

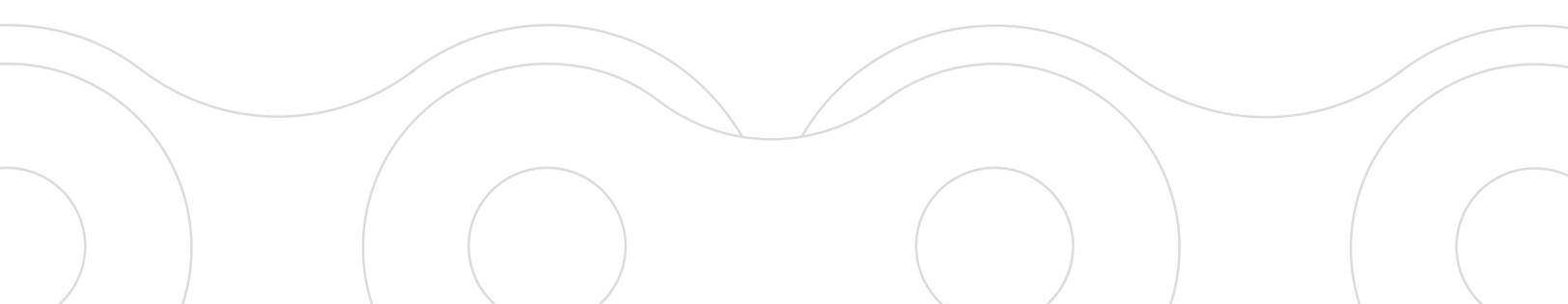


ATTACHMENT CHAIN GUIDE



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# NOTHING OUTLASTS A DIAMOND®



## CHAIN COMPONENTS

### SPRING CLIP CONNECTING LINK

Spring clip connecting links come packaged with slip-fit cover linkplates. The cover linkplate is held in place by a spring clip, split at one end to permit easy installation and removal. This style of connecting link is standard for up to ANSI 60 chains. Press-fit cover linkplates are also available and are recommended for heavy duty applications.



### RIVETED CONNECTING LINK

Riveted connecting links are available for all roller chain sizes. This connecting link is press-fit on the pins. Pins should be riveted or peened on the ends once the cover linkplate is in place.



### COTTERED CONNECTING LINK

This connecting link is available in either a press-fit or slip-fit construction and is standard on ANSI 80 and larger. Press-fit connecting links are recommended for heavy duty applications and press-fit cover linkplates are standard on multiple strand oil field chain.



### ROLLER LINK

Standard for all sizes of roller chain, these links are furnished as complete assemblies. The bushings are press fit into each of the linkplates.



### SINGLE-PITCH OFFSET LINK

This link is packaged unassembled with one slip-fit pin. One end of the connecting pin is milled flat to prevent the pin from turning in the linkplate.



### TWO-PITCH OFFSET LINK

*For Single Strand Chain Only*

This link is available for all sizes of single strand chain and consists of an offset link and roller link assembled together. This link's pin is press fit in the offset linkplates and is riveted for a secure fit. The press-fit construction of this assembly greatly increases its structural rigidity, reliability, and durability. For these reasons, the two-pitch offset assembly is recommended over a single-pitch offset link.



### Did You Know?

*Spring clips should be installed with the closed (solid) end facing toward the direction of chain travel.*

