93	29.42	38.78	48.04	57.23	66.36	75.44	84.47	79.65	60.59	48.08	39.36	32.98	28.16					
30	1.20	2.90	5.64	8.33	9.71	10.98	21.36	31.52	41.55	51.47	61.32	71.10	80.82	90.50	88.33	67.20	53.33	43.65	36.58	31.23					
32	1.28	3.09	6.02	8.89	10.36	11.71	22.78	33.62	44.32	54.91	65.41	75.84	86.21	96.53	97.31	74.03	58.75	48.08	40.30	5.65					
35	1.40	3.38	6.58	9.72	11.33	12.81	24.92	36.78	48.47	60.05	71.54	82.95	94.29	105.58	111.31	84.68	67.20	55.00	28.15						
40	1.61	3.87	7.53	11.11	12.95	14.64	28.48	42.03	55.40	68.63	81.76	94.80	107.77	120.67	133.51	103.46	82.10	40.16							
45	1.81	4.35	8.47	12.49	14.57	16.47	32.04	47.28	62.32	77.21	91.98	106.65	121.24	135.75	150.20	123.45	72.28								
	TYPE A LUBRICATION				TYPE B LUBRICATION								TYPE C LUBRICATION												

Horsepower Ratings – Single Strand Roller Chain No. 80H

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	10	25	50	70	100	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2500	3000	3500	4000	4500
11	0.49	1.19	2.31	3.19	4.50	8.75	12.91	17.02	21.08	25.12	29.12	27.41	22.97	19.61	17.00	14.92	11.84	9.69	8.12	6.93	4.96	3.77	3.00	2.45	
12	0.54	1.30	2.52	3.48	4.91	9.54	14.09	18.57	23.00	27.40	31.77	31.23	26.17	22.35	19.37	17.00	13.49	11.04	9.25	7.90	5.65	4.30	3.41	2.79	
13	0.58	1.40	2.73	3.77	5.31	10.34	15.26	20.11	24.92	29.68	34.42	35.22	29.51	25.20	21.84	19.17	15.21	12.45	10.43	8.91	6.37	4.85	3.85	3.15	
14	0.63	1.51	2.94	4.06	5.72	11.13	16.43	21.66	26.83	31.97	37.07	39.36	32.98	28.16	24.41	21.42	17.00	13.91	11.66	9.96	7.12	5.42	4.30	2.02	
15	0.67	1.62	3.15	4.35	6.13	11.93	17.61	23.21	28.75	34.25	39.71	43.65	36.58	31.23	27.07	23.76	18.85	15.43	12.93	11.04	7.90	6.01	4.77		
16	0.72	1.73	3.36	4.64	6.54	12.73	18.78	24.75	30.67	36.53	42.36	48.08	40.30	34.41	29.82	26.17	20.77	17.00	14.25	12.16	8.70	6.62			
17	0.76	1.84	3.57	4.94	6.95	13.52	19.95	26.30	32.59	38.82	45.01	51.17	44.13	37.68	32.66	28.66	22.75	18.62	15.60	13.32	9.53	7.25			
18	0.81	1.94	3.78	5.23	7.36	14.32	21.13	27.85	34.50	41.10	47.66	54.17	48.08	41.05	35.59	31.23	24.78	20.29	17.00	14.51	10.39	1.88			
19	0.85	2.05	3.99	5.52	7.77	15.11	22.30	29.40	36.42	43.38	50.30	57.18	52.15	44.52	38.59	33.87	26.88	22.00	18.44	15.74	11.26				
20	0.90	2.16	4.20	5.81	8.18	15.91	23.48	30.94	38.34	45.67	52.95	60.19	56.32	48.08	41.68	36.58	29.03	23.76	19.91	17.00	12.16				
21	0.94	2.27	4.41	6.10	8.59	16.70	24.65	32.49	40.25	47.95	55.60	63.20	60.59	51.73	44.84	39.36	31.23	25.56	21.42	18.29					
22	0.99	2.38	4.62	6.39	8.99	17.50	25.82	34.04	42.17	50.24	58.25	66.21	64.97	55.47	48.08	42.20	33.49	27.41	22.97	19.61					
23	1.03	2.48	4.83	6.68	9.40	18.29	27.00	35.58	44.09	52.52	60.89	69.22	69.45	59.30	51.40	45.11	35.80	29.30	24.55	20.97					
24	1.08	2.59	5.04	6.97	9.81	19.09	28.17	37.13	46.00	54.80	63.54	72.23	74.03	63.21	54.79	48.08	38.16	31.23	26.17	22.35					
25	1.12	2.70	5.25	7.26	10.22	19.88	29.35	38.68	47.92	57.09	66.19	75.24	78.70	67.20	58.25	51.12	40.57	33.20	27.83	23.76					
26	1.17	2.81	5.46	7.55	10.63	20.68	30.52	40.23	49.84	59.37	68.84	78.25	83.47	71.27	61.78	54.22	43.02	35.22	29.51	25.20					
28	1.26	3.03	5.88	8.13	11.45	22.27	32.87	43.32	53.67	63.94	74.13	84.27	93.29	79.65	69.04	60.59	48.08	39.36	32.98	28.16					
30	1.34	3.24	6.31	8.71	12.27	23.86	35.21	46.41	57.50	68.50	79.43	90.29	101.10	88.33	76.57	67.20	53.33	43.65	36.58	12.26					
32	1.43	3.46	6.73	9.29	13.08	25.45	37.56	49.51	61.34	73.07	84.72	96.31	107.84	97.31	84.35	74.03	58.75	48.08	39.43						
35	1.57	3.78	7.36	10.16	14.31	27.84	41.08	54.15	67.09	79.92	92.67	105.34	117.95	111.31	96.49	84.68	67.20	55.00	5.58						
40	1.79	4.32	8.41	11.61	16.35	31.81	46.95	61.89	76.67	91.34	105.90	120.39	134.80	136.00	117.88	103.46	82.10	14.36							
45	2.02	4.86	9.46	13.06	18.40	35.79	52.82	69.62	86.25	102.75	119.14	135.44	151.65	162.28	140.66	123.45	43.25								*
	TYPE A LUBE				TYPE B LUBRICATION								TYPE C LUBRICATION												

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

*For optimum results, consult Diamond Chain for drives operating in the shaded area.

TECHNICAL ENGINEERING

Horsepower Rating Tables

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 100

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																									
	10	25	50	71	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2500	3000	3500	4000
11	0.85	2.04	3.96	5.55	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	5.93	4.51	3.58	
12	0.92	2.22	4.32	6.05	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	6.76	5.14		
13	1.00	2.41	4.68	6.56	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	7.62	5.80		
14	1.08	2.59	5.04	7.06	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	8.52	1.13		
15	1.15	2.78	5.41	7.57	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	9.45			
16	1.23	2.96	5.77	8.07	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	10.41			
17	1.31	3.15	6.13	8.58	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	11.40			
18	1.38	3.33	6.49	9.08	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	0.18			
19	1.46	3.52	6.85	9.59	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				
20	1.54	3.70	7.21	10.09	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				
21	1.61	3.89	7.57	10.60	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				
22	1.69	4.08	7.93	11.10	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				
23	1.77	4.26	8.29	11.60	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				
24	1.84	4.45	8.65	12.11	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	5.43				
25	1.92	4.63	9.01	12.61	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					
26	2.00	4.82	9.37	13.12	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					
28	2.15	5.19	10.09	14.13	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						
30	2.31	5.56	10.81	15.14	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						
32	2.46	5.93	11.53	16.15	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						
35	2.69	6.48	12.61	17.66	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							
40	3.07	7.41	14.41	20.18	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								
45	3.46	8.34	16.22	22.71	31.54	46.55	61.36	90.56	119.37	147.89	176.17	204.27	232.21	227.21	194.00	168.15	34.58								*
	TYPE A LUBE			TYPE B LUBRICATION							TYPE C LUBRICATION														

Horsepower Ratings – Single Strand Roller Chain No. 100H

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	10	25	50	58	100	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400	2700	3000	3500
11	0.93	2.23	4.34	5.01	8.45	16.43	24.25	31.96	39.60	47.18	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	
12	1.01	2.44	4.74	5.46	9.21	17.93	26.46	34.87	43.20	51.46	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	
13	1.09	2.64	5.13	5.92	9.98	19.42	28.66	37.78	46.80	55.75	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	
14	1.18	2.84	5.53	6.37	10.75	20.91	30.86	40.68	50.40	60.04	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		
15	1.26	3.04	5.92	6.83	11.52	22.41	33.07	43.59	54.00	64.33	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		
16	1.35	3.25	6.32	7.28	12.29	23.90	35.27	46.49	57.60	68.62	70.23	57.48	48.17	41.13	35.65	31.29	24.83	20.32	17.03	14.54	12.60	11.06			
17	1.43	3.45	6.71	7.74	13.05	25.39	37.48	49.40	61.20	72.91	76.91	62.95	52.76	45.05	39.04	34.27	27.19	22.26	18.65	15.93	13.80	12.12			
18	1.52	3.65	7.11	8.19	13.82	26.89	39.68	52.31	64.80	77.20	83.80	68.59	57.48	49.08	42.54	37.33	29.63	24.25	20.32	17.35	15.04	2.94			
19	1.60	3.86	7.50	8.65	14.59	28.38	41.89	55.21	68.40	81.48	90.88	74.38	62.34	53.22	46.13	40.49	32.13	26.30	22.04	18.82	16.31				
20	1.68	4.06	7.89	9.10	15.36	29.88	44.09	58.12	72.00	85.77	98.15	80.33	67.32	57.48	49.82	43.73	34.70	28.40	23.80	20.32	7.77				
21	1.77	4.26	8.29	9.56	16.13	31.37	46.30	61.02	75.60	90.06	104.43	86.43	72.43	61.85	53.61	47.05	37.33	30.56	25.61	21.87					
22	1.85	4.46	8.68	10.01	16.89	32.86	48.50	63.93	79.20	94.35	109.40	92.68	77.67	66.31	57.48	50.45	40.03	32.77	27.46	21.67					
23	1.94	4.67	9.08	10.47	17.66	34.36	50.71	66.83	82.80	98.64	114.37	99.07	83.02	70.89	61.44	53.93	42.79	35.03	29.35	2.94					
24	2.02	4.87	9.47	10.92	18.43	35.85	52.91	69.74	86.40	102.93	119.34	105.60	88.50	75.56	65.49	57.48	45.61	37.33	31.29						
25	2.10	5.07	9.87	11.38	19.20	37.34	55.12	72.65	90.00	107.22	124.32	112.27	94.09	80.33	69.63	61.11	48.49	39.69	29.68						
26	2.19	5.28	10.26	11.83	19.97	38.84	57.32	75.55	93.60	111.51	129.29	119.07	99.79	85.20	73.85	64.81	51.43	42.10	11.58						
28	2.36	5.68	11.05	12.75	21.50	41.83	61.73	81.36	100.80	120.08	139.24	133.07	111.52	95.22	82.53	72.43	57.48	47.05							
30	2.53	6.09	11.84	13.66	23.04	44.81	66.14	87.18	108.00	128.66	149.18	147.58	123.68	105.60	91.53	80.33	63.75	19.16							
32	2.69	6.49	12.63	14.57	24.57	47.80	70.55	92.99	115.20	137.24	159.13	162.58	136.25	116.33	100.84	88.50	70.23								
35	2.95	7.10	13.82	15.93	26.88	52.28	77.16	101.71	126.00	150.10	174.04	185.97	155.85	133.07	115.34	101.23	33.74								
40	3.37	8.12	15.79	18.21	30.72	59.75	88.18	116.23	144.00	171.55	198.91	226.11	190.42	162.58	140.92	82.37									
45	3.79	9.13	17.76	20.48	34.55	67.22	99.21	130.76	162.00	192.99	223.77	254.38	227.21	194.00	85.51										*
	TYPE A LUBE			TYPE B LUBRICATION						TYPE C LUBRICATION															

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

*For optimum results, consult Diamond Chain for drives operating in the shaded area.

TECHNICAL ENGINEERING

Horsepower Rating Tables

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 120

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	10	25	50	60	75	100	150	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2700	3000
11	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	20.64	16.38	13.40	11.23	9.59	8.31	7.30	6.11	
12	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	23.51	18.66	15.27	12.80	10.93	9.47	8.31	6.97	
13	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	26.51	21.04	17.22	14.43	12.32	10.68	9.37		
14	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	29.63	23.51	19.25	16.13	13.77	11.94	10.48		
15	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	32.86	26.08	21.34	17.89	15.27	13.24			
16	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	36.20	28.73	23.51	19.71	16.83	14.58			
17	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	39.65	31.46	25.75	21.58	18.43				
18	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	43.20	34.28	28.06	23.51	20.08				
19	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	46.85	37.18	30.43	25.50	0.80				
20	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	50.59	40.15	32.86	27.54					
21	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	54.44	43.20	35.36	27.46					
22	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	58.37	46.32	37.91						
23	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	62.39	49.51	40.53						
24	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	66.51	52.78	43.20						
25	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	70.71	56.11	18.37						
26	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	74.99	59.51							
28	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	83.81	66.51							
30	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	92.95	13.70							
32	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	102.39								
35	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	117.13								
40	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									
45	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									
	TYPE A LUBE			TYPE B LUBRICATION								TYPE C LUBRICATION													

Horsepower Ratings – Single Strand Roller Chain No. 120H

# of teeth in small sprocket				Revolutions Per Minute – Small Sprocket																					
	5	10	25	50	75	100	150	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2700	3000
11	0.79	1.54	3.72	7.23	10.67	14.06	20.76	27.36	40.38	53.22	65.93	58.37	46.32	37.91	31.77	27.13	20.64	16.38	13.40	11.23	9.59	8.31	7.30	6.11	
12	0.86	1.68	4.05	7.89	11.64	15.34	22.64	29.85	44.05	58.06	71.93	66.51	52.78	43.20	36.20	30.91	23.51	18.66	15.27	12.80	10.93	9.47	8.31	1.06	
13	0.94	1.82	4.39	8.54	12.61	16.62	24.53	32.33	47.72	62.90	77.92	74.99	59.51	48.71	40.82	34.85	26.51	21.04	17.22	14.43	12.32	10.68	9.37		
14	1.01	1.96	4.73	9.20	13.58	17.90	26.42	34.82	51.39	67.73	83.92	83.81	66.51	54.44	45.62	38.95	29.63	23.51	19.25	16.13	13.77	11.94	4.55		
15	1.08	2.10	5.07	9.86	14.55	19.18	28.30	37.31	55.06	72.57	89.91	92.95	73.76	60.37	50.59	43.20	32.86	26.08	21.34	17.89	15.27	13.24			
16	1.15	2.24	5.41	10.52	15.52	20.46	30.19	39.79	58.73	77.41	95.90	102.39	81.26	66.51	55.74	47.59	36.20	28.73	23.51	19.71	16.83				
17	1.23	2.38	5.74	11.17	16.49	21.73	32.08	42.28	62.40	82.25	101.90	112.14	88.99	72.84	61.04	52.12	39.65	31.46	25.75	21.58	18.43				
18	1.30	2.52	6.08	11.83	17.46	23.01	33.96	44.77	66.07	87.09	107.89	122.18	96.96	79.36	66.51	56.78	43.20	34.28	28.06	23.51	4.23				
19	1.37	2.66	6.42	12.49	18.43	24.29	35.85	47.26	69.74	91.93	113.89	132.50	105.15	86.06	72.13	61.58	46.85	37.18	30.43	25.50					
20	1.44	2.80	6.76	13.14	19.40	25.57	37.74	49.74	73.41	96.76	119.88	142.81	113.56	92.95	77.89	66.51	50.59	40.15	32.86	24.58					
21	1.51	2.94	7.09	13.80	20.37	26.85	39.63	52.23	77.08	101.60	125.87	149.95	122.18	100.00	83.81	71.56	54.44	43.20	35.36						
22	1.59	3.08	7.43	14.46	21.34	28.13	41.51	54.72	80.75	106.44	131.87	157.09	131.01	107.23	89.87	76.73	58.37	46.32	37.91						
23	1.66	3.22	7.77	15.12	22.31	29.41	43.40	57.20	84.42	111.28	137.86	164.23	140.04	114.62	96.06	82.02	62.39	49.51	38.38						
24	1.73	3.36	8.11	15.77	23.28	30.68	45.29	59.69	88.10	116.12	143.86	171.37	149.28	122.18	102.39	87.43	66.51	52.78	12.24						
25	1.80	3.50	8.45	16.43	24.25	31.96	47.17	62.18	91.77	120.96	149.85	178.51	158.70	129.90	108.86	92.95	70.71	56.11							
26	1.87	3.64	8.78	17.09	25.22	33.24	49.06	64.66	95.44	125.79	155.84	185.65	168.32	137.77	115.46	98.58	74.99	59.51							
28	2.02	3.93	9.46	18.40	27.16	35.80	52.83	69.64	102.78	135.47	167.83	199.94	188.11	153.97	129.03	110.17	83.81	30.35							
30	2.16	4.21	10.14	19.72	29.10	38.36	56.61	74.61	110.12	145.15	179.82	214.22	208.62	170.75	143.10	122.18	92.95								
32	2.31	4.49	10.81	21.03	31.04	40.91	60.38	79.59	117.46	154.82	191.81	228.50	229.83	188.11	157.65	134.60	88.71								
35	2.52	4.91	11.82	23.00	33.95	44.75	66.04	87.05	128.47	169.34	209.79	249.92	262.89	215.17	180.33	153.97	12.54								
40	2.88	5.61	13.51	26.29	38.80	51.14	75.48	99.48	146.83	193.53	239.76	285.62	321.19	262.89	220.32	118.61									
45	3.24	6.31	15.20	29.58	43.65	57.53	84.91	111.92	165.18	217.72	269.73	321.32	372.57	278.98	148.03										
	TYPE A LUBE			TYPE B LUBRICATION								TYPE C LUBRICATION													

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

*For optimum results, consult Diamond Chain for drives operating in the shaded area.

TECHNICAL ENGINEERING

Horsepower Rating Tables

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 140

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	5	10	25	50	53	75	100	150	200	300	400	500	600	700	800	900	1000	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	66.03	52.40	42.89	35.94	30.69	23.35	18.53	15.16	12.71	10.85	9.40	8.25	
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	75.24	59.70	48.87	40.95	34.97	26.60	21.11	17.28	14.48	12.36	10.72	0.72	
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	84.83	67.32	55.10	46.18	39.43	29.99	23.80	19.48	16.33	13.94	12.08		
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	94.81	75.24	61.58	51.61	44.06	33.52	26.60	21.77	18.25	15.58			
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	105.15	83.44	68.29	57.23	48.87	37.17	29.50	24.15	20.24	17.28			
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	115.83	91.92	75.24	63.05	53.83	40.95	32.50	26.60	22.29				
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	126.86	100.67	82.40	69.05	58.96	44.85	35.59	29.13	24.41				
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	138.22	109.68	89.77	75.24	64.24	48.87	38.78	31.74					
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	149.89	118.95	97.36	81.59	69.66	53.00	42.06	34.42					
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	161.88	128.46	105.15	88.12	75.24	57.23	45.42	35.82					
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	174.17	138.22	113.13	94.81	80.95	61.58	48.87						
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	186.76	148.21	121.30	101.66	86.80	66.03	52.40						
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	199.64	158.43	129.67	108.67	92.78	70.58	56.01						
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	212.80	168.87	138.22	115.83	98.90	75.24	37.90						
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	226.24	179.53	146.94	123.15	105.15	79.99							
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	239.95	190.41	155.85	130.61	111.52	84.83							
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	268.16	212.80	174.17	145.97	124.63	94.81							
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	297.40	236.00	193.16	161.88	138.22	18.64							
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	327.63	259.99	212.80	178.34	152.27								
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	358.00	297.40	243.41	203.99	135.27								
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	409.15	363.35	297.40	153.78									
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	460.29	433.56	221.34										*
	TYPE A LUBRICATION				TYPE B LUBRICATION							TYPE C LUBRICATION													

Horsepower Ratings – Single Strand Roller Chain No. 140H

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	5	10	25	44	50	75	100	150	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2700
11	1.21	2.36	5.69	9.79	11.07	16.34	21.54	31.79	41.90	61.84	81.50	86.80	66.03	52.40	42.89	35.94	30.69	23.35	18.53	15.16	12.71	10.85	9.40	8.25	
12	1.32	2.58	6.21	10.68	12.08	17.83	23.50	34.68	45.71	67.46	88.91	98.90	75.24	59.70	48.87	40.95	34.97	26.60	21.11	17.28	14.48	12.36	10.72		
13	1.43	2.79	6.73	11.57	13.08	19.31	25.45	37.57	49.52	73.08	96.32	111.52	84.83	67.32	55.10	46.18	39.43	29.99	23.80	19.48	16.33	13.94			
14	1.55	3.01	7.24	12.46	14.09	20.80	27.41	40.46	53.32	78.70	103.73	124.63	94.81	75.24	61.58	51.61	44.06	33.52	26.60	21.77	18.25	15.58			
15	1.66	3.22	7.76	13.35	15.10	22.28	29.37	43.35	57.13	84.32	111.14	137.69	105.15	83.44	68.29	57.23	48.87	37.17	29.50	24.15	20.24				
16	1.77	3.44	8.28	14.24	16.10	23.77	31.33	46.24	60.94	89.94	118.55	146.87	115.83	91.92	75.24	63.05	53.83	40.95	32.50	26.60	22.29				
17	1.88	3.65	8.80	15.13	17.11	25.25	33.29	49.13	64.75	95.56	125.96	156.05	126.86	100.67	82.40	69.05	58.96	44.85	35.59	29.13					
18	1.99	3.86	9.31	16.02	18.12	26.74	35.24	52.02	68.56	101.19	133.37	165.23	138.22	109.68	89.77	75.24	64.24	48.87	38.78	31.74					
19	2.10	4.08	9.83	16.92	19.12	28.22	37.20	54.90	72.37	106.81	140.78	174.41	149.89	118.95	97.36	81.59	69.66	53.00	42.06	33.55					
20	2.21	4.29	10.35	17.81	20.13	29.71	39.16	57.79	76.18	112.43	148.19	183.59	161.88	128.46	105.15	88.12	75.24	57.23	45.42						
21	2.32	4.51	10.87	18.70	21.14	31.20	41.12	60.68	79.99	118.05	155.60	192.77	174.17	138.22	113.13	94.81	80.95	61.58	48.87						
22	2.43	4.72	11.38	19.59	22.14	32.68	43.08	63.57	83.80	123.67	163.01	201.95	186.76	148.21	121.30	101.66	86.80	66.03	52.40						
23	2.54	4.94	11.90	20.48	23.15	34.17	45.03	66.46	87.60	129.29	170.42	211.13	199.64	158.43	129.67	108.67	92.78	70.58	29.48						
24	2.65	5.15	12.42	21.37	24.16	35.65	46.99	69.35	91.41	134.91	177.83	220.31	212.80	168.87	138.22	115.83	98.90	75.24							
25	2.76	5.37	12.94	22.26	25.16	37.14	48.95	72.24	95.22	140.54	185.24	229.49	226.24	179.53	146.94	123.15	105.15	79.99							
26	2.87	5.58	13.45	23.15	26.17	38.62	50.91	75.13	99.03	146.16	192.65	238.67	239.95	190.41	155.85	130.61	111.52	84.83							
28	3.09	6.01	14.49	24.93	28.18	41.59	54.82	80.91	106.65	157.40	207.47	257.03	268.16	212.80	174.17	145.97	124.63	41.32							
30	3.31	6.44	15.52	26.71	30.20	44.56	58.74	86.69	114.27	168.64	222.28	275.39	297.40	236.00	193.16	161.88	138.22								
32	3.53	6.87	16.56	28.49	32.21	47.54	62.66	92.47	121.88	179.89	237.10	293.74	327.63	259.99	212.80	178.34	152.27								
35	3.86	7.51	18.11	31.16	35.23	51.99	68.53	101.14	133.31	196.75	259.33	321.28	374.76	297.40	243.41	203.99	66.13								
40	4.41	8.59	20.70	35.61	40.26	59.42	78.32	115.59	152.36	224.86	296.38	367.18	437.42	363.35	264.26	74.76									
45	4.97	9.66	23.28	40.06	45.29	66.85	88.11	130.04	171.40	252.96	333.43	413.08	492.09	352.89	132.45										*
	TYPE A LUBE				TYPE B LUBRICATION							TYPE C LUBRICATION													

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

*For optimum results, consult Diamond Chain for drives operating in the shaded area.

TECHNICAL ENGINEERING

Horsepower Rating Tables

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 160

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	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	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	
12	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		
13	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			
14	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			
15	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				
16	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				
17	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				
18	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					
19	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					
20	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					
21	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						
22	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						
23	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						
24	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						
25	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	32.66						
26	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							
28	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	36.88							
30	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								
32	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	22.58								
35	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	112.60									
40	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	160.63										
45	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											
	TYPE A LUBE			TYPE B LUBRICATION							TYPE C LUBRICATION														

Horsepower Ratings – Single Strand Roller Chain No. 160H

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	2	5	10	25	40	50	75	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200
11	0.73	1.75	3.40	8.19	12.86	15.94	23.52	31.00	45.75	60.31	89.00	117.32	96.58	73.47	58.31	47.72	39.99	34.15	29.60	25.98	20.61	16.87	14.14	12.07	
12	0.79	1.91	3.71	8.94	14.03	17.39	25.66	33.82	49.91	65.79	97.10	127.98	110.05	83.72	66.44	54.38	45.57	38.91	33.73	29.60	23.49	19.22	16.11	12.02	
13	0.86	2.07	4.02	9.68	15.20	18.83	27.80	36.64	54.07	71.27	105.19	138.65	124.09	94.40	74.91	61.31	51.38	43.87	38.03	33.37	26.48	21.68	18.17		
14	0.92	2.22	4.33	10.43	16.37	20.28	29.93	39.46	58.23	76.75	113.28	149.31	138.68	105.50	83.72	68.52	57.43	49.03	42.50	37.30	29.60	24.23	8.08		
15	0.99	2.38	4.64	11.17	17.54	21.73	32.07	42.27	62.39	82.24	121.37	159.98	153.80	117.00	92.85	75.99	63.69	54.38	47.13	41.37	32.83	26.87			
16	1.05	2.54	4.94	11.92	18.71	23.18	34.21	45.09	66.55	87.72	129.46	170.64	169.43	128.89	102.28	83.72	70.16	59.90	51.92	45.57	36.16	29.60			
17	1.12	2.70	5.25	12.66	19.88	24.63	36.35	47.91	70.71	93.20	137.55	181.31	185.56	141.16	112.02	91.69	76.84	65.61	56.87	49.91	39.61				
18	1.19	2.86	5.56	13.41	21.05	26.08	38.49	50.73	74.87	98.68	145.64	191.97	202.17	153.80	122.05	99.90	83.72	71.48	61.96	54.38	43.15				
19	1.25	3.02	5.87	14.15	22.22	27.53	40.63	53.55	79.03	104.17	153.74	202.64	219.25	166.79	132.36	108.33	90.79	77.52	67.19	58.97	43.82				
20	1.32	3.18	6.18	14.89	23.39	28.98	42.76	56.37	83.19	109.65	161.83	213.30	236.79	180.13	142.95	117.00	98.05	83.72	72.57	63.69					
21	1.38	3.34	6.49	15.64	24.56	30.42	44.90	59.18	87.35	115.13	169.92	223.97	254.77	193.81	153.80	125.88	105.50	90.07	78.08	68.52					
22	1.45	3.49	6.80	16.38	25.73	31.87	47.04	62.00	91.51	120.61	178.01	234.63	273.18	207.82	164.91	134.98	113.12	96.58	83.72	73.47					
23	1.52	3.65	7.11	17.13	26.90	33.32	49.18	64.82	95.67	126.10	186.10	245.30	292.02	222.15	176.29	144.29	120.92	103.24	89.49	68.24					
24	1.58	3.81	7.42	17.87	28.07	34.77	51.32	67.64	99.83	131.58	194.19	255.96	311.27	236.79	187.91	153.80	128.89	110.05	95.39	21.76					
25	1.65	3.97	7.73	18.62	29.23	36.22	53.45	70.46	103.99	137.06	202.28	266.63	330.32	251.74	199.77	163.51	137.03	117.00	101.41						
26	1.71	4.13	8.03	19.36	30.40	37.67	55.59	73.28	108.14	142.54	210.37	277.29	343.53	267.00	211.88	173.42	145.33	124.09	67.09						
28	1.85	4.45	8.65	20.85	32.74	40.57	59.87	78.91	116.46	153.51	226.56	298.62	369.96	298.39	236.79	193.81	162.42	135.17							
30	1.98	4.77	9.27	22.34	35.08	43.46	64.15	84.55	124.78	164.47	242.74	319.95	396.38	330.92	262.61	214.94	180.13	49.06							
32	2.11	5.08	9.89	23.83	37.42	46.36	68.42	90.18	133.10	175.44	258.92	341.28	422.81	364.56	289.30	236.79	157.70								
35	2.31	5.56	10.82	26.07	40.93	50.71	74.84	98.64	145.58	191.88	283.20	373.28	462.45	417.01	330.92	270.86	22.30								
40	2.64	6.35	12.36	29.79	46.78	57.95	85.53	112.73	166.38	219.30	323.65	426.60	528.51	509.49	345.15	57.42									
45	2.97	7.15	13.91	33.51	52.62	65.19	96.22	126.82	187.17	246.71	364.11	479.93	594.58	495.96	173.00										*
	TYPE A LUBRICATION				TYPE B LUBRICATION							TYPE C LUBRICATION													

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

*For optimum results, consult Diamond Chain for drives operating in the shaded area.

TECHNICAL ENGINEERING

Horsepower Rating Tables

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 180

# of teeth in small sprocket	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	4500
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		
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		
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			
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			
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				
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				
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				
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					
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					
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					
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					
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						
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						
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						
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							
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							
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								
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								
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									
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									
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										
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											*
	TYPE A LUBRICATION				TYPE B LUBRICATION							TYPE C LUBRICATION													

Horsepower Ratings – Single Strand Roller Chain No. 180H

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	2	5	10	25	37	50	75	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	4500
11	0.99	2.40	4.66	11.24	16.38	21.87	32.27	42.54	62.78	82.75	122.13	148.32	106.13	80.73	64.07	52.44	43.95	37.52	32.52	28.54	22.65	18.54	15.54		
12	1.09	2.62	5.09	12.26	17.87	23.86	35.21	46.41	68.49	90.28	133.24	169.00	120.92	91.99	73.00	59.75	50.07	42.75	37.06	32.52	25.81	21.12	2.40		
13	1.18	2.83	5.51	13.29	19.36	25.84	38.14	50.28	74.20	97.80	144.34	190.25	136.35	103.72	82.31	67.37	56.46	48.21	41.79	36.67	29.10	23.82			
14	1.27	3.05	5.94	14.31	20.85	27.83	41.08	54.14	79.91	105.32	155.44	204.89	152.38	115.92	91.99	75.29	63.10	53.87	46.70	40.98	32.52	10.23			
15	1.36	3.27	6.36	15.33	22.33	29.82	44.01	58.01	85.61	112.85	166.55	219.52	169.00	128.56	102.02	83.50	69.98	59.75	51.79	45.45	36.07				
16	1.45	3.49	6.78	16.35	23.82	31.81	46.94	61.88	91.32	120.37	177.65	234.16	186.17	141.63	112.39	91.99	77.09	65.82	57.05	50.07	39.74				
17	1.54	3.71	7.21	17.37	25.31	33.80	49.88	65.74	97.03	127.89	188.75	248.79	203.90	155.11	123.09	100.75	84.43	72.09	62.49	54.84					
18	1.63	3.92	7.63	18.40	26.80	35.78	52.81	69.61	102.74	135.42	199.86	263.43	222.15	169.00	134.11	109.77	91.99	78.54	68.08	59.75					
19	1.72	4.14	8.06	19.42	28.29	37.77	55.75	73.48	108.45	142.94	210.96	278.06	240.92	183.27	145.44	119.04	99.76	85.18	73.83	64.80					
20	1.81	4.36	8.48	20.44	29.78	39.76	58.68	77.35	114.15	150.46	222.06	292.70	260.19	197.93	157.07	128.56	107.74	91.99	79.74	55.31					
21	1.90	4.58	8.90	21.46	31.27	41.75	61.62	81.21	119.86	157.99	233.17	307.33	279.94	212.96	169.00	138.32	115.92	98.97	85.79						
22	1.99	4.80	9.33	22.48	32.76	43.74	64.55	85.08	125.57	165.51	244.27	321.97	300.17	228.35	181.21	148.32	124.30	106.13	87.35						
23	2.08	5.01	9.75	23.50	34.25	45.72	67.48	88.95	131.28	173.03	255.37	336.60	320.87	244.10	193.70	158.54	132.87	113.45	29.32						
24	2.17	5.23	10.18	24.53	35.74	47.71	70.42	92.82	136.98	180.56	266.48	351.24	342.02	260.19	206.47	169.00	141.63	120.92							
25	2.26	5.45	10.60	25.55	37.22	49.70	73.35	96.68	142.69	188.08	277.58	365.87	363.62	276.62	219.51	179.67	150.57	96.16							
26	2.35	5.67	11.03	26.57	38.71	51.69	76.29	100.55	148.40	195.60	288.68	380.51	385.66	293.38	232.81	190.55	159.69	37.53							
28	2.53	6.10	11.87	28.61	41.69	55.66	82.15	108.28	159.81	210.65	310.89	409.77	431.00	327.87	260.19	212.96	146.32								
30	2.71	6.54	12.72	30.66	44.67	59.64	88.02	116.02	171.23	225.69	333.09	439.04	477.99	363.62	288.56	236.18	30.96								
32	2.89	6.98	13.57	32.70	47.65	63.62	93.89	123.75	182.64	240.74	355.30	468.31	526.58	400.58	317.89	199.60									
35	3.17	7.63	14.84	35.77	52.11	69.58	102.69	135.36	199.77	263.31	388.61	512.22	602.34	458.22	363.62	28.22									
40	3.62	8.72	16.96	40.88	59.56	79.52	117.36	154.69	228.31	300.93	444.13	585.39	725.24	559.83	123.60										
45	4.07	9.81	19.08	45.99	67.00	89.46	132.03	174.03	256.84	338.54	499.64	658.57	750.00	333.00											
	TYPE A LUBRICATION				TYPE B LUBRICATION							TYPE C LUBRICATION													

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

*For optimum results, consult Diamond Chain for drives operating in the shaded area.

TECHNICAL ENGINEERING

Horsepower Rating Tables

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 200

# of teeth in small sprocket	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	4500
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		
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		
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			
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			
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			
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				
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				
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					
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					
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						
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						
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						
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							
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							*
	TYPE A LUBRICATION				TYPE B LUBRICATION								TYPE C LUBRICATION												

Horsepower Ratings – Single Strand Roller Chain No. 200H

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																								
	2	5	10	25	33	50	75	100	150	200	250	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	4500
11	1.37	3.31	6.44	15.51	20.25	30.17	44.53	58.70	86.63	114.18	141.46	168.52	161.36	115.46	87.83	69.70	57.05	47.81	40.82	35.38	31.05	24.64	20.17		
12	1.50	3.61	7.02	16.92	22.09	32.92	48.58	64.03	94.51	124.57	154.32	183.84	183.86	131.56	100.08	79.42	65.00	54.48	46.51	40.32	35.38	28.08	18.78		
13	1.62	3.91	7.61	18.33	23.93	35.66	52.63	69.37	102.38	134.95	167.18	199.16	207.31	148.34	112.85	89.55	73.30	61.43	52.45	45.46	39.90	31.66			
14	1.75	4.21	8.19	19.74	25.77	38.40	56.68	74.71	110.26	145.33	180.04	214.48	231.69	165.78	126.11	100.08	81.91	68.65	58.61	50.80	44.59	35.38			
15	1.87	4.51	8.78	21.15	27.61	41.15	60.73	80.04	118.13	155.71	192.90	229.80	256.95	183.86	139.87	110.99	90.85	76.13	65.00	56.34	49.45				
16	2.00	4.81	9.36	22.56	29.45	43.89	64.77	85.38	126.01	166.09	205.76	245.12	283.07	202.55	154.08	122.27	100.08	83.87	71.61	62.07	54.48				
17	2.12	5.11	9.95	23.97	31.29	46.63	68.82	90.71	133.88	176.47	218.62	260.44	310.02	221.83	168.75	133.91	109.61	91.86	78.43	67.98	59.66				
18	2.25	5.41	10.53	25.38	33.13	49.38	72.87	96.05	141.76	186.85	231.48	275.76	337.77	241.69	183.86	145.90	119.42	100.08	85.45	74.07	11.75				
19	2.37	5.71	11.12	26.79	34.97	52.12	76.92	101.39	149.63	197.23	244.35	291.08	366.30	262.11	199.39	158.23	129.51	108.53	92.67	80.32					
20	2.50	6.02	11.70	28.20	36.82	54.86	80.97	106.72	157.51	207.61	257.21	306.40	395.60	283.07	215.34	170.88	139.87	117.21	100.08	31.07					
21	2.62	6.32	12.29	29.61	38.66	57.60	85.02	112.06	165.38	217.99	270.07	321.72	425.64	304.56	231.69	183.86	150.49	126.11	107.68						
22	2.75	6.62	12.87	31.02	40.50	60.35	89.07	117.40	173.26	228.37	282.93	337.04	456.40	326.57	248.43	197.15	161.36	135.23	86.70						
23	2.87	6.92	13.46	32.43	42.34	63.09	93.11	122.73	181.14	238.75	295.79	352.36	464.44	349.09	265.56	210.74	172.49	144.55	11.76						
24	3.00	7.22	14.04	33.84	44.18	65.83	97.16	128.07	189.01	249.13	308.65	367.68	484.64	372.10	283.07	224.63	183.86	154.08							
25	3.12	7.52	14.63	35.25	46.02	68.58	101.21	133.40	196.89	259.51	321.51	383.00	504.83	395.60	300.94	238.82	195.47	118.72							
26	3.24	7.82	15.21	36.66	47.86	71.32	105.26	138.74	204.76	269.89	334.37	398.32	525.02	419.57	319.18	253.29	207.31	46.33							
	TYPE A LUBRICATION				TYPE B LUBRICATION								TYPE C LUBRICATION												

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

*For optimum results, consult Diamond Chain for drives operating in the shaded area.