**SINGLE PITCH**

**DOUBLE PITCH**

Product Image	Product Description		Tsubaki	Renold	Drives	Product Image	Product Description		Tsubaki	Renold	Drives
	Bent <b>Pin Link</b> Plate one side - one hole	B-1 one hole	A-1	A-1	BA-1		Bent <b>Pin Link</b> Plate one side - one hole	B-1 one hole	A-1	A-1	BA-1
	Bent <b>Roller Link</b> Plate one side - one hole	B-1 one hole	A-1	A-1	BA-1		Bent <b>Roller Link</b> Plate one side - one hole	B-1 one hole	A-1	A-1	BA-1
	Bent <b>Roller Link</b> Plate two sides - one hole	B-2 one hole	K-1	K-1	BK-1		Bent <b>Pin Link</b> Plate one side - two holes	B-1 two holes	A-2	A-2	BA-2
	Bent <b>Pin Link</b> Plate two sides - one hole	B-2 one hole	K-1	K-1	BK-1		Bent <b>Roller Link</b> Plate one side - two holes	B-1 two holes	A-2	A-2	BA-2
	Wide Contour Bent <b>Pin Link</b> Plate one side - one hole	WC B-1 one hole	WA-1	WA-1	WBA-1		Bent <b>Pin Link</b> Plate two sides - one hole	B-2 one hole	K-1	K-2	BK-1
	Wide Contour Bent <b>Pin Link</b> Plate one side - two holes	WC B-1 two holes	WA-2	WA-2	WBA-2		Bent <b>Roller Link</b> Plate one side - one hole (oversized roller)	B-1 one hole	A-1	A-1	BA-1
	Wide Contour Bent <b>Pin Link</b> Plate two sides - one hole	WC B-2 one hole	WK-1	WK-1	WBK-1		Bent <b>Roller Link</b> Plate one side - two holes (oversized roller)	B-1 two holes	A-2	A-2	BA-2
	Wide Contour Bent <b>Pin Link</b> Plate two sides - two holes	WC B-2 two holes	WK-2	WK-2	WBK-2		Bent <b>Roller Link</b> Plate two sides - one hole (oversized roller)	B-2 one hole	K-1	K-1	BK-1
	Straight <b>Pin Link</b> Plate one side - one hole	S-1 one hole	SA-1	M-35	SA-1		Bent <b>Roller Link</b> Plate two sides - two holes (oversized roller)	B-2 two holes	K-2	K-2	BK-2
	Straight <b>Roller Link</b> Plate one side - one hole	S-1 one hole	SA-1	M-35	SA-1		Bent <b>Roller Link</b> Plate two sides - one hole	B-2 one hole	K-1	K-1	BK-1
	Straight <b>Pin Link</b> Plate two sides - one hole	S-2 one hole	SK-1	M-1	SK-1		Bent <b>Pin Link</b> Plate two sides - two holes	B-2 two holes	K-2	K-2	BK-2
	Straight <b>Roller Link</b> Plate two sides - one hole	S-2 one hole	SK-1	M-1	SK-1		Bent <b>Roller Link</b> Plate two sides - two holes	B-2 two holes	K-2	K-2	BK-2
	Wide Contour Straight <b>Pin Link</b> Plate one side - one hole	WC S-1 one hole	WSA-1	WM-35	WSA-1		Straight <b>Pin Link</b> Plate one side - one hole	S-1 one hole	SA-1	M-35	SA-1
	Wide Contour Straight <b>Pin Link</b> Plate one side - two holes	WC S-1 two holes	WSA-2	WM-35-2	WSA-2		Straight <b>Roller Link</b> Plate one side - one hole	S-1 one hole	SA-1	M-35	SA-1
	Wide Contour Straight <b>Pin Link</b> Plate two sides - one hole	WC S-2 one hole	WSK-1	WM-1	WSK-1		Straight <b>Pin Link</b> Plate one side - two holes	S-1 two holes	SA-2	M-35-2	SA-2
	Wide Contour Straight <b>Pin Link</b> Plate two sides - two holes	WC S-2 two holes	WSK-2	WM-2	WSK-2		Straight <b>Roller Link</b> Plate one side - two holes	S-1 two holes	SA-2	M-35-2	SA-2
	Wide Contour Straight <b>Roller Link</b> Plate two sides - two holes	WC S-2 two holes	WSK-2	WM-2	WSK-2		Straight <b>Roller Link</b> Plate one side - one hole (oversized roller)	S-1 one hole	SA-1	M-35	SA-1
	Wide Contour Straight <b>Roller Link</b> Plate one side - two holes	WC S-1 two holes	WSA-2	WM35-2	WSA-2		Straight <b>Pin Link</b> Plate two sides - one hole	S-2 one hole	SK-1	M-1	SK-1
	Wide Contour Bent <b>Roller Link</b> Plate one side - two holes	WC B-1 two holes	WA-2	WA-2	WBA-2		Straight <b>Pin Link</b> Plate two sides - two holes	S-2 two holes	SK-2	M-2	SK-2
	Double Bent <b>Pin Link</b> Plate one side - one hole	DB - 1 one hole	AA-1	—	BAA-1		Straight <b>Roller Link</b> Plate two sides - two holes	S-2 two holes	SK-2	M-2	SK-2
	Double Bent <b>Pin Link</b> Plate two sides - one hole	DB - 2 one hole	KK-1	—	BKK-1		Straight <b>Roller Link</b> Plate two sides - one hole (oversized roller)	S-2 one hole	SK-1	M-1	SK-1
	Double Straight <b>Pin Link</b> Plate one side - one hole	DS - 1 one hole	SAA-1	—	SAA-1		Straight <b>Roller Link</b> Plate two sides - two holes (oversized roller)	S-2 two holes	SK-2	M-2	SK-2
	Double Straight <b>Pin Link</b> Plate two sides - one hole	DS - 2 one hole	SKK-1	—	SKK-1		Straight <b>Roller Link</b> Plate one side - two holes (oversized roller)	S-1 two holes	SA-2	M-35-2	SA-2
	One Pin Extended	E-1	D-1	D-1	D-1		One Pin Extended	E-1	D-1	D-1	D-1
	Two Pins Extended	E-2	D-3	D-3	D-3		Two Pins Extended	E-2	D-3	D-3	D-3

## ORDERING ATTACHMENT CHAIN

When ordering roller chain, include information on chain size, length of chain or number of pitches, and construction style – riveted or cottered. For multiple strand chain, the construction must be specified – press-fit or slip-fit construction. When ordering attachment chain, attachment and attachment spacing must be specified.