TECHNICAL ENGINEERING

Horsepower Rating Tables

Standard and Heavy Series Power Transmission Roller Chains

Horsepower Ratings – Single Strand Roller Chain No. 240

# of teeth in small sprocket	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	
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	
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		
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			
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				
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				
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					
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					
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					
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						
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						
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							
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							
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							
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							
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								
	TYPE A LUBRICATION				TYPE B LUBRICATION								TYPE C LUBRICATION											

Horsepower Ratings – Single Strand Roller Chain No. 240H

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																							
	2	5	10	25	27	50	75	100	150	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
11	2.33	5.62	10.93	26.33	28.35	51.23	75.60	99.65	147.07	193.85	240.16	286.10	186.70	133.59	101.63	80.65	66.01	55.32	47.23	40.94	35.93	31.87	28.51	
12	2.54	6.13	11.92	28.73	30.93	55.88	82.48	108.71	160.44	211.48	262.00	312.11	212.73	152.22	115.80	91.89	75.21	63.03	53.82	46.65	40.94	36.31		
13	2.75	6.64	12.91	31.12	33.51	60.54	89.35	117.77	173.81	229.10	283.83	338.12	239.87	171.64	130.57	103.61	84.81	71.07	60.68	52.60	46.16			
14	2.97	7.15	13.91	33.52	36.09	65.20	96.22	126.83	187.18	246.72	305.66	364.13	268.07	191.82	145.92	115.80	94.78	79.43	67.82	58.78	18.18			
15	3.18	7.66	14.90	35.91	38.66	69.85	103.10	135.89	200.55	264.35	327.50	390.14	297.30	212.73	161.83	128.42	105.11	88.09	75.21	65.19				
16	3.39	8.17	15.89	38.30	41.24	74.51	109.97	144.95	213.92	281.97	349.33	416.15	327.52	234.35	178.28	141.47	115.80	97.04	82.86					
17	3.60	8.68	16.89	40.70	43.82	79.17	116.84	154.01	227.29	299.59	371.16	442.16	358.70	256.66	195.25	154.94	126.82	106.28	90.74					
18	3.81	9.19	17.88	43.09	46.40	83.83	123.72	163.07	240.66	317.21	392.99	468.17	390.81	279.64	212.73	168.81	138.17	115.80	16.92					
19	4.03	9.70	18.87	45.48	48.97	88.48	130.59	172.13	254.03	334.84	414.83	494.18	423.82	303.26	230.70	183.08	149.84	125.58						
20	4.24	10.21	19.87	47.88	51.55	93.14	137.46	181.18	267.40	352.46	436.66	520.19	457.72	327.52	249.15	197.72	161.83	98.33						
21	4.45	10.72	20.86	50.27	54.13	97.80	144.33	190.24	280.78	370.08	458.49	546.19	492.48	352.39	268.07	212.73	174.12							
22	4.66	11.23	21.85	52.67	56.71	102.45	151.21	199.30	294.15	387.71	480.33	572.20	528.07	377.85	287.44	228.10	186.70							
23	4.87	11.74	22.85	55.06	59.28	107.11	158.08	208.36	307.52	405.33	502.16	598.21	564.48	403.91	307.26	243.83	153.53							
24	5.09	12.26	23.84	57.45	61.86	111.77	164.95	217.42	320.89	422.95	523.99	624.22	601.69	430.53	327.52	259.91	48.97							
25	5.30	12.77	24.83	59.85	64.44	116.42	171.83	226.48	334.26	440.58	545.83	650.23	639.68	457.72	348.20	276.32								
26	5.51	13.28	25.83	62.24	67.02	121.08	178.70	235.54	347.63	458.20	567.66	676.24	678.45	485.46	369.30	293.06								*
	TYPE A LUBRICATION				TYPE B LUBRICATION							TYPE C LUBRICATION												

TYPE A LUBRICATION – MANUAL OR DRIP
TYPE B LUBRICATION – OIL BATH OR SLINGER
TYPE C LUBRICATION – OIL PUMP

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

*For optimum results, consult Diamond Chain for drives operating in the shaded area.

TECHNICAL ENGINEERING

Horsepower Rating Tables

Double-Pitch Power Transmission Roller Chains

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Horsepower Ratings – Double-Pitch Chain No. 2040

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																			
	25	50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1300
6	0.10	0.17																		
7	0.12	0.21	0.36	0.47	0.55															
8	0.14	0.26	0.45	0.64	0.73	0.82	0.90													
9	0.16	0.30	0.53	0.72	0.89	1.03	1.14	1.24	1.32											
10	0.18	0.34	0.61	0.84	1.04	1.22	1.37	1.50	1.62	1.71	1.79	1.86								
11	0.20	0.38	0.69	0.96	1.19	1.40	1.59	1.76	1.90	2.03	2.14	2.24	2.32							
12	0.22	0.42	0.77	1.07	1.34	1.58	1.80	2.00	2.17	2.33	2.47	2.60	2.70	2.88						
13	0.24	0.46	0.84	1.18	1.48	1.76	2.01	2.23	2.44	2.62	2.79	2.94	3.07	3.30	3.47					
14	0.26	0.50	0.92	1.29	1.62	1.93	2.20	2.46	2.69	2.90	3.09	3.27	3.43	3.70	3.91	4.07				
15	0.28	0.54	0.99	1.39	1.76	2.09	2.40	2.68	2.94	3.17	3.39	3.59	3.77	4.08	4.33	4.52	4.66			
16	0.30	0.57	1.06	1.50	1.89	2.25	2.59	2.89	3.17	3.43	3.67	3.89	4.09	4.44	4.73	4.96	5.13			
17	0.32	0.61	1.13	1.60	2.02	2.41	2.77	3.10	3.41	3.69	3.95	4.19	4.41	4.79	5.11	5.37	5.57	5.72		
18	0.34	0.65	1.20	1.70	2.15	2.57	2.95	3.30	3.63	3.93	4.21	4.47	4.71	5.13	5.48	5.77	5.99	6.16		
19	0.36	0.68	1.27	1.80	2.28	2.72	3.12	3.50	3.85	4.17	4.47	4.75	5.01	5.46	5.83	6.14	6.39	6.58	6.71	
20	0.38	0.72	1.34	1.89	2.40	2.87	3.30	3.70	4.07	4.41	4.73	5.02	5.29	5.77	6.17	6.51	6.77	6.97	7.11	
21	0.40	0.76	1.41	1.99	2.52	3.01	3.47	3.89	4.28	4.64	4.97	5.28	5.57	6.07	6.50	6.85	7.13	7.35	7.50	
22	0.42	0.79	1.47	2.09	2.64	3.16	3.63	4.07	4.48	4.86	5.21	5.53	5.83	6.37	6.81	7.18	7.48	7.70	7.87	
23	0.44	0.83	1.54	2.18	2.76	3.30	3.80	4.26	4.68	5.08	5.44	5.78	6.09	6.60	7.12	7.50	7.81	8.04	8.21	8.31
24	0.46	0.87	1.61	2.27	2.88	3.44	3.96	4.43	4.88	5.29	5.67	6.02	6.35	6.92	7.41	7.80	8.12	8.36	8.53	8.64
25	0.48	0.90	1.67	2.36	3.00	3.58	4.11	4.61	5.07	5.50	5.89	6.26	6.59	7.19	7.69	8.10	8.42	8.67	8.84	8.94
30	0.57	1.08	1.99	2.81	3.56	4.24	4.87	5.45	5.98	6.47	6.93	7.34	7.80	8.39	8.94	9.39	9.72	9.96	10.11	10.10
35	0.66	1.25	2.30	3.24	4.09	4.86	5.57	6.21	6.81	7.35	7.85	8.30	8.72	9.43	9.99	10.43	10.73	10.93	11.01	
40	0.75	1.41	2.60	3.65	4.59	5.44	6.22	6.93	7.57	8.15	8.68	9.16	9.59	10.31	10.86	11.20	11.50	11.61		
45	0.84	1.58	2.89	4.04	5.07	6.00	6.83	7.59	8.27	8.88	9.43	9.92	10.30	11.00	11.56	11.88	12.03			
50	0.93	1.74	3.17	4.42	5.53	6.52	7.41	8.20	8.91	9.54	10.10	10.59	11.01	11.67	12.11	12.33				
55	1.01	1.90	3.44	4.79	5.97	7.02	7.95	8.77	9.50	10.20	10.70	11.17	11.58	12.18						
60	1.10	2.05	3.71	5.14	6.39	7.49	8.46	9.31	10.00	10.68	11.23	11.69	12.06							
	TYPE A LUBRICATION			TYPE B LUBRICATION				TYPE C LUBRICATION												

TYPE A LUBRICATION – MANUAL DRIP (4-10 DROPS PER MINUTE) OR OIL BATH
TYPE B LUBRICATION – RAPID DRIP (20 DROPS PER MINUTE MINIMUM), OIL BATH OR OIL SLINGER
TYPE C LUBRICATION – CONTINUOUS WITH OIL SLINGER OR OIL STREAM

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

TECHNICAL ENGINEERING

Horsepower Rating Tables

Double-Pitch Power Transmission Roller Chains

Horsepower Ratings – Double-Pitch Chain No. 2050

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																			
	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
6	0.18	0.31																		
7	0.22	0.40	0.66																	
8	0.27	0.48	0.83	1.09	1.29															
9	0.31	0.56	0.99	1.33	1.60	1.83	2.00													
10	0.35	0.64	1.14	1.56	1.90	2.20	2.44	2.64	2.80											
11	0.39	0.72	1.29	1.78	2.19	2.55	2.86	3.12	3.34	3.53										
12	0.43	0.80	1.44	1.99	2.47	2.89	3.26	3.58	3.86	4.10	4.30									
13	0.47	0.87	1.59	2.20	2.75	3.23	3.65	4.03	4.36	4.65	4.90	5.11	5.29							
14	0.51	0.95	1.73	2.41	3.01	3.55	4.03	4.45	4.83	5.17	5.47	5.73	5.95	6.09						
15	0.54	1.02	1.87	2.61	3.27	3.86	4.39	4.87	5.29	5.68	6.02	6.32	6.58	6.75	6.94					
16	0.58	1.09	2.01	2.81	3.52	4.16	4.74	5.27	5.74	6.16	6.54	6.88	7.18	7.39	7.61	779				
17	0.62	1.17	2.14	3.00	3.77	4.46	5.09	5.65	6.17	6.63	7.05	7.42	7.75	7.99	8.24	8.46	8.62			
18	0.66	1.24	2.27	3.19	4.01	4.75	5.42	6.03	6.58	7.09	7.54	7.94	8.31	8.56	8.84	9.08	9.28			
19	0.69	1.31	2.41	3.38	4.25	5.03	5.75	6.40	6.99	7.52	8.01	8.45	8.84	9.12	9.42	9.68	9.90	10.08		
20	0.73	1.38	2.54	3.56	4.48	5.31	6.07	6.76	7.38	7.95	8.47	8.93	9.35	9.65	9.97	10.25	10.49	10.69		
21	0.77	1.45	2.67	3.74	4.71	5.59	6.38	7.11	7.77	8.37	8.91	9.40	9.84	10.16	10.50	10.80	11.06	11.28	11.44	
22	0.81	1.52	2.79	3.92	4.93	5.85	6.69	7.45	8.14	8.77	9.34	9.85	10.31	10.65	11.01	11.32	11.59	11.83	12.00	
23	0.84	1.59	2.92	4.10	5.16	6.12	6.99	7.78	8.50	9.16	9.75	10.29	10.77	11.12	11.50	11.82	12.10	12.35	12.53	
24	0.88	1.66	3.04	4.27	5.37	6.37	7.28	8.11	8.86	9.54	10.16	10.71	11.21	11.57	11.97	12.30	12.59	12.85	13.03	
25	0.91	1.72	3.17	4.44	5.59	6.63	7.57	8.43	9.20	9.91	10.55	11.12	11.64	12.01	12.42	12.75	13.05	13.33	13.50	13.57
30	1.09	2.06	3.77	5.28	6.62	7.84	8.93	9.93	10.82	11.63	12.35	13.00	13.57	13.96	14.39	14.76	15.06	15.30	15.48	
35	1.27	2.38	4.35	6.07	7.59	8.96	10.18	11.28	12.27	13.14	13.92	14.60	15.20	15.58	16.00	16.35	16.62	16.82	16.94	
40	1.44	2.70	4.90	6.82	8.51	10.01	11.34	12.52	13.56	14.48	15.29	15.98	16.56	16.92	17.29	17.58	17.78			
45	1.61	3.00	5.44	7.54	9.37	10.98	12.40	13.65	14.73	15.67	16.47	17.15	17.70	17.96	18.29	18.49				
50	1.78	3.31	5.96	8.23	10.19	11.90	13.39	14.67	15.78	16.71	17.49	18.08	18.62	18.80						
55	1.95	3.60	6.45	8.90	10.95	12.75	14.30	15.60	16.67	17.57	18.37	18.91								
60	2.11	3.90	6.95	9.52	11.70	13.55	15.12	16.45	17.54											
	TYPE A LUBE		TYPE B LUBRICATION				TYPE C LUBRICATION													

TYPE A LUBRICATION – MANUAL DRIP (4-10 DROPS PER MINUTE) OR OIL BATH
TYPE B LUBRICATION – RAPID DRIP (20 DROPS PER MINUTE MINIMUM), OIL BATH OR OIL SLINGER
TYPE C LUBRICATION – CONTINUOUS WITH OIL SLINGER OR OIL STREAM

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

TECHNICAL ENGINEERING

Horsepower Rating Tables

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Double-Pitch Power Transmission Roller Chains

Horsepower Ratings – Double-Pitch Chain No. 2060

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																			
	25	50	75	100	125	150	175	200	225	250	275	300	350	400	450	500	550	600	650	700
6	0.30																			
7	0.38	0.66	0.88	1.06																
8	0.45	0.80	1.10	1.35	1.57	1.75	1.90													
9	0.52	0.94	1.31	1.63	1.91	2.16	2.38	2.57	2.74											
10	0.59	1.08	1.51	1.90	2.24	2.55	2.83	3.09	3.31	3.51	3.69	3.85								
11	0.66	1.22	1.71	2.16	2.56	2.93	3.27	3.58	3.86	4.12	4.35	4.57	4.93							
12	0.73	1.35	1.90	2.41	2.87	3.30	3.69	4.05	4.39	4.70	4.98	5.25	5.71	6.09						
13	0.79	1.48	2.09	2.65	3.17	3.65	4.10	4.51	4.90	5.26	5.59	5.90	6.45	6.92	7.25					
14	0.86	1.60	2.28	2.90	3.47	4.00	4.50	4.96	5.39	5.80	6.18	6.53	7.16	7.71	8.10	8.51				
15	0.93	1.73	2.46	3.13	3.76	4.34	4.88	5.39	5.87	6.32	6.74	7.14	7.85	8.48	8.92	9.40				
16	0.99	1.85	2.64	3.37	4.04	4.67	5.26	5.82	6.34	6.83	7.29	7.73	8.52	9.21	9.71	10.25	10.70			
17	1.06	1.98	2.82	3.59	4.32	5.00	5.63	6.23	6.79	7.33	7.83	8.30	9.16	9.92	10.47	11.06	11.59	11.99		
18	1.12	2.10	2.99	3.82	4.59	5.32	6.00	6.64	7.24	7.81	8.34	8.85	9.78	10.60	11.21	11.84	12.42	12.88		
19	1.18	2.22	3.17	4.04	4.86	5.63	6.35	7.03	7.67	8.28	8.85	9.39	10.38	11.26	11.93	12.60	13.22	13.73	14.14	
20	1.25	2.34	3.34	4.26	5.09	5.94	6.70	7.42	8.10	8.74	9.35	9.92	10.97	11.86	12.62	13.34	13.99	14.54	14.99	
21	1.31	2.46	3.51	4.48	5.39	6.24	7.04	7.80	8.51	9.19	9.83	10.43	11.54	12.47	13.28	14.05	14.73	15.31	15.80	
22	1.37	2.57	3.67	4.69	5.65	6.54	7.38	8.17	8.92	9.63	10.30	10.93	12.09	13.06	13.92	14.73	15.44	16.05	16.57	
23	1.44	2.69	3.84	4.90	5.90	6.83	7.71	8.54	9.32	10.06	10.76	11.42	12.63	13.63	14.54	15.39	16.12	16.76	17.30	17.78
24	1.50	2.81	4.00	5.11	6.15	7.12	8.04	8.90	9.72	10.49	11.21	11.90	13.16	14.18	15.15	16.03	16.77	17.44	18.00	18.40
25	1.56	2.92	4.17	5.32	6.36	7.41	8.36	9.26	10.10	10.90	11.65	12.37	13.58	14.72	15.75	16.65	17.40	18.09	18.67	19.09
30	1.86	3.48	4.96	6.33	7.60	8.79	9.86	10.95	11.85	12.76	13.74	14.56	15.98	17.28	18.40	19.40	20.22	20.92	21.32	22.00
35	2.16	4.03	5.72	7.29	8.73	10.08	11.29	12.53	13.59	14.67	15.64	16.54	18.09	19.49	20.67	21.73	22.55	23.20	23.78	
40	2.45	4.56	6.46	8.21	9.82	11.31	12.65	14.00	15.16	16.33	17.37	18.34	19.95	21.42	22.62	23.68	24.42	25.08		
45	2.74	5.08	7.18	9.09	10.85	12.48	13.93	15.38	16.62	17.86	18.92	19.98	21.60	23.12	24.29	25.28	25.90			
50	3.02	5.58	7.87	9.95	11.80	13.59	15.13	16.67	17.98	19.28	20.37	21.47	23.12	24.59	25.69					
55	3.30	6.08	8.54	10.77	12.72	14.65	16.26	17.89	19.23	20.59	21.70	22.82	24.45	25.82						
60	3.57	6.56	9.20	11.57	13.60	15.66	17.34	19.03	20.41	21.80	22.92	24.04								
	TYPE A LUBRICATION			TYPE B LUBRICATION					TYPE C LUBRICATION											

Horsepower Ratings – Double-Pitch Chain No. 2080

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket																			
	10	20	30	40	50	60	70	80	90	100	125	150	175	200	225	250	300	350	400	450
6	0.32	0.56	0.77																	
7	0.39	0.71	0.98	1.23	1.44	1.64	1.81													
8	0.46	0.84	1.19	1.50	1.79	2.05	2.29	2.51	2.71	2.90										
9	0.53	0.98	1.39	1.77	2.12	2.45	2.75	3.04	3.30	3.55	4.11	4.57								
10	0.59	1.11	1.59	2.03	2.44	2.83	3.20	3.54	3.87	4.18	4.88	5.48	6.01							
11	0.66	1.24	1.78	2.28	2.76	3.20	3.63	4.03	4.41	4.78	5.62	6.36	7.02	7.56	8.07					
12	0.72	1.37	1.97	2.53	3.06	3.57	4.05	4.51	4.94	5.36	6.33	7.21	7.95	8.66	9.27	9.82				
13	0.79	1.50	2.16	2.78	3.36	3.92	4.46	4.97	5.46	5.93	7.03	8.02	8.89	9.75	10.42	11.08				
14	0.85	1.62	2.34	3.02	3.66	4.28	4.86	5.43	5.97	6.49	7.71	8.82	9.83	10.76	11.53	12.29	13.60			
15	0.92	1.75	2.52	3.26	3.95	4.62	5.26	5.87	6.46	7.03	8.37	9.59	10.71	11.74	12.60	13.46	14.94			
16	0.98	1.87	2.70	3.49	4.24	4.96	5.65	6.31	6.95	7.56	9.01	10.34	11.57	12.69	13.63	14.59	16.24	17.65		
17	1.05	1.99	2.88	3.72	4.52	5.29	6.03	6.74	7.43	8.09	9.64	11.08	12.36	13.62	14.63	15.69	17.50	19.04		
18	1.11	2.11	3.06	3.95	4.80	5.62	6.41	7.17	7.90	8.60	10.26	11.80	13.21	14.52	15.60	16.76	18.72	20.38	21.77	
19	1.17	2.23	3.23	4.18	5.08	5.95	6.78	7.58	8.36	9.11	10.87	12.50	14.01	15.40	16.55	17.80	19.90	21.67	23.18	
20	1.23	2.35	3.40	4.40	5.36	6.27	7.15	8.00	8.81	9.60	11.47	13.19	14.78	16.26	17.48	18.81	21.04	22.91	24.52	
21	1.30	2.47	3.58	4.63	5.63	6.59	7.51	8.40	9.26	10.09	12.05	13.87	15.54	17.10	18.39	19.79	22.14	24.11	25.80	
22	1.36	2.59	3.75	4.85	5.90	6.90	7.87	8.81	9.67	10.58	12.63	14.53	16.29	17.92	19.28	20.74	23.20	25.27	27.03	
23	1.42	2.71	3.92	5.07	6.16	7.21	8.19	9.20	10.10	11.05	13.20	15.18	17.02	18.72	20.15	21.66	24.23	26.40	28.22	
24	1.48	2.82	4.05	5.28	6.43	7.52	8.54	9.59	10.53	11.52	13.76	15.83	17.74	19.51	21.01	22.55	25.23	27.50	29.38	30.98
25	1.54	2.94	4.20	5.50	6.69	7.83	8.89	9.94	10.95	11.99	14.31	16.46	18.44	20.28	21.86	23.42	26.20	28.57	30.52	32.16
30	1.84	3.51	5.02	6.55	7.97	9.32	10.62	11.74	12.97	14.23	16.96	19.47	21.78	23.92	25.73	27.52	30.70	33.56	35.52	37.26
35	2.14	4.07	5.82	7.58	9.20	10.75	12.23	13.48	14.92	16.35	19.44	22.27	24.86	27.24	29.24	31.21	34.65	37.57	39.66	
40	2.44	4.62	6.60	8.57	10.39	12.09	13.79	15.17	16.80	18.36	21.78	24.88	27.71	30.28	32.42	34.52	38.09	40.96	43.07	
45	2.73	5.16	7.37	9.54	11.55	13.46	15.25	16.82	18.61	20.29	23.99	27.33	30.35	33.07	35.30	37.50	41.10	43.81		
50	3.01	5.69	8.13	10.49	12.68	14.76	16.69	18.43	20.35	22.12	26.09	29.64	32.81	35.65	37.92	40.16	43.70			
55	3.30	6.21	8.90	11.41	13.78	16.01	18.08	20.00	22.02	23.88	28.08	31.80	35.10	38.01	40.30	42.52				
60	3.58	6.73	9.62	12.32	14.85	17.24	19.43	21.53	23.65	25.57	29.97	33.83	37.22	40.14						
	TYPE A LUBRICATION						TYPE B LUBRICATION						TYPE C LUBRICATION							

TYPE A LUBRICATION – MANUAL DRIP (4-10 DROPS PER MINUTE) OR OIL BATH
TYPE B LUBRICATION – RAPID DRIP (20 DROPS PER MINUTE MINIMUM), OIL BATH OR OIL SLINGER
TYPE C LUBRICATION – CONTINUOUS WITH OIL SLINGER OR OIL STREAM

See Lubrication Instructions in the Roller Chain Installation section.
Ratings shown are for standard steel chain. See the General Drive Selection section for service factors, selection factors and multiple strand factors.

TECHNICAL ENGINEERING

Horsepower Rating Tables

RING LEADER® O-ring Chains

Horsepower Ratings – Single Strand No. 50 RING LEADER O-ring Chain

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket											
	50	100	200	300	400	500	700	900	1200	1400	1800	2000
9	0.36	0.67	1.26	1.81	2.35	2.87	3.89	4.88	6.32	6.02	4.13	3.52
10	0.41	0.76	1.41	2.03	2.63	3.22	4.36	5.46	7.08	7.05	4.83	4.13
11	0.45	0.84	1.56	2.25	2.92	3.57	4.83	6.06	7.85	8.13	5.58	4.76
12	0.49	0.92	1.72	2.47	3.21	3.92	5.31	6.65	8.62	9.26	6.35	5.42
13	0.54	1.00	1.87	2.70	3.50	4.27	5.78	7.25	9.40	10.44	7.16	6.12
14	0.58	1.09	2.03	2.92	3.79	4.63	6.27	7.86	10.18	11.67	8.01	6.84
15	0.63	1.17	2.19	3.15	4.08	4.99	6.75	8.47	10.97	12.60	8.88	7.58
16	0.67	1.26	2.34	3.38	4.37	5.35	7.24	9.08	11.76	13.51	9.78	8.35
17	0.72	1.34	2.50	3.61	4.67	5.71	7.73	9.69	12.55	14.42	10.71	
18	0.76	1.43	2.66	3.83	4.97	6.07	8.22	10.31	13.35	15.34	11.67	
19	0.81	1.51	2.82	4.07	5.27	6.44	8.72	10.93	14.16	16.26	12.66	
20	0.86	1.60	2.98	4.30	5.57	6.80	9.21	11.55	14.96	17.19	13.67	
21	0.90	1.69	3.14	4.53	5.87	7.17	9.71	12.17	15.77	18.12	14.71	
22	0.95	1.77	3.31	4.76	6.17	7.54	10.21	12.80	16.58	19.05		
23	1.00	1.86	3.47	5.00	6.47	7.91	10.71	13.43	17.40	19.99		
24	1.04	1.95	3.63	5.23	6.78	8.29	11.22	14.06	18.22	20.93		
25	1.09	2.03	3.80	5.47	7.08	8.66	11.72	14.70	19.04	21.87		
26	1.14	2.12	3.96	5.70	7.39	9.03	12.23	15.33	19.86	22.82		
28	1.23	2.30	4.29	6.18	8.01	9.79	13.25	16.61	21.52			
30	1.33	2.48	4.62	6.66	8.63	10.54	14.27	17.90	23.18			
32	1.42	2.66	4.96	7.14	9.25	11.30	15.30	19.19	24.86			
35	1.57	2.93	5.46	7.86	10.19	12.45	16.86	21.14				
40	1.81	3.38	6.31	9.08	11.77	14.39	19.47	24.42				
45	2.06	3.84	7.16	10.32	13.36	16.34	22.12					

Horsepower Ratings – Single Strand No. 60 RING LEADER® O-ring Chain

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket													
	50	100	150	200	300	400	500	600	700	900	1000	1200	1400	1500
9	0.62	1.16	1.67	2.16	3.12	4.04	4.94	5.82	6.68	8.38	9.21	8.77	6.96	6.28
10	0.70	1.30	1.87	2.43	3.49	4.53	5.53	6.52	7.49	9.39	10.32	10.27	8.15	7.35
11	0.77	1.44	2.07	2.69	3.87	5.02	6.13	7.23	8.30	10.41	11.44	11.85	9.41	8.48
12	0.85	1.58	2.28	2.95	4.25	5.51	6.74	7.94	9.12	11.43	12.57	13.51	10.72	9.66
13	0.92	1.73	2.49	3.22	4.64	6.01	7.34	8.65	9.94	12.46	13.70	15.23	12.08	10.90
14	1.00	1.87	2.69	3.49	5.02	6.51	7.96	9.37	10.77	13.50	14.85	17.02	13.51	12.18
15	1.08	2.01	2.90	3.76	5.41	7.01	8.57	10.10	11.60	14.55	15.99	18.85	14.98	13.51
16	1.16	2.16	3.11	4.03	5.80	7.52	9.19	10.83	12.44	15.60	17.15	20.21	16.50	14.88
17	1.24	2.31	3.32	4.30	6.20	8.03	9.81	11.56	13.28	16.65	18.31	21.58	18.07	
18	1.31	2.45	3.53	4.58	6.59	8.54	10.44	12.30	14.13	17.71	19.48	22.95	19.69	
19	1.39	2.60	3.74	4.85	6.99	9.05	11.06	13.04	14.98	18.78	20.65	24.33	21.35	
20	1.47	2.75	3.96	5.13	7.38	9.57	11.69	13.78	15.83	19.85	21.82	25.71	23.06	
21	1.55	2.90	4.17	5.40	7.78	10.08	12.33	14.53	16.69	20.92	23.00	27.11		
22	1.63	3.05	4.39	5.68	8.19	10.60	12.96	15.27	17.55	22.00	24.19	28.50		
23	1.71	3.19	4.60	5.96	8.59	11.13	13.60	16.03	18.41	23.08	25.38	29.90		
24	1.79	3.35	4.82	6.24	8.99	11.65	14.24	16.78	19.28	24.17	26.57	31.31		
25	1.87	3.50	5.04	6.52	9.40	12.17	14.88	17.54	20.14	25.26	27.77			
26	1.95	3.65	5.25	6.81	9.80	12.70	15.53	18.29	21.02	26.35	28.97			
28	2.12	3.95	5.69	7.37	10.62	13.76	16.82	19.82	22.77	28.55	31.39			
30	2.28	4.26	6.13	7.94	11.44	14.82	18.12	21.35	24.53	30.75				
32	2.45	4.56	6.57	8.52	12.27	15.89	19.43	22.89	26.30	32.97				
35	2.69	5.03	7.24	9.38	13.50	17.50	21.40	25.20	29.00					
40	3.11	5.81	8.37	10.80	15.60	20.20	24.70	29.10	33.50					
45	3.53	6.60	9.50	12.30	17.70	23.00	28.10	33.10						

TECHNICAL ENGINEERING

Horsepower Rating Tables

DIAMOND® CHAIN COMPANY
317-638-6431
1-800-872-4246

RING LEADER® O-ring Chains

Horsepower Ratings – Single Strand No. 80 RING LEADER O-ring Chain

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket										
	50	100	150	200	300	400	500	700	900	1000	1100
9	1.45	2.71	3.90	5.05	7.28	9.43	11.53	15.60	17.00	14.51	12.58
10	1.63	3.03	4.37	5.66	8.16	10.57	12.92	17.48	19.91	17.00	14.74
11	1.80	3.36	4.84	6.28	9.04	11.71	14.32	19.38	22.97	19.61	17.00
12	1.98	3.69	5.32	6.89	9.93	12.87	15.73	21.29	26.17	22.35	19.37
13	2.16	4.03	5.80	7.52	10.83	14.03	17.15	23.21	29.10	25.20	21.84
14	2.34	4.36	6.29	8.14	11.73	15.20	18.58	25.15	31.53	28.16	24.41
15	2.52	4.70	6.77	8.77	12.64	16.37	20.01	27.09	33.97	31.23	27.07
16	2.70	5.04	7.26	9.41	13.55	17.55	21.46	29.05	36.42	34.41	
17	2.88	5.38	7.75	10.04	14.47	18.74	22.91	31.01	38.88	37.68	
18	3.07	5.72	8.25	10.68	15.39	19.93	24.37	32.99	41.36	41.05	
19	3.25	6.07	8.74	11.33	16.31	21.13	25.83	34.97	43.85		
20	3.44	6.41	9.24	11.97	17.24	22.34	27.31	36.96	46.34		
21	3.62	6.76	9.74	12.62	18.17	23.55	28.78	38.96			
22	3.81	7.11	10.24	13.27	19.11	24.76	30.27	40.97			
23	4.00	7.46	10.75	13.92	20.05	25.98	31.75	42.98			
24	4.19	7.81	11.25	14.58	20.99	27.20	33.25	45.01			
25	4.37	8.16	11.76	15.23	21.94	28.42	34.75	47.04			
26	4.56	8.52	12.27	15.89	22.89	29.65	36.25				
28	4.94	9.23	13.29	17.22	24.80	32.13	39.27				
30	5.33	9.94	14.32	18.55	26.72	34.61	42.31				
32	5.71	10.66	15.35	19.89	28.64	37.11	45.36				
35	6.29	11.74	16.91	21.91	31.55	40.88	49.97				
40	7.27	13.56	19.53	25.31	36.45	47.22					
45	8.25	15.40	22.18	28.74	41.39	53.63					

Horsepower Ratings – Single Strand No. 100 RING LEADER O-ring Chain

# of teeth in small sprocket	Revolutions Per Minute – Small Sprocket									
	25	50	100	150	200	300	400	500	600	700
9	1.49	2.78	5.19	7.47	9.68	13.94	18.06	22.08	26.02	29.63
10	1.67	3.11	5.81	8.37	10.85	15.62	20.24	24.74	29.15	33.49
11	1.85	3.45	6.44	9.28	12.02	17.32	22.43	27.42	32.31	37.12
12	2.03	3.79	7.08	10.19	13.21	19.02	24.64	30.12	35.49	40.78
13	2.22	4.13	7.72	11.11	14.40	20.74	26.87	32.84	38.70	44.46
14	2.40	4.48	8.36	12.04	15.60	22.47	29.11	35.58	41.92	48.16
15	2.59	4.83	9.01	12.97	16.80	24.20	31.36	38.33	45.17	51.89
16	2.77	5.17	9.66	13.91	18.02	25.95	33.62	41.10	48.43	55.64
17	2.96	5.52	10.31	14.85	19.24	27.71	35.90	43.88	51.70	59.40
18	3.15	5.88	10.96	15.79	20.46	29.47	38.18	46.67	55.00	
19	3.34	6.23	11.62	16.74	21.69	31.24	40.48	49.48	58.30	
20	3.53	6.58	12.29	17.70	22.93	33.02	42.78	52.30	61.63	
21	3.72	6.94	12.95	18.65	24.17	34.81	45.10	55.13		
22	3.91	7.30	13.62	19.62	25.41	36.60	47.42	57.97		
23	4.10	7.66	14.29	20.58	26.66	38.40	49.75	60.82		
24	4.30	8.02	14.96	21.55	27.92	40.21	52.09	63.68		
25	4.49	8.38	15.63	22.52	29.18	42.02	54.44			
26	4.68	8.74	16.31	23.49	30.44	43.84	56.80			
28	5.07	9.47	17.67	25.45	32.97	47.50	61.53			
30	5.47	10.20	19.04	27.42	35.52	51.17	66.29			
32	5.86	10.94	20.41	29.40	38.09	54.86				
35	6.46	12.05	22.49	32.39	41.96	60.44				
40	7.46	13.92	25.97	37.41	48.47	69.81				
45	8.47	15.81	29.50	42.49	55.04					

TECHNICAL SECTION

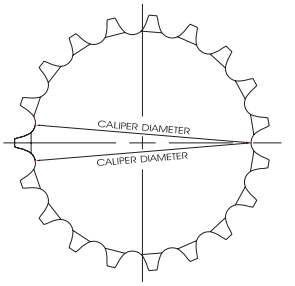
Sprocket Information

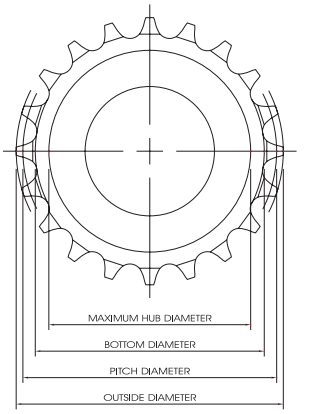
Pitch Diameter: The pitch diameter of a sprocket is the diameter of a circle followed by the centers of the chain pins as the sprocket revolves in mesh with the chain, and is a function of the chain pitch and of the number of teeth in the sprocket. This is a theoretical dimension, not directly measurable but for chain load calculations, one half the pitch diameter is equal to the "distance" in the (force x distance) formula.

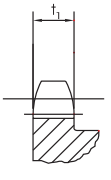
Bottom Diameter: The bottom diameter of a sprocket is the diameter of a circle tangent to the bottoms of the tooth spaces. The tolerance on the bottom diameter must be entirely negative to ensure that the chain will mesh properly with the sprocket teeth.

Caliper Diameter: Since the bottom diameter of a sprocket with an odd number of teeth cannot readily be measured directly, the following tables list caliper diameters which enable calculating the dimensions across the bottoms of tooth spaces most nearly opposite. As is true of bottom diameters, tolerances on caliper diameters must be entirely negative.

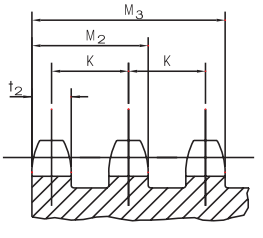
Outside Diameter: The outside diameter of a sprocket is comparatively unimportant as the tooth length is not vital to proper meshing with the chain. The outside diameter will vary depending on the type of cutter used.