**NOTE: All chains are furnished with connecting links unassembled unless otherwise specified.**

The following are examples of configurations in which chains can be supplied.

<p>You should always specify which material/finish should be used in the design of your chain - carbon steel, nickel plated, ACE, or stainless steel. Stainless steel is available in four different substrates - AP, 300, 400, and 600.</p>	
<p>Chain size should be specified at the beginning of your order. Attachment chains are available from size ANSI 25 - ANSI 160.</p>	
<p>Please refer to the attachment cross reference page to determine which attachment type will work best for you. When specifying attachment type it is always necessary to specifying attachment spacing.</p>	
<p>When ordering multiple identical chains you should specify the number of chains required for the set. You should also specify if length matching class I or class II is preferred. Please see page 7 for more information.</p>	
<p>The length of a chain should be given in number of pitches. The connecting link should be included in this number. Typically this would be an even number.</p>	
<p>When an odd number of pitches are required for an endless length, indicate whether a single-pitch offset or two-pitch offset link is needed.</p>	
<p>When chain requires two connecting links to attach the ends to other pieces of equipment, the chain should be ordered as "x" number of pitches including connecting link each end.</p>	
<p>If the chain does not require connecting links, it may be specified as "x" pitches long roller link each end. Odd number pitch lengths are typical, even number pitch lengths would require an offset link.</p>	
<p>Chain may be ordered as "x" pitches endless. Indicate whether they are to be riveted endless (permanent connection), or connected with a connecting link (detachable).</p> <p>Chain length should always be the complete length, including any connecting or offset links required. If anything other than a connecting link is required, please specify.</p>	

**Note: Please refer to page 22 for attachment chain order request sheets.**

## STANDARD ATTACHMENT ROLLER CHAIN

### STANDARD ATTACHMENTS:

Diamond Chain stocks over 100 standard roller chain attachments for single pitch chain including bent plate, straight plate, and extended pins. An infinite number of custom-made attachment configurations are available, contact your Diamond representative for more information.

### EXTENDED PINS:

Extended pins, made from medium carbon steel, are specially heat treated for ductility and toughness and can be easily assembled at virtually any spacing. It is important to note that if pairs of extended pins are specified, it is suggested they be located in a common pin link. In some applications, this may require the use of an offset in the cycle.

Diamond does not recommend using “shouldered pins.” They can compromise quality due to high stress concentrations at the point where diameters change. Additions of sleeves or bearings on the extended pins will often yield a more dependable design.

### ATTACHMENT HOLE SIZES:

Diamond’s attachment hole sizes are designed to accommodate most common screw sizes. If your application requires a different attachment hole size than shown here, please contact Diamond for assistance at 1-800-872-4246.

Dimensions in Inches

Chain Size	Hole Diameter	Screw Size	Screw Diameter
25	0.125	#3	0.099
35	0.102	#2	0.086
40	0.141	#5	0.125
41	0.141	#5	0.125
50	0.203	#10	0.190
60	0.203	#10	0.190
80	0.266	1/4	0.250
100	0.343	5/16	0.312
120	0.386	3/8	0.375
140	0.448	7/16	0.438
160	0.516	1/2	0.500
C2040	0.141	#5	0.125
C2050	0.203	#10	0.190
C2060H	0.203	#10	0.190
C2080H	0.266	1/4	0.250
C2100H	0.328	5/16	0.312
C2120H	0.391	3/8	0.375
C2160H	0.516	1/2	0.500

## PARALLEL ATTACHMENT CHAIN OPERATIONS

### MANUFACTURING LENGTH TOLERANCE

ASME/ANSI defines the permissible length of an assembled section of roller chain. The allowable length tolerances depend on the chain’s construction, i.e. with or without attachments.

Chain length must be the nominal length +0.15% / -0%

For chains with attachments, chain length must be the nominal length +0.30% / -0%

### EXAMPLE:

The assembled length tolerance for an ASME/ANSI 1 inch pitch chain (ANSI 80)

- Without attachments, tolerance is +.016”/-.000” per foot
- With attachments, tolerance expands to +.032”/-.000” per foot

This means that a section of 80 chain 12 pitches long (12” nominal) can measure as long as 12.016” but no less than 12.000”. The same section of chain assembled with bent, straight, or extended pin attachments could measure as long as 12.032” but again, no less than 12.000”.

Commonly, manufacturers strive to produce chain nearer to the nominal figure but the maximum allowable overall length tolerance should always be considered when designing for take-ups and catenary chain sag. If the application requires, some design/assembly steps can be taken to direct the length of the chain toward the nominal. However, on a routine basis, machine designs based on a nominal or specified chain length should be avoided.