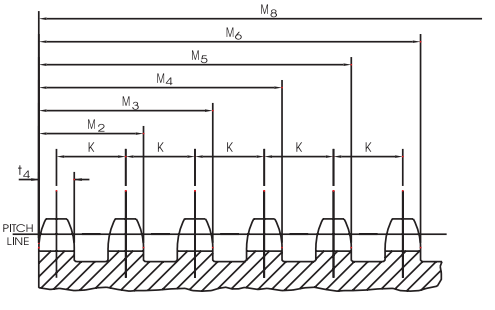




SINGLE



DOUBLE AND TRIPLE



QUADRUPLE AND OTHER MULTIPLES

Standard Series Sprockets

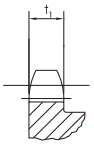
Chain Data for All Sprockets				Single Strand t_1	Double and Triple Strand			For 4 or more Strands								Matching Tolerance on "t" and "M"	Hot Rolled Tolerance on "t" and "M"
ASME/ANSI & Diamond No.	Pitch P	Roller Width W	Roller Diam.		t_2	M_2	M_3	t_4	M_2	M_3	M_4	M_5	M_6	M_8	*K		
25	0.250	0.125	0.130	0.110	0.107	0.359	0.611	0.096	0.348	0.600	0.852	1.104	1.356	1.860	0.252	-0.007	-0.021
35	0.375	0.188	0.200	0.168	0.162	0.561	0.960	0.149	0.548	0.947	1.346	1.745	2.144	2.942	0.399	-0.008	-0.027
41	0.500	0.250	0.306	0.227	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-0.009	-0.032
40	0.500	0.312	0.312	0.284	0.275	0.841	1.407	0.256	0.822	1.388	1.954	2.520	3.086	4.218	0.566	-0.009	-0.035
50	0.625	0.375	0.400	0.343	0.332	1.045	1.758	0.311	1.024	1.737	2.450	3.163	3.876	5.302	0.713	-0.010	-0.036
60	0.750	0.500	0.469	0.459	0.444	1.341	2.238	0.418	1.315	2.212	3.109	4.006	4.903	6.697	0.897	-0.011	-0.036
80	1.000	0.625	0.625	0.575	0.557	1.710	2.863	0.526	1.679	2.832	3.985	5.138	6.291	8.597	1.153	-0.012	-0.040
100	1.250	0.750	0.750	0.692	0.669	2.077	3.485	0.633	2.041	3.449	4.857	6.265	7.673	10.489	1.408	-0.014	-0.046
120	1.500	1.000	0.875	0.924	0.894	2.683	4.472	0.848	2.637	4.426	6.215	8.004	9.793	13.371	1.789	-0.016	-0.057
140	1.750	1.000	1.000	0.924	0.894	2.818	4.742	0.848	2.772	4.696	6.620	8.544	10.468	14.316	1.924	-0.016	-0.057
160	2.000	1.250	1.125	1.156	1.119	3.424	5.729	1.063	3.368	5.673	7.978	10.283	12.588	17.198	2.305	-0.019	-0.062
180	2.250	1.406	1.406	1.301	1.259	3.851	6.443	1.197	3.789	6.381	8.973	11.565	14.157	19.341	2.592	-0.020	-0.068
200	2.500	1.500	1.562	1.389	1.344	4.161	6.978	1.278	4.095	6.912	9.729	12.546	15.363	20.997	2.817	-0.021	-0.072

*K dimensions apply to double and triple strands also.

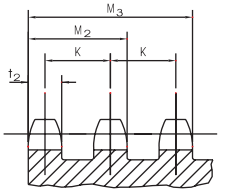
TECHNICAL SECTION

Sprocket Information

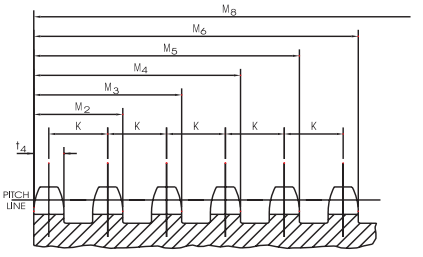
DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246



SINGLE



DOUBLE AND TRIPLE



QUADRUPLE AND OTHER MULTIPLES

Heavy Series Sprockets

Chain Data for All Sprockets				Single Strand t_1	Double and Triple Strand			For 4 or more Strands								Matching Tolerance on "t" and "M"	Hot Rolled Tolerance on "t" and "M"
ASME/ANSI & Diamond No.	Pitch P	Roller Width W	Roller Diam.		t_2	M_2	M_3	t_4	M_2	M_3	M_4	M_5	M_6	M_8	*K		
60H	0.750	0.500	0.469	0.459	0.444	1.472	2.500	0.418	1.446	2.474	3.502	4.530	5.558	7.614	1.028	-.011	-.036
80H	1.000	0.625	0.625	0.575	0.557	1.840	3.123	0.526	1.809	3.092	4.375	5.568	6.941	9.507	1.283	-.012	-.040
100H	1.250	0.750	0.750	0.692	0.669	2.208	3.747	0.633	2.172	3.711	5.250	6.789	8.328	11.406	1.539	-.014	-.046
120H	1.500	1.000	0.875	0.924	0.894	2.818	4.742	0.848	2.772	4.696	6.620	8.544	10.468	14.316	1.924	-.016	-.057
140H	1.750	1.000	1.000	0.924	0.894	2.949	5.004	0.848	2.903	4.958	7.013	9.068	11.123	15.233	2.055	-.016	-.057
160H	2.000	1.250	1.125	1.156	1.119	3.555	5.991	1.063	3.499	5.935	8.371	10.807	13.243	18.115	2.436	-.019	-.062
180H	2.250	1.406	1.406	1.301	1.259	3.982	6.705	1.197	3.920	6.643	9.366	12.089	14.812	20.258	2.723	-.020	-.068
200H	2.500	1.500	1.562	1.389	1.344	4.427	7.510	1.278	4.361	7.444	10.527	13.610	16.693	22.859	3.083	-.021	-.072

*K dimensions apply to double and triple strands also.

The following tables list the basic dimensions most common to sprockets. For verification of these values or more detailed information please contact a reputable sprocket manufacturer.

Sprocket Diameters – U.S.A. Std. No. 25 Bushing Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth
6	0.500	0.583	0.370
7	0.576	0.669	0.432
8	0.653	0.754	0.523
9	0.731	0.837	0.591
10	0.809	0.919	0.679
11	0.887	1.002	0.748
12	0.966	1.083	0.836
13	1.045	1.167	0.907
14	1.124	1.246	0.994
15	1.203	1.326	1.066
16	1.282	1.407	1.152
17	1.361	1.487	1.225
18	1.440	1.568	1.310
19	1.519	1.648	1.383
20	1.598	1.729	1.468
21	1.678	1.809	1.543
22	1.757	1.889	1.627
23	1.836	1.969	1.702
24	1.915	2.049	1.785
25	1.995	2.129	1.861
26	2.074	2.209	1.944
27	2.154	2.289	2.020
28	2.233	2.369	2.103
29	2.312	2.449	2.179
30	2.392	2.529	2.262
31	2.471	2.609	2.338
32	2.551	2.688	2.421
33	2.630	2.768	2.497
34	2.710	2.848	2.580
35	2.789	2.928	2.656
36	2.869	3.008	2.739
37	2.948	3.087	2.815
38	3.028	3.167	2.898
39	3.107	3.247	2.975
40	3.187	3.327	3.057
41	3.266	3.406	3.134
42	3.346	3.486	3.216
43	3.425	3.566	3.293
44	3.505	3.646	3.375
45	3.584	3.725	3.452
46	3.664	3.805	3.534
47	3.743	3.885	3.611
48	3.823	3.964	3.693
49	3.902	4.044	3.770
50	3.982	4.124	3.852
51	4.061	4.203	3.929
52	4.141	4.283	4.011
53	4.220	4.363	4.088
54	4.300	4.442	4.170
55	4.379	4.522	4.247
56	4.459	4.602	4.329
57	4.538	4.681	4.407
58	4.618	4.761	4.488
59	4.697	4.841	4.566
60	4.777	4.920	4.647
61	4.857	5.000	4.725
62	4.936	5.080	4.806
63	5.016	5.159	4.884
64	5.095	5.239	4.965
65	5.175	5.319	5.044
66	5.254	5.398	5.124
67	5.334	5.478	5.203
68	5.413	5.558	5.283
69	5.493	5.637	5.362
70	5.572	5.717	5.442
71	5.652	5.796	5.521
72	5.732	5.876	5.602
73	5.811	5.956	5.680
74	5.891	6.035	5.761
75	5.970	6.115	5.839
76	6.050	6.195	5.920
77	6.129	6.274	5.998
78	6.209	6.354	6.079
79	6.288	6.433	6.157
80	6.368	6.513	6.238
81	6.448	6.593	6.317
82	6.527	6.672	6.397
83	6.607	6.752	6.476
84	6.686	6.832	6.556
85	6.766	6.911	6.635
86	6.845	6.991	6.715
87	6.925	7.070	6.794
88	7.004	7.150	6.874
89	7.084	7.230	6.953
90	7.164	7.309	7.034
91	7.243	7.389	7.112
92	7.323	7.468	7.193
93	7.402	7.548	7.271
94	7.482	7.628	7.352
95	7.561	7.707	7.430
96	7.641	7.787	7.511
97	7.720	7.866	7.589
98	7.800	7.946	7.670
99	7.880	8.026	7.749
100	7.959	8.105	7.829
101	8.039	8.185	7.908
102	8.118	8.264	7.988
103	8.198	8.344	8.067
104	8.277	8.424	8.147
105	8.357	8.503	8.226
106	8.437	8.583	8.307
107	8.516	8.662	8.385
108	8.596	8.742	8.466
109	8.675	8.822	8.544
110	8.755	8.901	8.625
111	8.834	8.981	8.703
112	8.914	9.060	8.784
113	8.994	9.140	8.863
114	9.073	9.220	8.943
115	9.153	9.299	9.022
116	9.232	9.379	9.102
117	9.312	9.458	9.181
118	9.391	9.538	9.261
119	9.471	9.618	9.340
120	9.550	9.697	9.420
121	9.630	9.777	9.499
122	9.709	9.856	9.579
123	9.789	9.936	9.658
124	9.869	10.016	9.739
125	9.949	10.095	9.818
126	10.028	10.175	9.898
127	10.108	10.255	9.977
128	10.187	10.334	10.057
129	10.267	10.414	10.136
130	10.346	10.493	10.216
131	10.426	10.573	10.295
132	10.505	10.652	10.375
133	10.585	10.732	10.454
134	10.664	10.811	10.534
135	10.744	10.891	10.613
136	10.823	10.970	10.693
137	10.903	11.050	10.772
138	10.983	11.130	10.853
139	11.062	11.209	10.932
140	11.142	11.289	11.012
141	11.221	11.369	11.091
142	11.301	11.448	11.171
143	11.380	11.528	11.250
144	11.460	11.607	11.330
145	11.540	11.687	11.409
146	11.619	11.767	11.489
147	11.699	11.846	11.567
148	11.773	11.926	11.649
149	11.858	12.005	11.727

Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.

Odd tooth "bottom diameters" equal pitch minus .130".

TECHNICAL SECTION

Sprocket Information

Sprocket Diameters – U.S.A. Std. No. 35 Bushing Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	0.750	0.88	0.550	
7	0.864	1.00	0.642	
8	0.980	1.13	0.780	
9	1.096	1.26	0.879	
10	1.214	1.38	1.014	
11	1.331	1.50	1.117	
12	1.449	1.63	1.249	
13	1.567	1.75	1.356	
14	1.685	1.87	1.485	
15	1.804	1.99	1.594	
16	1.922	2.11	1.722	
17	2.041	2.23	1.832	
18	2.159	2.35	1.959	
19	2.278	2.47	2.070	
20	2.397	2.59	2.197	
21	2.516	2.71	2.309	
22	2.635	2.83	2.435	
23	2.754	2.95	2.547	
24	2.873	3.07	2.673	
25	2.992	3.19	2.786	
26	3.111	3.31	2.911	
27	3.230	3.43	3.025	
28	3.349	3.55	3.149	
29	3.468	3.67	3.263	
30	3.588	3.79	3.388	
31	3.707	3.91	3.502	
32	3.826	4.03	3.626	
33	3.945	4.15	3.741	
34	4.064	4.27	3.864	
35	4.183	4.39	3.979	
36	4.303	4.51	4.103	
37	4.422	4.63	4.218	
38	4.541	4.75	4.341	
39	4.660	4.87	4.456	
40	4.780	4.99	4.580	
41	4.899	5.11	4.695	
42	5.018	5.23	4.818	
43	5.137	5.35	4.934	
44	5.257	5.47	5.057	
45	5.376	5.59	5.173	
46	5.495	5.71	5.295	
47	5.614	5.83	5.411	
48	5.734	5.95	5.534	
49	5.853	6.07	5.650	
50	5.972	6.19	5.772	
51	6.091	6.31	5.888	
52	6.211	6.43	6.011	
53	6.330	6.54	6.127	
54	6.449	6.66	6.249	
55	6.569	6.78	6.366	
56	6.688	6.90	6.488	
57	6.807	7.02	6.604	
58	6.927	7.14	6.727	
59	7.046	7.26	6.844	
60	7.165	7.38	6.965	
61	7.284	7.50	7.082	
62	7.404	7.62	7.204	
63	7.523	7.74	7.321	
64	7.642	7.86	7.442	
65	7.762	7.98	7.560	
66	7.881	8.10	7.681	
67	8.000	8.22	7.798	
68	8.120	8.34	7.920	
69	8.239	8.46	8.037	
70	8.358	8.58	8.158	
71	8.478	8.69	8.276	
72	8.597	8.81	8.397	
73	8.716	8.93	8.514	
74	8.836	9.05	8.636	
75	8.955	9.17	8.753	
76	9.074	9.29	8.874	
77	9.194	9.41	8.992	
78	9.313	9.53	9.113	
79	9.432	9.65	9.230	
80	9.552	9.77	9.352	
81	9.671	9.89	9.469	
82	9.790	10.01	9.590	
83	9.910	10.13	9.708	
84	10.029	10.25	9.829	
85	10.148	10.37	9.946	
86	10.268	10.49	10.068	
87	10.387	10.61	10.185	
88	10.506	10.73	10.306	
89	10.626	10.84	10.424	
90	10.745	10.96	10.545	
91	10.864	11.08	10.662	
92	10.984	11.20	10.784	
93	11.103	11.32	10.901	
94	11.222	11.44	11.022	
95	11.342	11.56	11.140	
96	11.461	11.68	11.261	
97	11.580	11.80	11.378	
98	11.700	11.92	11.500	
99	11.819	12.04	11.617	
100	11.938	12.16	11.738	
101	12.058	12.28	11.856	
102	12.177	12.40	11.977	
103	12.297	12.52	12.095	
104	12.416	12.64	12.216	
105	12.535	12.76	12.334	
106	12.655	12.87	12.455	
107	12.774	12.99	12.573	
108	12.893	13.11	12.693	
109	13.013	13.23	12.812	
110	13.132	13.35	12.932	
111	13.251	13.47	13.050	
112	13.371	13.59	13.171	
113	13.490	13.71	13.289	
114	13.609	13.83	13.409	
115	13.729	13.95	13.528	
116	13.848	14.07	13.648	
117	13.968	14.19	13.767	
118	14.087	14.31	13.887	
119	14.206	14.43	14.005	
120	14.326	14.55	14.126	
121	14.445	14.67	14.244	
122	14.564	14.78	14.364	
123	14.683	14.90	14.482	
124	14.803	15.02	14.603	
125	14.923	15.14	14.722	
126	15.042	15.26	14.842	
127	15.161	15.38	14.960	
128	15.280	15.50	15.080	
129	15.400	15.62	15.199	
130	15.519	15.74	15.319	
131	15.638	15.86	15.437	
132	15.758	15.98	15.558	
133	15.877	16.10	15.676	
134	15.997	16.22	15.797	
135	16.116	16.34	15.915	
136	16.235	16.46	16.035	
137	16.355	16.58	16.154	
138	16.474	16.70	16.274	
139	16.593	16.81	16.392	
140	16.713	16.93	16.513	
141	16.832	17.05	16.631	
142	16.951	17.17	16.751	
143	17.071	17.29	16.870	
144	17.190	17.41	16.990	
145	17.309	17.53	17.108	
146	17.429	17.65	17.229	
147	17.548	17.77	17.347	
148	17.668	17.89	17.468	
149	17.787	18.01	17.586	

Odd tooth "bottom diameters" equal pitch minus .200″.

Sprocket Diameters – U.S.A. Std. No. 40 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	1.000	1.170	0.688	
7	1.152	1.340	0.811	
8	1.307	1.510	0.995	
9	1.462	1.670	1.128	
10	1.618	1.840	1.306	
11	1.775	2.000	1.445	
12	1.932	2.170	1.620	
13	2.089	2.330	1.762	
14	2.247	2.490	1.935	
15	2.405	2.650	2.080	
16	2.563	2.810	2.251	
17	2.721	2.980	2.397	
18	2.879	3.140	2.567	
19	3.038	3.300	2.716	
20	3.196	3.460	2.884	
21	3.355	3.620	3.034	
22	3.513	3.780	3.201	
23	3.672	3.940	3.351	
24	3.831	4.100	3.519	
25	3.989	4.260	3.669	
26	4.148	4.420	3.836	
27	4.307	4.580	3.988	
28	4.466	4.740	4.154	
29	4.625	4.900	4.306	
30	4.783	5.060	4.471	
31	4.942	5.220	4.624	
32	5.101	5.380	4.789	
33	5.260	5.540	4.942	
34	5.419	5.700	5.107	
35	5.578	5.860	5.260	
36	5.737	6.020	5.425	
37	5.896	6.180	5.579	
38	6.055	6.330	5.743	
39	6.214	6.490	5.897	
40	6.373	6.650	6.061	
41	6.532	6.810	6.215	
42	6.691	6.970	6.379	
43	6.850	7.130	6.534	
44	7.009	7.290	6.697	
45	7.168	7.450	6.852	
46	7.327	7.610	7.015	
47	7.486	7.770	7.170	
48	7.645	7.930	7.333	
49	7.804	8.090	7.488	
50	7.963	8.250	7.651	
51	8.122	8.410	7.806	
52	8.281	8.570	7.969	
53	8.440	8.730	8.124	
54	8.599	8.890	8.287	
55	8.758	9.040	8.443	
56	8.917	9.200	8.605	
57	9.076	9.360	8.761	
58	9.236	9.520	8.924	
59	9.395	9.680	9.080	
60	9.554	9.840	9.242	
61	9.713	10.000	9.398	
62	9.872	10.160	9.560	
63	10.031	10.320	9.716	
64	10.190	10.480	9.878	
65	10.349	10.640	10.034	
66	10.508	10.800	10.196	
67	10.667	10.960	10.352	
68	10.826	11.120	10.514	
69	10.986	11.270	10.670	
70	11.145	11.430	10.833	
71	11.304	11.590	10.989	
72	11.463	11.750	11.151	
73	11.622	11.910	11.307	
74	11.781	12.070	11.469	
75	11.940	12.230	11.625	
76	12.099	12.390	11.787	
77	12.258	12.550	11.943	
78	12.417	12.710	12.105	
79	12.577	12.870	12.262	
80	12.736	13.030	12.424	
81	12.895	13.190	12.581	
82	13.054	13.340	12.742	
83	13.213	13.500	12.899	
84	13.372	13.660	13.060	
85	13.531	13.820	13.217	
86	13.690	13.980	13.378	
87	13.849	14.140	13.535	
88	14.008	14.300	13.696	
89	14.168	14.460	13.854	
90	14.327	14.620	14.015	
91	14.486	14.780	14.172	
92	14.645	14.940	14.333	
93	14.804	15.100	14.490	
94	14.963	15.260	14.651	
95	15.122	15.410	14.808	
96	15.281	15.570	14.969	
97	15.440	15.730	15.126	
98	15.600	15.890	15.288	
99	15.759	16.050	15.445	
100	15.918	16.210	15.606	
101	16.077	16.370	15.763	
102	16.236	16.530	15.924	
103	16.395	16.690	16.081	
104	16.555	16.850	16.243	
105	16.714	17.010	16.400	
106	16.873	17.170	16.561	
107	17.032	17.330	16.718	
108	17.191	17.480	16.879	
109	17.350	17.640	17.036	
110	17.509	17.800	17.197	
111	17.669	17.960	17.355	
112	17.828	18.120	17.516	
113	17.987	18.280	17.673	
114	18.146	18.440	17.834	
115	18.305	18.600	17.991	
116	18.464	18.760	18.152	
117	18.623	18.920	18.309	
118	18.783	19.080	18.471	
119	18.942	19.240	18.628	
120	19.101	19.390	18.789	
121	19.260	19.550	18.946	
122	19.419	19.710	19.107	
123	19.578	19.870	19.264	
124	19.737	20.030	19.425	
125	19.897	20.190	19.583	
126	20.056	20.350	19.744	
127	20.215	20.510	19.899	
128	20.374	20.670	20.062	
129	20.533	20.830	20.220	
130	20.692	20.990	20.380	
131	20.851	21.150	20.538	
132	21.011	21.310	20.699	
133	21.170	21.460	20.856	
134	21.329	21.620	21.017	
135	21.488	21.780	21.174	
136	21.647	21.940	21.335	
137	21.806	22.100	21.493	
138	21.965	22.260	21.653	
139	22.124	22.420	21.811	
140	22.284	22.580	21.972	
141	22.443	22.740	22.129	
142	22.602	22.900	22.290	
143	22.761	23.060	22.448	
144	22.920	23.220	22.608	
145	23.079	23.370	22.766	
146	23.238	23.530	22.926	
147	23.398	23.690	23.084	
148	23.557	23.850	23.245	
149	23.716	24.010	23.403	

Odd tooth "bottom diameters" equal pitch minus .306″.

TECHNICAL SECTION

Sprocket Information

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Sprocket Diameters – U.S.A. Std. No. 41 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	1.000	1.17	0.694	
7	1.152	1.34	0.817	
8	1.307	1.51	1.001	
9	1.462	1.67	1.134	
10	1.618	1.84	1.312	
11	1.775	2.00	1.451	
12	1.932	2.17	1.626	
13	2.089	2.33	1.768	
14	2.247	2.49	1.941	
15	2.405	2.65	2.086	
16	2.563	2.81	2.257	
17	2.721	2.98	2.403	
18	2.879	3.14	2.573	
19	3.038	3.30	2.722	
20	3.196	3.46	2.890	
21	3.355	3.62	3.040	
22	3.513	3.78	3.207	
23	3.672	3.94	3.357	
24	3.831	4.10	3.525	
25	3.989	4.26	3.675	
26	4.148	4.42	3.842	
27	4.307	4.58	3.994	
28	4.466	4.74	4.160	
29	4.625	4.90	4.312	
30	4.783	5.06	4.477	
31	4.942	5.22	4.630	
32	5.101	5.38	4.795	
33	5.260	5.54	4.948	
34	5.419	5.70	5.113	
35	5.578	5.86	5.266	
36	5.737	6.02	5.431	
37	5.896	6.18	5.585	
38	6.055	6.33	5.749	
39	6.214	6.49	5.903	
40	6.373	6.65	6.067	
41	6.532	6.81	6.221	
42	6.691	6.97	6.385	
43	6.850	7.13	6.540	
44	7.009	7.29	6.703	
45	7.168	7.45	6.858	
46	7.327	7.61	7.021	
47	7.486	7.77	7.176	
48	7.645	7.93	7.339	
49	7.804	8.09	7.494	
50	7.963	8.25	7.657	
51	8.122	8.41	7.812	
52	8.281	8.57	7.975	
53	8.440	8.73	8.130	
54	8.599	8.89	8.293	
55	8.758	9.04	8.449	
56	8.917	9.20	8.611	
57	9.076	9.36	8.767	
58	9.236	9.52	8.930	
59	9.395	9.68	9.086	
60	9.554	9.84	9.248	
61	9.713	10.00	9.404	
62	9.872	10.16	9.566	
63	10.031	10.32	9.722	
64	10.190	10.48	9.884	
65	10.349	10.64	10.040	
66	10.508	10.80	10.202	
67	10.667	10.96	10.358	
68	10.826	11.12	10.520	
69	10.986	11.27	10.676	
70	11.145	11.43	10.839	
71	11.304	11.59	10.995	
72	11.463	11.75	11.157	
73	11.622	11.91	11.313	
74	11.781	12.07	11.475	
75	11.940	12.23	11.631	
76	12.099	12.39	11.793	
77	12.258	12.55	11.949	
78	12.417	12.71	12.111	
79	12.577	12.87	12.268	
80	12.736	13.03	12.430	
81	12.895	13.19	12.587	
82	13.054	13.34	12.748	
83	13.213	13.50	12.905	
84	13.372	13.66	13.066	
85	13.531	13.82	13.223	
86	13.690	13.98	13.384	
87	13.849	14.14	13.541	
88	14.008	14.30	13.702	
89	14.168	14.46	13.860	
90	14.327	14.62	14.021	
91	14.486	14.78	14.178	
92	14.645	14.94	14.339	
93	14.804	15.10	14.496	
94	14.963	15.26	14.657	
95	15.122	15.41	14.814	
96	15.281	15.57	14.975	
97	15.440	15.73	15.132	
98	15.600	15.89	15.294	
99	15.759	16.05	15.451	
100	15.918	16.21	15.612	
101	16.077	16.37	15.769	
102	16.236	16.53	15.930	
103	16.395	16.69	16.087	
104	16.555	16.85	16.249	
105	16.714	17.01	16.406	
106	16.873	17.17	16.567	
107	17.032	17.33	16.724	
108	17.191	17.48	16.885	
109	17.350	17.64	17.042	
110	17.509	17.80	17.203	
111	17.669	17.96	17.361	
112	17.828	18.12	17.522	
113	17.987	18.28	17.679	
114	18.146	18.44	17.840	
115	18.305	18.60	17.997	
116	18.464	18.76	18.158	
117	18.623	18.92	18.315	
118	18.783	19.08	18.477	
119	18.942	19.24	18.634	
120	19.101	19.39	18.795	
121	19.260	19.55	18.952	
122	19.419	19.71	19.113	
123	19.578	19.87	19.270	
124	19.737	20.03	19.431	
125	19.897	20.19	19.589	
126	20.056	20.35	19.750	
127	20.215	20.51	19.907	
128	20.374	20.67	20.068	
129	20.533	20.83	20.226	
130	20.692	20.99	20.386	
131	20.851	21.15	20.544	
132	21.011	21.31	20.750	
133	21.170	21.46	20.862	
134	21.329	21.62	21.023	
135	21.488	21.78	21.180	
136	21.647	21.94	21.341	
137	21.806	22.10	21.499	
138	21.965	22.26	21.659	
139	22.124	22.42	21.817	
140	22.284	22.58	21.978	
141	22.443	22.74	22.135	
142	22.602	22.90	22.296	
143	22.761	23.06	22.454	
144	22.920	23.22	22.614	
145	23.079	23.37	22.772	
146	23.238	23.53	22.932	
147	23.398	23.69	23.090	
148	23.557	23.85	23.251	
149	23.716	24.01	23.409	

Odd tooth "bottom diameters" equal pitch minus .312″.

Sprocket Diameters – U.S.A. Std. No. 50 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	1.250	1.46	0.850	
7	1.441	1.67	1.004	
8	1.633	1.88	1.233	
9	1.827	2.09	1.399	
10	2.023	2.30	1.623	
11	2.219	2.50	1.796	
12	2.415	2.71	2.015	
13	2.612	2.91	2.193	
14	2.809	3.11	2.409	
15	3.006	3.32	2.589	
16	3.204	3.52	2.804	
17	3.401	3.72	2.987	
18	3.599	3.92	3.199	
19	3.797	4.12	3.384	
20	3.995	4.32	3.595	
21	4.194	4.52	3.782	
22	4.392	4.72	3.992	
23	4.590	4.92	4.179	
24	4.788	5.12	4.388	
25	4.987	5.32	4.577	
26	5.185	5.52	4.785	
27	5.384	5.72	4.975	
28	5.582	5.92	5.182	
29	5.781	6.12	5.372	
30	5.979	6.32	5.579	
31	6.178	6.52	5.770	
32	6.376	6.72	5.976	
33	6.575	6.92	6.168	
34	6.774	7.12	6.374	
35	6.972	7.32	6.565	
36	7.171	7.52	6.771	
37	7.370	7.72	6.963	
38	7.569	7.92	7.169	
39	7.767	8.12	7.361	
40	7.966	8.32	7.566	
41	8.165	8.52	7.759	
42	8.363	8.72	7.963	
43	8.562	8.91	8.157	
44	8.761	9.11	8.361	
45	8.960	9.31	8.555	
46	9.159	9.51	8.759	
47	9.357	9.71	8.952	
48	9.556	9.91	9.156	
49	9.755	10.11	9.350	
50	9.954	10.31	9.554	
51	10.153	10.51	9.748	
52	10.351	10.71	9.951	
53	10.550	10.91	10.146	
54	10.749	11.11	10.349	
55	10.948	11.31	10.544	
56	11.147	11.50	10.747	
57	11.346	11.70	10.942	
58	11.544	11.90	11.144	
59	11.743	12.10	11.339	
60	11.942	12.30	11.542	
61	12.141	12.50	11.737	
62	12.340	12.70	11.940	
63	12.539	12.90	12.135	
64	12.738	13.10	12.338	
65	12.936	13.30	12.532	
66	13.135	13.50	12.735	
67	13.334	13.69	12.930	
68	13.533	13.89	13.133	
69	13.732	14.09	13.328	
70	13.931	14.29	13.531	
71	14.130	14.49	13.726	
72	14.329	14.69	13.929	
73	14.527	14.89	14.124	
74	14.726	15.09	14.326	
75	14.925	15.29	14.522	
76	15.124	15.49	14.724	
77	15.323	15.69	14.920	
78	15.522	15.88	15.122	
79	15.721	16.08	15.318	
80	15.920	16.28	15.520	
81	16.118	16.48	15.716	
82	16.317	16.68	15.917	
83	16.516	16.88	16.113	
84	16.715	17.08	16.315	
85	16.914	17.28	16.511	
86	17.113	17.48	16.713	
87	17.312	17.68	16.909	
88	17.511	17.87	17.111	
89	17.710	18.07	17.307	
90	17.909	18.27	17.509	
91	18.107	18.47	17.704	
92	18.306	18.67	17.906	
93	18.505	18.87	18.102	
94	18.704	19.07	18.304	
95	18.903	19.27	18.500	
96	19.102	19.47	18.702	
97	19.301	19.67	18.898	
98	19.500	19.87	19.100	
99	19.699	20.06	19.296	
100	19.898	20.26	19.498	
101	20.096	20.46	19.694	
102	20.295	20.66	19.895	
103	20.494	20.86	20.092	
104	20.693	21.06	20.293	
105	20.892	21.26	20.490	
106	21.091	21.46	20.691	
107	21.290	21.66	20.888	
108	21.489	21.86	21.089	
109	21.688	22.05	21.286	
110	21.887	22.25	21.487	
111	22.086	22.45	21.684	
112	22.285	22.65	21.885	
113	22.484	22.85	22.082	
114	22.683	23.05	22.283	
115	22.881	23.25	22.479	
116	23.080	23.45	22.680	
117	23.279	23.65	22.877	
118	23.478	23.85	23.078	
119	23.677	24.04	23.275	
120	23.876	24.24	23.476	
121	24.075	24.44	23.672	
122	24.273	24.64	23.873	
123	24.472	24.84	24.070	
124	24.671	25.04	24.271	
125	24.870	25.24	24.468	
126	25.070	25.44	24.670	
127	25.268	25.64	24.866	
128	25.467	25.84	25.067	
129	25.666	26.03	25.264	
130	25.865	26.23	25.465	
131	26.063	26.43	25.661	
132	26.262	26.63	25.862	
133	26.461	26.83	26.059	
134	26.660	27.03	26.260	
135	26.859	27.23	26.457	
136	27.058	27.43	26.658	
137	27.257	27.62	26.855	
138	27.456	27.82	27.056	
139	27.655	28.02	27.253	
140	27.854	28.22	27.454	
141	28.053	28.42	27.651	
142	28.252	28.62	27.852	
143	28.451	28.82	28.049	
144	28.650	29.02	28.250	
145	28.849	29.22	28.447	
146	29.048	29.42	28.648	
147	29.247	29.62	28.845	
148	29.446	29.81	29.046	
149	29.645	30.01	29.243	

Odd tooth "bottom diameters" equal pitch minus .400″.

TECHNICAL SECTION

Sprocket Information

Sprocket Diameters – U.S.A. Std. No. 60 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	1.500	1.75	1.031	
7	1.729	2.01	1.217	
8	1.960	2.26	1.491	
9	2.193	2.51	1.691	
10	2.427	2.76	1.958	
11	2.662	3.00	2.166	
12	2.898	3.25	2.429	
13	3.134	3.49	2.642	
14	3.371	3.74	2.902	
15	3.607	3.98	3.119	
16	3.844	4.22	3.376	
17	4.082	4.46	3.595	
18	4.319	4.70	3.850	
19	4.557	4.95	4.072	
20	4.794	5.19	4.326	
21	5.032	5.43	4.549	
22	5.270	5.67	4.801	
23	5.508	5.91	5.026	
24	5.746	6.15	5.277	
25	5.984	6.39	5.503	
26	6.222	6.63	5.753	
27	6.460	6.87	5.981	
28	6.699	7.11	6.230	
29	6.937	7.35	6.458	
30	7.175	7.59	6.706	
31	7.413	7.83	6.935	
32	7.652	8.07	7.183	
33	7.890	8.30	7.412	
34	8.129	8.54	7.660	
35	8.367	8.78	7.890	
36	8.605	9.02	8.137	
37	8.844	9.26	8.367	
38	9.082	9.50	8.613	
39	9.321	9.74	8.845	
40	9.559	9.98	9.090	
41	9.798	10.22	9.322	
42	10.036	10.46	9.567	
43	10.275	10.70	9.799	
44	10.513	10.94	10.044	
45	10.752	11.18	10.276	
46	10.990	11.42	10.522	
47	11.229	11.65	10.754	
48	11.467	11.89	10.999	
49	11.706	12.13	11.231	
50	11.945	12.37	11.476	
51	12.183	12.61	11.708	
52	12.422	12.85	11.953	
53	12.660	13.09	12.186	
54	12.899	13.33	12.430	
55	13.137	13.57	12.663	
56	13.376	13.81	12.907	
57	13.615	14.04	13.141	
58	13.853	14.28	13.385	
59	14.092	14.52	13.618	
60	14.331	14.76	13.862	
61	14.569	15.00	14.096	
62	14.808	15.24	14.339	
63	15.046	15.48	14.573	
64	15.285	15.72	14.816	
65	15.524	15.96	15.050	
66	15.762	16.19	15.293	
67	16.001	16.43	15.528	
68	16.240	16.67	15.771	
69	16.478	16.91	16.005	
70	16.717	17.15	16.248	
71	16.956	17.39	16.483	
72	17.194	17.63	16.725	
73	17.433	17.87	16.960	
74	17.671	18.11	17.203	
75	17.910	18.34	17.437	
76	18.149	18.58	17.680	
77	18.387	18.82	17.914	
78	18.626	19.06	18.157	
79	18.865	19.30	18.392	
80	19.103	19.54	18.635	
81	19.342	19.78	18.870	
82	19.581	20.02	19.112	
83	19.819	20.26	19.347	
84	20.058	20.49	19.589	
85	20.297	20.73	19.825	
86	20.536	20.97	20.067	
87	20.774	21.21	20.302	
88	21.013	21.45	20.544	
89	21.252	21.69	20.780	
90	21.490	21.93	21.021	
91	21.729	22.17	21.257	
92	21.968	22.41	21.499	
93	22.206	22.64	21.734	
94	22.445	22.88	21.976	
95	22.683	23.12	22.211	
96	22.922	23.36	22.453	
97	23.161	23.60	22.689	
98	23.400	23.84	22.931	
99	23.638	24.08	23.166	
100	23.877	24.32	23.408	
101	24.116	24.55	23.644	
102	24.354	24.79	23.885	
103	24.593	25.03	24.121	
104	24.832	25.27	24.363	
105	25.071	25.51	24.599	
106	25.309	25.75	24.840	
107	25.548	25.99	25.076	
108	25.787	26.23	25.318	
109	26.025	26.46	25.553	
110	26.264	26.70	25.795	
111	26.503	26.94	26.031	
112	26.742	27.18	26.273	
113	26.980	27.42	26.508	
114	27.219	27.66	26.750	
115	27.458	27.90	26.986	
116	27.697	28.14	27.228	
117	27.936	28.38	27.464	
118	28.174	28.61	27.705	
119	28.413	28.85	27.941	
120	28.651	29.09	28.182	
121	28.889	29.33	28.418	
122	29.128	29.57	28.659	
123	29.367	29.81	28.895	
124	29.606	30.05	29.137	
125	29.845	30.29	29.373	
126	30.083	30.52	29.614	
127	30.322	30.76	29.851	
128	30.561	31.00	30.092	
129	30.800	31.24	30.328	
130	31.038	31.48	30.569	
131	31.277	31.72	30.806	
132	31.516	31.96	31.047	
133	31.754	32.20	31.283	
134	31.993	32.44	31.524	
135	32.232	32.67	31.761	
136	32.471	32.91	32.002	
137	32.709	33.15	32.238	
138	32.948	33.39	32.479	
139	33.187	33.63	32.716	
140	33.425	33.87	32.956	
141	33.664	34.11	33.193	
142	33.903	34.35	33.434	
143	34.142	34.58	33.670	
144	34.380	34.82	33.911	
145	34.619	35.06	34.148	
146	34.858	35.30	34.389	
147	35.096	35.54	34.625	
148	35.335	35.78	34.866	
149	35.574	36.02	35.103	

Odd tooth "bottom diameters" equal pitch minus .469″.