### LENGTH MATCHING OF ROLLER CHAINS

Many applications require two or more chains, normally with attachments, to run in parallel “flights” joining the chains together forming a conveyor or transfer type system. In these cases it is critical to have the chains ordered as a set, matched for length and installed on the machinery with the same relationship to one another as when they were manufactured. Diamond offers two degrees of matching for parallel operation: Class I and Class II.

*Class I—A Class I match assures that the longest and the shortest chain in a given set will not vary in overall length by more than .006”/ft. Using ANSI 80 chain as an example, the length of two 120 pitch long chains which are Class I matched will not vary by more than .060” in overall length (10 ft. x .006”/ft. = .060”). So in this example the difference between the longest and the shortest chain in the matched set is no more than .060”. Class I matching is most often accomplished by assembling the chains from selected lots of component parts.*

*Class II—A Class II match is much more stringent and assures that the longest and the shortest chain in a given set will not vary in overall length by more than .002”. Applying this new tolerance to the above example, the lengths of two ANSI 80 chains 120 pitches long will not vary in overall length by more than .020”/ft. (10 ft. x .002”/ft. = .020”). Class II matching is quite difficult and requires some very unique procedures.*

**DIFFERENCES**— It is important to remember that matched chains must still meet the overall chain length limitations imposed by either ASME/ANSI 606 or the manufacturer, whichever is more stringent. Matching **does not** assure the user of chains with a finite overall length, only that the chains in the matched set have a controlled relationship to one another.

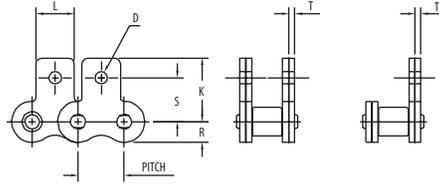
*Note: Length matching is available upon request.*

# ANSI STRAIGHT ATTACHMENTS

## STANDARD STRAIGHT ATTACHMENT CHAIN

Dimensions inches

Others	Diamond
M-35, SA1	S1 (one hole)
M-1, SK1	S2 (one hole)



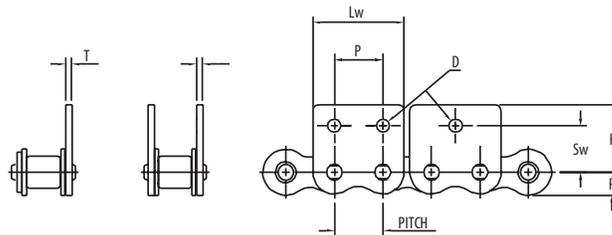
ASME/ANSI Number	Pitch Inches	D	K	L	R Max.	S	T
25	.250	.125	.451	.218	.119	.308	.030
35	.375	.102	.577	.312	.178	.387	.050
40	.500	.141	.684	.375	.238	.489	.060
41	.500	.141	.698	.375	.192	.482	.050
50	.625	.203	.895	.500	.297	.618	.080
60	.750	.203	1.038	.625	.356	.716	.094
80	1.000	.266	1.339	.750	.475	.968	.125
100	1.250	.343	1.696	1.000	.594	1.233	.156
120	1.500	.386	2.024	1.125	.713	1.424	.187
140	1.750	.448	2.445	1.375	.831	1.750	.220
160	2.000	.516	2.756	1.500	.950	2.007	.250

NOTE: Above attachments available for multiple strand chain.

## ASME/ANSI WIDE CONTOUR STRAIGHT

Dimensions inches

Others	Diamond	Others	Diamond
WM-35	WCS1 (one hole)	WM-1	WCS2 (one hole)
WM-35-2	WCS1 (two holes)	WM-2	WCS2 (two holes)



ASME/ANSI Number	Pitch Inches	D	K	Lw	P	R Max.	Sw	T	W	X
35	.375	.125	.577	.727	.375	.178	.399	.050	1.105	.750
40	.500	.141	.684	.946	.500	.238	.503	.060	1.366	1.000
41	.500	.141	.698	.878	.500	.192	.482	.050	1.372	.937
50	.625	.203	.895	1.211	.625	.297	.618	.080	1.807	1.250
60	.750	.203	1.038	1.420	.750	.356	.716	.094	2.135	1.500
80	1.000	.266	1.339	1.885	1.000	.475	.967	.125	2.750	2.000
100	1.250	.343	1.696	2.362	1.250	.594	1.233	.156	3.408	2.500
120	1.500	.386	2.023	2.836	1.500	.713	1.424	.187	4.239	2.995

NOTE: Attachments available on pin link plate only.

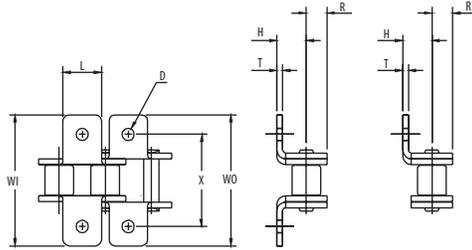
Contact Diamond Chain for available attachments on roller links (wide contour).  
Above attachments available for multiple strand chain.

# ANSI BENT ATTACHMENTS

## STANDARD BENT ATTACHMENT CHAIN

Dimensions inches

Others	Diamond
A1	B1 (one hole)
K1	B2 (one hole)



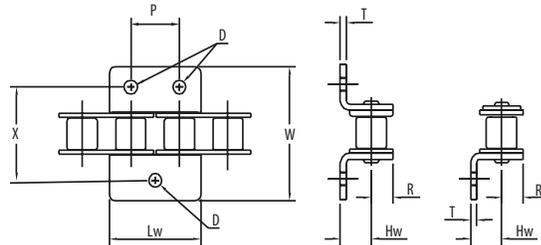
ASME/ANSI Number	Pitch Inches	D	H	L	R Max.	T	WI	WO	X
25	.250	.125	.180	.218	.119	.030	.781	.843	.562
35	.375	.102	.250	.312	.178	.050	1.125	1.125	.750
40	.500	.141	.312	.375	.238	.060	1.390	1.390	1.000
41	.500	.141	.282	.375	.192	.050	1.375	1.375	.937
50	.625	.203	.406	.500	.297	.080	1.812	1.812	1.250
60	.750	.203	.478	.625	.356	.094	2.135	2.135	1.500
80	1.000	.266	.625	.750	.475	.125	2.750	2.750	2.000
100	1.250	.343	.784	1.000	.594	.156	3.077	3.406	2.500
120	1.500	.386	.917	1.125	.713	.187	3.841	4.239	2.995
140	1.750	.448	1.127	1.375	.831	.220	4.361	4.826	3.500
160	2.000	.516	1.250	1.500	.950	.250	5.078	5.609	4.000

NOTE: Above attachments available for multiple strand chain.

## ASME/ANSI WIDE CONTOUR BENT

Dimensions inches

Others	Diamond	Others	Diamond
W A-1	WCB1 (one hole)	WK-1	WCB2 (one hole)
W A-2, A2	WCB1 (two holes)	WK-2, K2	WCB2 (two holes)



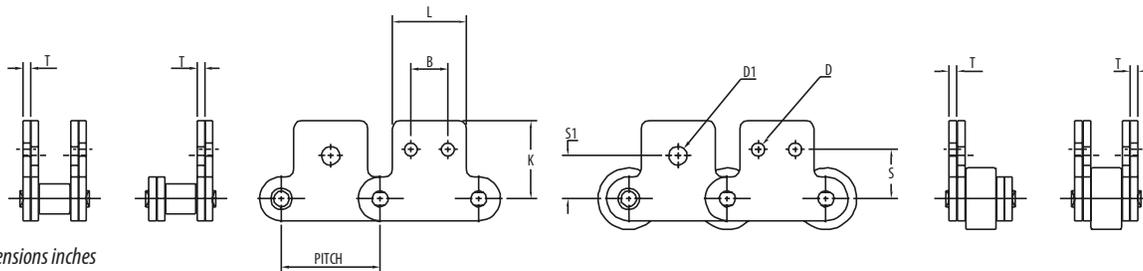
ASME/ANSI Number	Pitch Inches	D	Hw	Lw	P	R Max.	T	W	X
35	.375	.125	.262	.727	.375	.178	.050	1.105	.750
40	.500	.141	.326	.946	.500	.238	.060	1.366	1.000
41	.500	.141	.282	.878	.500	.192	.050	1.372	.937
50	.625	.203	.406	1.211	.625	.297	.080	1.807	1.250
60	.750	.203	.478	1.420	.750	.356	.094	2.135	1.500
80	1.000	.266	.625	1.885	1.000	.475	.125	2.750	2.000
100	1.250	.343	.784	2.362	1.250	.594	.156	3.408	2.500
120	1.500	.386	.917	2.836	1.500	.713	.187	4.239	2.995

NOTE: Attachments available on pin link plate only.

Contact Diamond Chain for available attachments on roller links (wide contour).  
Above attachments available for multiple strand chain.