Sprocket Diameters – U.S.A. Std. No. 80 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	2.000	2.33	1.375	
7	2.305	2.68	1.622	
8	2.613	3.01	1.988	
9	2.924	3.35	2.254	
10	3.236	3.68	2.611	
11	3.550	4.01	2.888	
12	3.864	4.33	3.239	
13	4.179	4.66	3.523	
14	4.494	4.98	3.869	
15	4.810	5.30	4.158	
16	5.126	5.63	4.501	
17	5.442	5.95	4.794	
18	5.759	6.27	5.134	
19	6.076	6.59	5.430	
20	6.392	6.91	5.767	
21	6.710	7.24	6.066	
22	7.027	7.56	6.402	
23	7.344	7.88	6.702	
24	7.661	8.20	7.036	
25	7.979	8.52	7.338	
26	8.296	8.84	7.671	
27	8.614	9.16	7.974	
28	8.931	9.48	8.306	
29	9.249	9.80	8.611	
30	9.567	10.11	8.942	
31	9.985	10.43	9.247	
32	10.202	10.75	9.577	
33	10.520	11.07	9.883	
34	10.838	11.39	10.213	
35	11.156	11.71	10.520	
36	11.474	12.03	10.849	
37	11.792	12.35	11.156	
38	12.110	12.67	11.485	
39	12.428	12.99	11.792	
40	12.746	13.31	12.121	
41	13.064	13.63	12.429	
42	13.382	13.94	12.757	
43	13.700	14.26	13.065	
44	14.018	14.58	13.393	
45	14.336	14.90	13.702	
46	14.654	15.22	14.029	
47	14.972	15.54	14.338	
48	15.290	15.86	14.665	
49	15.608	16.18	14.975	
50	15.926	16.50	15.301	
51	16.244	16.81	15.611	
52	16.562	17.13	15.937	
53	16.880	17.45	16.248	
54	17.198	17.77	16.573	
55	17.517	18.09	16.884	
56	17.835	18.41	17.210	
57	18.153	18.73	17.521	
58	18.471	19.04	17.846	
59	18.789	19.36	18.158	
60	19.107	19.68	18.482	
61	19.426	20.00	18.794	
62	19.744	20.32	19.119	
63	20.062	20.64	19.431	
64	20.380	20.96	19.755	
65	20.698	21.27	20.067	
66	21.016	21.59	20.391	
67	21.335	21.91	20.704	
68	21.653	22.23	21.028	
69	21.971	22.55	21.340	
70	22.289	22.87	21.664	
71	22.607	23.19	21.977	
72	22.926	23.50	22.301	
73	23.244	23.82	22.613	
74	23.562	24.14	22.937	
75	23.880	24.46	23.250	
76	24.198	24.78	23.573	
77	24.517	25.10	23.887	
78	24.835	25.42	24.210	
79	25.153	25.73	24.523	
80	25.471	26.05	24.846	
81	25.790	26.37	25.160	
82	26.108	26.69	25.483	
83	26.426	27.01	25.796	
84	26.744	27.33	26.119	
85	27.063	27.64	26.433	
86	27.381	27.96	26.756	
87	27.699	28.28	27.070	
88	28.017	28.60	27.392	
89	28.335	28.92	27.706	
90	28.654	29.24	28.029	
91	28.972	29.56	28.343	
92	29.290	29.87	28.665	
93	29.608	30.19	28.979	
94	29.927	30.51	29.302	
95	30.245	30.83	29.616	
96	30.563	31.15	29.938	
97	30.882	31.47	30.252	
98	31.200	31.78	30.573	
99	31.518	32.10	30.889	
100	31.836	32.42	31.211	
101	32.155	32.74	31.526	
102	32.473	33.06	31.848	
103	32.791	33.38	32.162	
104	33.109	33.69	32.484	
105	33.428	34.01	32.799	
106	33.746	34.33	33.121	
107	34.064	34.65	33.435	
108	34.382	34.97	33.757	
109	34.701	35.29	34.072	
110	35.019	35.61	34.394	
111	35.337	35.92	34.709	
112	35.655	36.24	35.030	
113	35.974	36.56	35.345	
114	36.292	36.88	35.667	
115	36.610	37.20	35.982	
116	36.929	37.52	36.304	
117	37.247	37.83	36.618	
118	37.565	38.15	36.940	
119	37.883	38.47	37.255	
120	38.202	38.79	37.577	
121	38.520	39.11	37.892	
122	38.838	39.43	38.213	
123	39.156	39.74	38.528	
124	39.475	40.06	38.850	
125	39.793	40.38	39.165	
126	40.111	40.70	39.486	
127	40.430	41.02	39.801	
128	40.748	41.34	40.123	
129	41.066	41.65	40.438	
130	41.384	41.97	40.759	
131	41.703	42.29	41.075	
132	42.021	42.61	41.396	
133	42.339	42.93	41.711	
134	42.657	43.25	42.032	
135	42.976	43.56	42.348	
136	43.294	43.88	42.669	
137	43.612	44.20	42.984	
138	43.931	44.52	43.306	
139	44.249	44.84	43.621	
140	44.567	45.16	43.942	
141	44.885	45.47	44.258	
142	45.204	45.79	44.579	
143	45.522	46.11	44.894	
144	45.840	46.43	45.215	
145	46.159	46.75	45.531	
146	46.477	47.07	45.852	
147	46.795	47.38	46.167	
148	47.113	47.70	46.488	
149	47.432	48.02	46.804	

Odd tooth "bottom diameters" equal pitch minus .625″.

TECHNICAL SECTION

Sprocket Information

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Sprocket Diameters – U.S.A. Std. No. 100 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	2.500	2.92	1.750	
7	2.881	3.35	2.059	
8	3.266	3.77	2.516	
9	3.655	4.18	2.850	
10	4.045	4.60	3.295	
11	4.437	5.01	3.642	
12	4.830	5.42	4.080	
13	5.223	5.82	4.435	
14	5.617	6.23	4.867	
15	6.012	6.63	5.229	
16	6.407	7.03	5.657	
17	6.803	7.44	6.024	
18	7.198	7.84	6.448	
19	7.595	8.24	6.819	
20	7.991	8.64	7.241	
21	8.387	9.04	7.614	
22	8.783	9.44	8.033	
23	9.180	9.84	8.409	
24	9.577	10.25	8.827	
25	9.973	10.65	9.204	
26	10.370	11.05	9.620	
27	10.767	11.44	9.999	
28	11.164	11.84	10.414	
29	11.561	12.24	10.795	
30	11.958	12.64	11.208	
31	12.356	13.04	11.590	
32	12.753	13.44	12.003	
33	13.150	13.84	12.385	
34	13.547	14.24	12.797	
35	13.945	14.64	13.181	
36	14.342	15.04	13.592	
37	14.740	15.44	13.976	
38	15.137	15.84	14.387	
39	15.534	16.23	14.772	
40	15.932	16.63	15.182	
41	16.329	17.03	15.568	
42	16.727	17.43	15.977	
43	17.124	17.83	16.363	
44	17.522	18.23	16.772	
45	17.920	18.63	17.159	
46	18.317	19.02	17.567	
47	18.715	19.42	17.954	
48	19.112	19.82	18.362	
49	19.510	20.22	18.750	
50	19.908	20.62	19.158	
51	20.305	21.02	19.545	
52	20.703	21.42	19.953	
53	21.100	21.81	20.341	
54	21.498	22.21	20.748	
55	21.896	22.61	21.137	
56	22.293	23.01	21.543	
57	22.691	23.41	21.932	
58	23.089	23.81	22.339	
59	23.486	24.20	22.728	
60	23.884	24.60	23.134	
61	24.282	25.00	23.524	
62	24.680	25.40	23.930	
63	25.077	25.80	24.320	
64	25.475	26.19	24.725	
65	25.873	26.59	25.115	
66	26.271	26.99	25.521	
67	26.668	27.39	25.911	
68	27.066	27.79	26.316	
69	27.464	28.19	26.707	
70	27.862	28.58	27.112	
71	28.259	28.98	27.502	
72	28.657	29.38	27.907	
73	29.055	29.78	28.298	
74	29.453	30.18	28.703	
75	29.850	30.57	29.093	
76	30.248	30.97	29.498	
77	30.646	31.37	29.889	
78	31.044	31.77	30.294	
79	31.441	32.17	30.685	
80	31.839	32.57	31.089	
81	32.237	32.96	31.481	
82	32.635	33.36	31.885	
83	33.033	33.76	32.277	
84	33.430	34.16	32.680	
85	33.828	34.56	33.072	
86	34.226	34.95	33.476	
87	34.624	35.35	33.868	
88	35.021	35.75	34.271	
89	35.419	36.15	34.663	
90	35.817	36.55	35.067	
91	36.215	36.94	35.459	
92	36.612	37.34	35.862	
93	37.010	37.74	36.255	
94	37.408	38.14	36.658	
95	37.806	38.54	37.050	
96	38.203	38.93	37.453	
97	38.601	39.33	37.846	
98	38.999	39.73	38.249	
99	39.397	40.13	38.642	
100	39.795	40.53	39.045	
101	40.193	40.92	39.438	
102	40.591	41.32	39.841	
103	40.989	41.72	40.234	
104	41.386	42.12	40.636	
105	41.784	42.52	41.030	
106	42.182	42.91	41.432	
107	42.580	43.31	41.825	
108	42.978	43.71	42.228	
109	43.376	44.11	42.621	
110	43.774	44.51	43.024	
111	44.171	44.90	43.417	
112	44.569	45.30	43.819	
113	44.967	45.70	44.213	
114	45.365	46.10	44.615	
115	45.763	46.50	45.009	
116	46.161	46.89	45.411	
117	46.559	47.29	45.804	
118	46.957	47.69	46.207	
119	47.354	48.09	46.600	
120	47.752	48.49	47.002	
121	48.149	48.88	47.395	
122	48.547	49.28	47.797	
123	48.945	49.68	48.191	
124	49.343	50.08	48.593	
125	49.741	50.48	48.987	
126	50.139	50.87	49.389	
127	50.537	51.27	49.783	
128	50.935	51.67	50.185	
129	51.333	52.07	50.579	
130	51.730	52.47	50.980	
131	52.128	52.86	51.375	
132	52.526	53.26	51.776	
133	52.924	53.66	52.170	
134	53.322	54.06	52.572	
135	53.720	54.46	52.966	
136	54.118	54.85	53.368	
137	54.515	55.25	53.762	
138	54.913	55.65	54.163	
139	55.311	56.05	54.558	
140	55.709	56.45	54.959	
141	56.107	56.84	55.353	
142	56.505	57.24	55.755	
143	56.903	57.64	56.149	
144	57.300	58.04	56.550	
145	57.698	58.44	56.945	
146	58.096	58.83	57.346	
147	58.494	59.23	57.741	
148	58.892	59.63	58.142	
149	59.290	60.03	58.537	

Odd tooth "bottom diameters" equal pitch minus .750″.

Sprocket Diameters – U.S.A. Std. No. 120 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	3.000	3.50	2.125	
7	3.457	4.02	2.495	
8	3.920	4.52	3.045	
9	4.386	5.02	3.444	
10	4.854	5.52	3.979	
11	5.324	6.01	4.395	
12	5.796	6.50	4.921	
13	6.268	6.99	5.347	
14	6.741	7.47	5.866	
15	7.215	7.96	6.300	
16	7.689	8.44	6.814	
17	8.163	8.92	7.253	
18	8.638	9.41	7.763	
19	9.113	9.89	8.207	
20	9.589	10.37	8.714	
21	10.064	10.85	9.161	
22	10.540	11.33	9.665	
23	11.016	11.81	10.115	
24	11.492	12.29	10.617	
25	11.968	12.77	11.070	
26	12.444	13.25	11.569	
27	12.921	13.73	12.024	
28	13.397	14.21	12.522	
29	13.874	14.69	12.978	
30	14.350	15.17	13.475	
31	14.827	15.65	13.933	
32	15.303	16.13	14.428	
33	15.780	16.61	14.887	
34	16.257	17.09	15.382	
35	16.734	17.57	15.842	
36	17.211	18.05	16.336	
37	17.687	18.52	16.796	
38	18.164	19.00	17.289	
39	18.641	19.48	17.751	
40	19.118	19.96	18.243	
41	19.595	20.44	18.706	
42	20.072	20.92	19.197	
43	20.549	21.39	19.661	
44	21.026	21.87	20.151	
45	21.503	22.35	20.615	
46	21.980	22.83	21.105	
47	22.458	23.31	21.570	
48	22.935	23.79	22.060	
49	23.412	24.26	22.525	
50	23.889	24.74	23.014	
51	24.366	25.22	23.479	
52	24.843	25.70	23.968	
53	25.320	26.18	24.434	
54	25.798	26.65	24.923	
55	26.275	27.13	25.389	
56	26.752	27.61	25.877	
57	27.229	28.09	26.344	
58	27.707	28.57	26.832	
59	28.184	29.04	27.299	
60	28.661	29.52	27.786	
61	29.138	30.00	28.263	
62	29.616	30.48	28.741	
63	30.093	30.96	29.208	
64	30.570	31.43	29.695	
65	31.047	31.91	30.163	
66	31.525	32.39	30.650	
67	32.002	32.87	31.118	
68	32.479	33.34	31.604	
69	32.957	33.82	32.073	
70	33.434	34.30	32.559	
71	33.911	34.78	33.028	
72	34.388	35.26	33.513	
73	34.866	35.73	33.983	
74	35.343	36.21	34.468	
75	35.820	36.69	34.937	
76	36.298	37.17	35.423	
77	36.775	37.64	35.892	
78	37.252	38.12	36.377	
79	37.730	38.60	36.847	
80	38.207	39.08	37.332	
81	38.684	39.56	37.802	
82	39.162	40.03	38.287	
83	39.639	40.51	38.757	
84	40.116	40.99	39.241	
85	40.594	41.47	39.712	
86	41.071	41.94	40.196	
87	41.548	42.42	40.666	
88	42.026	42.90	41.151	
89	42.503	43.38	41.621	
90	42.981	43.85	42.106	
91	43.458	44.33	42.576	
92	43.935	44.81	43.060	
93	44.412	45.29	43.530	
94	44.889	45.77	44.014	
95	45.367	46.24	44.485	
96	45.844	46.72	44.969	
97	46.321	47.20	45.440	
98	46.799	47.68	45.924	
99	47.277	48.15	46.395	
100	47.754	48.63	46.879	
101	48.231	49.11	47.350	
102	48.709	49.59	47.834	
103	49.186	50.06	48.305	
104	49.664	50.54	48.789	
105	50.410	51.02	49.260	
106	50.619	51.50	49.744	
107	51.096	51.97	50.215	
108	51.573	52.45	50.698	
109	52.051	52.93	51.169	
110	52.528	53.41	51.653	
111	53.005	53.88	52.124	
112	53.483	54.36	52.608	
113	53.961	54.84	53.080	
114	54.438	55.32	53.563	
115	54.915	55.80	54.034	
116	55.393	56.27	54.518	
117	55.870	56.75	54.989	
118	56.347	57.23	55.472	
119	56.824	57.71	55.944	
120	57.301	58.18	56.426	
121	57.778	58.66	56.899	
122	58.256	59.14	57.381	
123	58.734	59.62	57.854	
124	59.212	60.09	58.337	
125	59.690	60.57	58.809	
126	60.167	61.05	59.292	
127	60.644	61.53	59.765	
128	61.122	62.00	60.247	
129	61.599	62.48	60.720	
130	62.076	62.96	61.201	
131	62.554	63.44	61.674	
132	63.031	63.91	62.156	
133	63.509	64.39	62.629	
134	63.986	64.87	63.111	
135	64.464	65.35	63.584	
136	64.941	65.82	64.066	
137	65.418	66.30	64.539	
138	65.896	66.78	65.021	
139	66.373	67.26	65.494	
140	66.851	67.73	65.976	
141	67.328	68.21	66.449	
142	67.806	68.69	66.931	
143	68.283	69.17	67.404	
144	68.760	69.64	67.885	
145	69.238	70.12	68.359	
146	69.715	70.60	68.840	
147	70.193	71.08	69.314	
148	70.670	71.56	69.795	
149	71.148	72.03	70.269	

Odd tooth "bottom diameters" equal pitch minus .875″.