# ANSI DOUBLE-PITCH STRAIGHT ATTACHMENTS AND OVERSIZE ROLLERS

## ASME/ANSI DOUBLE-PITCH STRAIGHT ATTACHMENTS OVAL CONTOUR LINK PLATES STANDARD



Dimensions inches

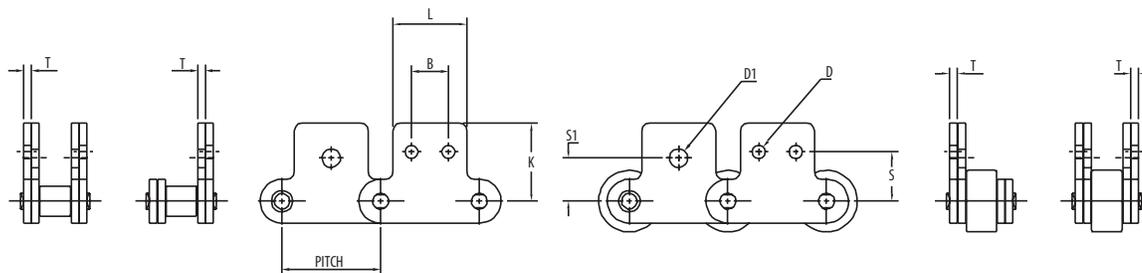
Others	Diamond
M-35, SA1	S1 (one hole)
M-35-2, SA2	S1 (two holes)

Others	Diamond
M-1, SK1	S2 (one hole)
M-2, SK2	S2 (two holes)

ASME/ANSI Number	Roller Diameter	Pitch Inches	With Two Attachment Holes			K	L	T	With One Attachment Hole	
			B	D	S				D1	S1
C2040	.312	1.00	.375	.141	.531	.773	.750	.060	.188	.438
C2050	.400	1.25	.469	.203	.625	.971	.937	.080	.250	.563
C2060H	.469	1.50	.562	.203	.750	1.203	1.125	.125	.329	.688
C2080H	.625	2.00	.750	.266	1.000	1.590	1.500	.156	.375	.875
C2100H	.750	2.50	.937	.328	1.250	1.982	1.875	.187	.516	1.125
C2120H	.875	3.00	1.125	.391	1.469	2.367	2.250	.219	.563	1.312
C2160H	1.125	4.00	1.500	.516	2.000	3.090	3.000	.281	.750	1.750

NOTE: Two attachment holes stock. One attachment hole Made-To-Order.

## ASME/ANSI DOUBLE-PITCH STRAIGHT ATTACHMENTS OVAL CONTOUR LINK PLATES OVERSIZED ROLLER



Dimensions inches

Others	Diamond
M-35, SA1	S1 (one hole)
M-35-2, SA2	S1 (two holes)

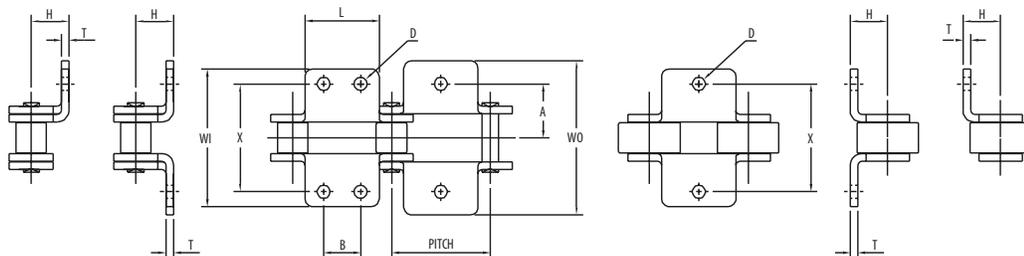
Others	Diamond
M-1, SK1	S2 (one hole)
M-2, SK2	S2 (two holes)

ASME/ANSI Number	Roller Diameter	Pitch Inches	With Two Attachment Holes			K	L	T	With One Attachment Hole	
			B	D	S				D1	S1
C-2042	.625	1.00	.375	.141	.531	.773	.750	.060	.188	.438
C-2052	.750	1.25	.469	.203	.625	.971	.937	.080	.250	.563
C-2062H	.875	1.50	.562	.203	.750	1.203	1.125	.125	.329	.688
C-2082H	1.125	2.00	.750	.266	1.000	1.590	1.500	.156	.375	.875
C-2102H	1.562	2.50	.937	.328	1.250	1.982	1.875	.187	.516	1.125
C-2122H	1.750	3.00	1.125	.391	1.469	2.367	2.250	.219	.563	1.312
C-2162H	2.250	4.00	1.500	.516	2.000	3.090	3.000	.281	.750	1.750

NOTE: Two attachment holes stock. One attachment hole Made-To-Order.

# ANSI DOUBLE-PITCH BENT ATTACHMENTS AND OVERSIZE ROLLERS

## ASME/ANSI DOUBLE-PITCH BENT ATTACHMENTS OVAL CONTOUR LINK PLATES STANDARD



Dimensions Inches

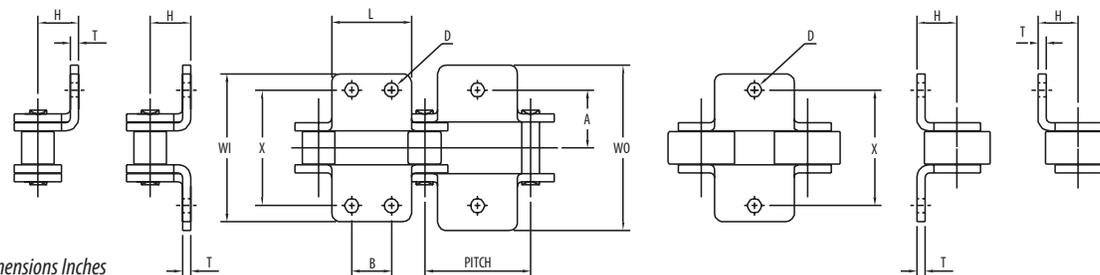
Others	Diamond
A1	B1 (one hole)
A2	B1 (two holes)

Others	Diamond
K1	B2 (one hole)
K2	B2 (two holes)

ASME/ANSI Number	Roller Diameter	Pitch Inches	A	B	D	H	L	T	WI	WO	X
C2040	.312	1.00	.500	.375	.141	.359	.750	.060	1.350	1.483	1.000
C2050	.400	1.25	.625	.469	.203	.453	.937	.080	1.692	1.863	1.250
C2060H	.469	1.50	.844	.562	.203	.578	1.125	.125	2.171	2.446	1.688
C2080H	.625	2.00	1.094	.750	.266	.766	1.500	.156	2.792	3.125	2.188
C2100H	.750	2.50	1.312	.937	.328	.922	1.875	.187	3.554	3.951	2.625
C2120H	.875	3.00	1.562	1.125	.391	1.095	2.250	.219	4.318	4.782	3.125
C2160H	1.125	4.00	2.063	1.500	.516	1.438	3.000	.281	5.520	6.116	4.125

NOTE: Two attachment holes stock. One attachment hole Made-To-Order.

## ASME/ANSI DOUBLE-PITCH BENT ATTACHMENTS OVAL CONTOUR LINK PLATES OVERSIZED ROLLER



Dimensions Inches

Others	Diamond
A1	B1 (one hole)
A2	B1 (two holes)

Others	Diamond
K1	B2 (one hole)
K2	B2 (two holes)

ASME/ANSI Number	Roller Diameter	Pitch Inches	A	B	D	H	L	T	WI	WO	X
C-2042	.625	1.00	.500	.375	.141	.359	.750	.060	1.350	1.483	1.000
C-2052	.750	1.25	.625	.469	.203	.453	.937	.080	1.692	1.863	1.250
C-2062H	.875	1.50	.844	.562	.203	.578	1.125	.125	2.171	2.446	1.688
C-2082H	1.125	2.00	1.094	.750	.266	.766	1.500	.156	2.792	3.125	2.188
C-2102H	1.562	2.50	1.312	.937	.328	.922	1.875	.187	3.554	3.951	2.625
C-2122H	1.750	3.00	1.562	1.125	.391	1.095	2.250	.219	4.318	4.782	3.125
C-2162H	2.250	4.00	2.063	1.500	.516	1.438	3.000	.281	5.520	6.116	4.125

NOTE: Two attachment holes stock. One attachment hole Made-To-Order.

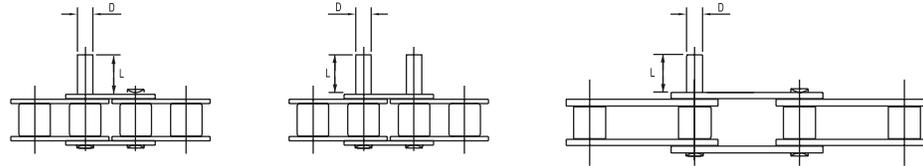
# ANSI EXTENDED PIN ATTACHMENTS

## ASME/ANSI STANDARD EXTENDED PIN SERIES CHAINS DOUBLE-PITCH CONVEYOR CHAIN

### EXTENDED PIN DIMENSIONS

Dimensions in inches

Others	Diamond
D1	E1 (one extended pin)
D3	E2 (two extended pins)



ASME/ANSI #	Pitch inches	D ±.0005" inches	L ±.010" inches
35	.375	.141	.375
40			
41	.500	.141	.375
50			
60	.750	.234	.562
80			
100	1.25	.375	.937
120			
140	1.75	.500	1.312
160			

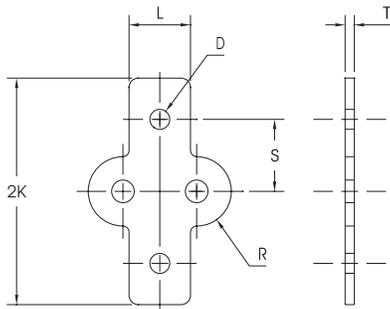
ASME/ANSI #	Pitch Inches	D ±.0005"	L ±.010"
C-2040, C-2042	1.00	.156	.375
C-2050, C-2052	1.25	.200	.468
C-2060H, C-2062H	1.50	.234	.562
C-2080H, C-2082H	2.00	.312	.750
C-2100H, C-2102H	2.50	.375	.937
C-2120H, C-2122H	3.00	.437	1.125
C-2160H, C-2162H	4.00	.562	1.500

NOTE: These attachments are available in additional materials. Stainless steel is available in sizes up to ANSI 80.