TECHNICAL SECTION

Sprocket Information

Sprocket Diameters – U.S.A. Std. No. 140 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.	No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.	No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	3.500	4.08	2.500		54	30.097	31.10	29.097		102	56.827	57.85	55.827	
7	4.033	4.68	2.932		55	30.654	31.65	29.641		103	57.384	58.41	56.377	
8	4.573	5.28	3.573		56	31.211	32.21	30.211		104	57.941	58.96	56.941	
9	5.117	5.86	4.042		57	31.768	32.77	30.755		105	58.498	59.52	57.491	
10	5.663	6.44	4.663		58	32.324	33.33	31.324		106	59.055	60.08	58.055	
11	6.212	7.01	5.148		59	32.881	33.89	31.869		107	59.612	60.64	58.605	
12	6.762	7.58	5.762		60	33.438	34.44	32.438		108	60.169	61.19	59.169	
13	7.313	8.15	6.259		61	33.995	35.00	32.983		109	60.726	61.75	59.719	
14	7.864	8.72	6.864		62	34.551	35.56	33.551		110	61.283	62.31	60.283	
15	8.417	9.28	7.371		63	35.108	36.11	34.097		111	61.840	62.87	60.833	
16	8.970	9.85	7.970		64	35.665	36.67	34.665		112	62.397	63.42	61.397	
17	9.524	10.41	8.483		65	36.222	37.23	35.211		113	62.954	63.98	61.948	
18	10.078	10.98	9.078		66	36.779	37.79	35.779		114	63.511	64.54	62.511	
19	10.632	11.54	9.596		67	37.336	38.35	36.325		115	64.068	65.09	63.062	
20	11.187	12.10	10.187		68	37.892	38.90	36.892		116	64.625	65.65	63.625	
21	11.742	12.66	10.709		69	38.449	39.46	37.439		117	65.182	66.21	64.176	
22	12.297	13.22	11.297		70	39.006	40.02	38.006		118	65.739	66.77	64.739	
23	12.852	13.78	11.822		71	39.563	40.57	38.553		119	66.296	67.32	65.290	
24	13.407	14.34	12.407		72	40.120	41.13	39.120		120	66.853	67.88	65.853	
25	13.963	14.90	12.935		73	40.677	41.69	39.667		121	67.410	68.44	66.404	
26	14.518	15.46	13.518		74	41.233	42.25	40.233		122	67.967	68.99	66.967	
27	15.074	16.02	14.049		75	41.790	42.80	40.781		123	68.524	69.55	67.518	
28	15.630	16.58	14.630		76	42.347	43.36	41.347		124	69.081	70.11	68.081	
29	16.186	17.14	15.162		77	42.904	43.92	41.895		125	69.639	70.67	68.633	
30	16.742	17.70	15.742		78	43.461	44.48	42.461		126	70.195	71.22	69.195	
31	17.298	18.26	16.276		79	44.018	45.03	43.009		127	70.752	71.78	69.746	
32	17.854	18.82	16.854		80	44.575	45.59	43.575		128	71.308	72.34	70.308	
33	18.410	19.38	17.389		81	45.132	46.15	44.123		129	71.866	72.90	70.860	
34	18.966	19.94	17.966		82	45.689	46.71	44.689		130	72.423	73.45	71.423	
35	19.523	20.49	18.503		83	46.246	47.26	45.237		131	72.980	74.01	71.974	
36	20.079	21.05	19.079		84	46.802	47.82	45.802		132	73.537	74.57	72.537	
37	20.635	21.61	19.617		85	47.359	48.38	46.350		133	74.094	75.12	73.088	
38	21.192	22.17	20.192		86	47.915	48.93	46.915		134	74.650	75.68	73.650	
39	21.748	22.73	20.731		87	48.472	49.49	47.464		135	75.207	76.24	74.202	
40	22.305	23.29	21.305		88	49.029	50.05	48.029		136	75.765	76.79	74.765	
41	22.861	23.84	21.845		89	49.586	50.61	48.578		137	76.322	77.35	75.316	
42	23.418	24.40	22.418		90	50.144	51.16	49.144		138	76.879	77.91	75.879	
43	23.974	24.96	22.958		91	50.700	51.72	49.692		139	77.435	78.47	76.431	
44	24.531	25.52	23.531		92	51.257	52.28	50.257		140	77.992	79.02	76.992	
45	25.087	26.08	24.072		93	51.814	52.83	50.806		141	78.549	79.58	77.545	
46	25.644	26.63	24.644		94	52.371	53.39	51.371		142	79.106	80.14	78.106	
47	26.201	27.19	25.196		95	52.928	53.95	51.920		143	79.664	80.69	78.659	
48	26.757	27.75	25.757		96	53.485	54.51	52.485		144	80.220	81.25	79.220	
49	27.314	28.31	26.300		97	54.042	55.06	53.034		145	80.777	81.81	79.773	
50	27.871	28.87	26.871		98	54.599	55.62	53.599		146	81.334	82.37	80.334	
51	28.427	29.42	27.414		99	55.156	56.18	54.149		147	81.891	82.92	80.887	
52	28.984	29.98	27.984		100	55.713	56.74	54.713		148	82.448	83.48	81.448	
53	29.541	30.54	28.528		101	56.270	57.29	55.263		149	83.005	84.04	82.001	

Odd tooth "bottom diameters" equal pitch minus 1.000˝.

Sprocket Diameters – U.S.A. Std. No. 160 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.	No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.	No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	4.000	4.66	2.875		54	34.397	35.54	33.272		102	64.945	66.11	63.820	
7	4.610	5.35	3.369		55	35.033	36.18	33.894		103	65.582	66.75	64.449	
8	5.226	6.03	4.101		56	35.669	36.81	34.544		104	66.218	67.39	65.093	
9	5.848	6.70	4.634		57	36.306	37.45	35.167		105	66.855	68.03	65.722	
10	6.472	7.36	5.347		58	36.942	38.09	35.817		106	67.491	68.66	66.366	
11	7.099	8.01	5.902		59	37.578	38.73	36.440		107	68.128	69.30	66.995	
12	7.727	8.66	6.602		60	38.215	39.36	37.090		108	68.765	69.94	67.638	
13	8.357	9.31	7.171		61	38.851	40.00	37.713		109	69.401	70.57	68.268	
14	8.988	9.96	7.863		62	39.487	40.64	38.362		110	70.038	71.21	68.913	
15	9.620	10.61	8.442		63	40.124	41.27	38.986		111	70.674	71.85	69.541	
16	10.252	11.26	9.127		64	40.760	41.91	39.635		112	71.311	72.48	70.186	
17	10.885	11.90	9.713		65	41.396	42.55	40.259		113	71.948	73.12	71.815	
18	11.518	12.54	10.393		66	42.033	43.19	40.908		114	72.585	73.76	71.460	
19	12.151	13.19	10.985		67	42.669	43.82	41.532		115	73.221	74.39	72.089	
20	12.785	13.83	11.660		68	43.306	44.46	42.181		116	73.858	75.03	72.733	
21	13.419	14.47	12.256		69	43.942	45.10	42.805		117	74.494	75.67	73.362	
22	14.053	15.11	12.928		70	44.578	45.73	43.453		118	75.130	76.30	74.005	
23	14.688	15.75	13.528		71	45.215	46.37	44.078		119	75.767	76.94	74.635	
24	15.323	16.39	14.198		72	45.851	47.01	44.726		120	76.403	77.58	75.278	
25	15.958	17.03	14.801		73	46.488	47.64	45.352		121	77.039	78.21	75.908	
26	16.593	17.67	15.468		74	47.124	48.28	45.999		122	77.676	78.85	76.551	
27	17.228	18.31	16.073		75	47.760	48.92	46.625		123	78.313	79.49	77.181	
28	17.863	18.95	16.738		76	48.397	49.56	47.272		124	78.950	80.12	77.825	
29	18.498	19.59	17.346		77	49.033	50.19	47.898		125	79.587	80.76	78.455	
30	19.134	20.23	18.009		78	49.670	50.83	48.545		126	80.222	81.40	79.097	
31	19.769	20.87	18.619		79	50.306	51.47	49.171		127	80.859	82.03	79.728	
32	20.405	21.51	19.280		80	50.943	52.10	49.818		128	81.495	82.67	80.370	
33	21.040	22.15	19.892		81	51.579	52.74	50.444		129	82.132	83.31	81.001	
34	21.676	22.78	20.551		82	52.216	53.38	51.091		130	82.769	83.94	81.644	
35	22.312	23.42	21.164		83	52.852	54.01	51.717		131	83.405	84.58	82.274	
36	22.947	24.06	21.822		84	53.489	54.65	52.364		132	84.042	85.22	82.917	
37	23.583	24.70	22.437		85	54.125	55.29	52.991		133	84.678	85.85	83.547	
38	24.219	25.34	23.094		86	54.761	55.92	53.637		134	85.315	86.49	84.190	
39	24.855	25.98	23.710		87	55.398	56.56	54.264		135	85.951	87.13	84.821	
40	25.491	26.61	24.366		88	56.034	57.20	54.909		136	86.588	87.76	85.463	
41	26.127	27.25	24.983		89	56.671	57.84	55.538		137	87.225	88.40	86.094	
42	26.763	27.89	25.638		90	57.307	58.47	56.182		138	87.861	89.04	86.736	
43	27.399	28.53	26.256		91	57.944	59.11	56.810		139	88.498	89.68	87.367	
44	28.035	29.16	26.910		92	58.580	59.75	57.455		140	89.134	90.31	88.009	
45	28.671	29.80	27.529		93	59.216	60.38	58.083		141	89.771	90.95	88.640	
46	29.307	30.44	28.182		94	59.853	61.02	58.728		142	90.407	91.59	89.282	
47	29.943	31.08	28.802		95	60.489	61.66	59.356		143	91.044	92.22	89.913	
48	30.580	31.71	29.455		96	61.126	62.29	60.001		144	91.680	92.86	90.555	
49	31.216	32.35	30.075		97	61.762	62.93	60.629		145	92.317	93.50	91.187	
50	31.852	32.99	30.727		98	62.399	63.57	61.274		146	92.954	94.13	91.829	
51	32.488	33.63	31.348		99	63.035	64.20	61.903		147	93.590	94.77	92.460	
52	33.124	34.26	31.999		100	63.672	64.84	62.547		148	94.227	95.41	93.102	
53	33.761	34.90	32.621		101	64.309	65.48	63.176		149	94.863	96.04	93.733	

Odd tooth "bottom diameters" equal pitch minus

TECHNICAL SECTION

Sprocket Information

DIAMOND CHAIN COMPANY
317-638-6431
1-800-872-4246

Sprocket Diameters – U.S.A. Std. No. 180 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.	No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.	No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
5	3.828	4.45	2.235		45	32.255	33.53	30.830		85	60.891	62.20	59.474	
6	4.500	5.25	3.094		46	32.971	34.24	31.565		86	61.607	62.92	60.201	
7	5.186	6.02	3.650		47	33.686	34.96	32.262		87	62.323	63.63	60.907	
8	5.879	6.78	4.473		48	34.402	35.68	32.996		88	63.039	64.35	61.633	
9	6.579	7.53	5.073		49	35.118	36.40	33.694		89	63.755	65.07	62.339	
10	7.281	8.28	5.875		50	35.834	37.11	34.428		90	64.471	65.78	63.065	
11	7.986	9.01	6.499		51	36.549	37.83	35.126		91	65.187	66.50	63.771	
12	8.693	9.75	7.287		52	37.265	38.55	35.859		92	65.903	67.21	64.497	
13	9.402	10.48	7.927		53	37.981	39.27	36.558		93	66.619	67.93	65.203	
14	10.112	11.21	8.706		54	38.696	39.98	37.290		94	67.335	68.65	65.929	
15	10.822	11.93	9.357		55	39.412	40.70	37.990		95	68.051	69.36	66.636	
16	11.533	12.66	10.127		56	40.128	41.42	38.722		96	68.767	70.08	67.361	
17	12.245	13.39	10.787		57	40.844	42.13	39.422		97	69.483	70.80	68.068	
18	12.957	14.11	11.551		58	41.560	42.85	40.154		98	70.199	71.51	68.793	
19	13.670	14.83	12.217		59	42.276	43.57	40.855		99	70.916	72.23	69.501	
20	14.383	15.56	12.977		60	42.991	44.28	41.585		100	71.631	72.95	70.225	
21	15.096	16.28	13.648		61	43.707	45.00	42.287		101	72.348	73.66	70.933	
22	15.810	17.00	14.404		62	44.423	45.72	43.017		102	73.064	74.38	71.658	
23	16.524	17.72	15.079		63	45.139	46.43	43.719		103	73.780	75.10	72.365	
24	17.238	18.44	15.832		64	45.855	47.15	44.449		104	74.496	75.81	73.090	
25	17.952	19.16	16.511		65	46.571	47.87	45.151		105	75.212	76.53	73.798	
26	18.666	19.88	17.260		66	47.287	48.58	45.881		106	75.928	77.25	74.522	
27	19.381	20.60	17.942		67	48.003	49.30	46.584		107	76.644	77.96	75.230	
28	20.096	21.32	18.690		68	48.719	50.02	47.313		108	77.360	78.68	75.954	
29	20.810	22.04	19.374		69	49.435	50.73	48.016		109	78.076	79.39	76.662	
30	21.525	22.76	20.119		70	50.151	51.45	48.745		110	78.792	80.11	77.386	
31	22.240	23.48	20.806		71	50.867	52.17	49.448		111	79.508	80.83	78.095	
32	22.955	24.19	21.549		72	51.583	52.88	50.177		112	80.225	81.54	78.819	
33	23.670	24.91	22.237		73	52.299	53.60	50.880		113	80.941	82.26	79.527	
34	24.385	25.63	22.979		74	53.015	54.32	51.609		114	81.657	82.98	80.251	
35	25.101	26.35	23.669		75	53.730	55.03	52.313		115	82.373	83.69	80.959	
36	25.816	27.07	24.410		76	54.446	55.75	53.040		116	83.089	84.41	81.683	
37	26.531	27.79	25.101		77	55.162	56.47	53.745		117	83.805	85.12	82.392	
38	27.246	28.50	25.840		78	55.879	57.18	54.473		118	84.521	85.84	83.115	
39	27.962	29.22	26.533		79	56.594	57.90	55.177		119	85.237	86.56	83.824	
40	28.677	29.94	27.271		80	57.310	58.62	55.904		120	85.953	87.27	84.547	
41	29.393	30.66	27.965		81	58.027	59.33	56.610		121	86.670	87.99	85.256	
42	30.108	31.37	28.702		82	58.743	60.05	57.337		122	87.386	88.71	85.980	
43	30.824	32.09	29.397		83	59.459	60.77	58.042		123	88.102	89.42	86.689	
44	31.539	32.81	30.133		84	60.175	61.48	58.769		124	88.818	90.14	87.412	

Odd tooth "bottom diameters" equal pitch minus 1.406″.

Sprocket Diameters – U.S.A. Std. No. 200 Roller Chain

No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.	No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.	No. of Teeth	Pitch Diameter	Outside Diameter	Bottom Diam. for Even Teeth Caliper Diam. for Odd Teeth	Machining tolerances on bottom diameters and caliper diameters should be in the minus direction. Tolerances on outside diameters are not critical.
6	5.000	5.83	3.438		54	42.995	44.42	41.433		102	81.182	82.64	79.620	
7	5.762	6.69	4.055		55	43.792	45.22	42.212		103	81.977	83.44	80.406	
8	6.532	7.54	4.970		56	44.587	46.02	43.025		104	82.772	84.24	81.210	
9	7.310	8.37	5.637		57	45.382	46.81	43.802		105	83.567	85.03	81.996	
10	8.090	9.20	6.528		58	46.177	47.61	44.615		106	84.365	85.83	82.803	
11	8.872	10.02	7.219		59	46.972	48.41	45.393		107	85.160	86.62	83.589	
12	9.660	10.83	8.098		60	47.767	49.20	46.205		108	85.955	87.42	84.393	
13	10.447	11.64	8.808		61	48.565	50.00	46.987		109	86.752	88.22	85.181	
14	11.235	12.46	9.673		62	49.360	50.80	47.798		110	87.547	99.01	85.985	
15	12.025	13.26	10.397		63	50.155	51.59	48.577		111	88.342	89.81	86.771	
16	12.815	14.07	11.253		64	50.950	52.39	49.388		112	89.137	90.60	87.575	
17	13.605	14.87	11.985		65	51.745	53.19	50.168		113	89.935	91.40	88.364	
18	14.397	15.68	12.835		66	52.540	53.98	50.978		114	90.730	92.20	89.168	
19	15.190	16.48	13.576		67	53.337	54.78	51.760		115	91.525	92.99	89.954	
20	15.982	17.29	14.420		68	54.132	55.58	52.570		116	92.322	93.79	90.760	
21	16.775	18.09	15.166		69	54.927	56.37	53.351		117	93.117	94.58	91.547	
22	17.567	18.89	16.005		70	55.722	57.17	54.160		118	93.912	95.38	92.350	
23	18.360	19.69	16.755		71	56.517	57.96	54.941		119	94.707	96.18	93.137	
24	19.152	20.49	17.590		72	57.315	58.76	55.753		120	95.502	96.97	93.940	
25	19.947	21.29	18.346		73	58.110	59.56	56.535		121	96.297	97.77	94.727	
26	20.740	22.09	19.178		74	58.905	60.35	57.343		122	97.092	98.56	95.530	
27	21.535	22.89	19.937		75	59.700	61.15	58.125		123	97.890	99.36	96.320	
28	22.330	23.69	20.768		76	60.495	61.95	58.933		124	98.687	100.16	97.125	
29	23.122	24.49	21.526		77	61.292	62.74	59.717		125	99.482	100.95	97.909	
30	23.917	25.29	22.355		78	62.087	63.54	60.525		126	100.278	101.75	98.716	
31	24.712	26.09	23.118		79	62.882	64.33	61.308		127	101.074	102.54	99.504	
32	25.505	26.88	23.943		80	63.677	65.13	62.115		128	101.869	103.34	100.307	
33	26.300	27.68	24.708		81	64.475	65.93	62.901		129	102.665	104.14	101.095	
34	27.095	28.48	25.533		82	65.270	66.72	63.708		130	103.461	104.93	101.899	
35	27.890	29.28	26.300		83	66.065	67.52	64.491		131	104.257	105.73	102.687	
36	28.685	30.08	27.123		84	66.860	68.32	65.298		132	105.052	106.52	103.490	
37	29.480	30.87	27.891		85	67.657	69.11	66.083		133	105.848	107.32	104.278	
38	30.275	31.67	28.713		86	68.452	69.91	66.890		134	106.644	108.12	105.082	
39	31.070	32.47	29.483		87	69.247	70.70	67.674		135	107.439	108.91	105.870	
40	31.865	33.27	30.303		88	70.042	71.50	68.480		136	108.235	109.71	106.673	
41	32.660	34.06	31.074		89	70.837	72.30	69.264		137	109.031	110.50	107.461	
42	33.455	34.86	31.893		90	71.635	73.09	70.073		138	109.827	111.30	108.265	
43	34.250	35.66	32.665		91	72.430	73.89	70.857		139	110.622	112.10	109.053	
44	35.045	36.46	33.483		92	73.225	74.68	71.663		140	111.418	112.89	109.856	
45	35.840	37.25	34.256		93	74.020	75.48	72.447		141	112.214	113.69	110.644	
46	36.635	38.05	35.073		94	74.815	76.28	73.253		142	113.009	114.48	111.447	
47	37.430	38.85	35.847		95	75.612	77.07	74.040		143	113.805	115.28	112.236	
48	38.225	39.64	36.663		96	76.407	77.87	74.845		144	114.601	116.07	113.039	
49	39.020	40.44	37.438		97	77.202	78.66	75.626		145	115.396	116.87	113.827	
50	39.815	41.24	38.253		98	77.997	79.46	76.435		146	116.192	117.67	114.630	
51	40.610	42.03	39.029		99	78.795	80.26	77.223		147	116.988	118.46	115.419	
52	41.405	42.83	39.843		100	79.590	81.05	78.028		148	117.784	119.26	116.222	
53	42.200	43.63	40.619		101	80.385	81.85	78.813		149	118.579	120.05	117.010	

Odd tooth "bottom diameters" equal pitch minus 1.562″.