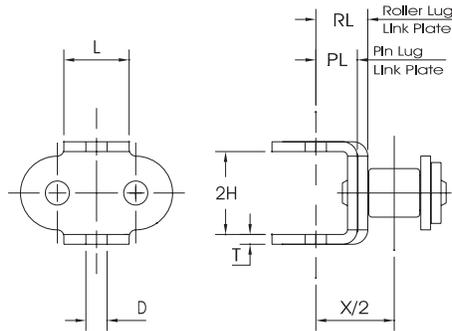
Contact Diamond Chain for more information at +44-191-414-8822.

## SPECIALTY/MADE TO ORDER ATTACHMENTS

Double straight legs



Double bent legs



Dimensions inches

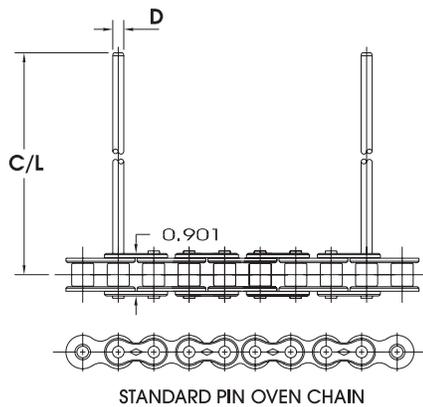
ASME/ANSI #	Pitch D Inches	2	H	2K	L	PL	RL	R	S	T	X/2
40	1/2	.133	.524	1.567	.375	.219	.281	.236	.502	.060	.500
41	1/2	.133	.453	1.478	.375	.237	.291	.189	.476	.050	.469
50	5/8	.164	.660	1.962	.500	.268	.354	.293	.626	.080	.625
60	3/4	.203	.794	2.306	.625	.303	.401	.353	.733	.094	.750
80	1	.257	1.016	3.142	.750	.424	.556	.445	.991	.123	1.000
100	1 1/4	.320	1.265	3.905	1.000	.545	.710	.556	1.248	.156	1.250

Consult Diamond Chain for extended pitch chain, double straight and double bent attachment availability.

## PIN OVEN CHAIN

Diamond pin oven chains are built with Diamond standard series 60 pitch ANSI chain and are available with bendable, breakaway, or stainless steel carrier pins. Diamond pin oven chains are designed with carrier pins that are the actual chain pins, not an attachment, to improve the strength and integrity of the chain, and increase the overall life span of the chain.

- **Bendable Pins:** Through-hardened medium carbon extended carrier pins are manufactured to produce a tough, ductile pin that is capable of withstanding incidental contact from jams or interference with machine framework. These pins are designed to be easily hand straightened back to their original position.
- **Breakaway Pins:** Case-hardened, low carbon extended carrier pins are manufactured to break off from incidental contact with jammed product, the machine frame, or other obstacles due to misalignment.

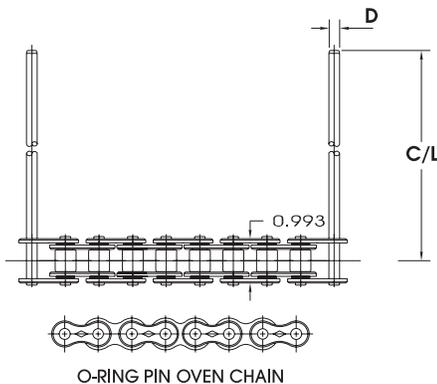
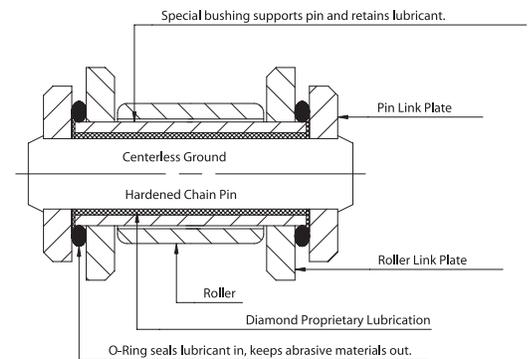


ASME/ANSI Number	Pitch Inches	Roller Width	Roller Diameter	Pin Diameter	Link Plate Thickness	C	R	CL	Pounds Per Foot	Average Tensile Strength
60	3/4 (19.05mm)	1/2 (12.70mm)	.469 (11.91mm)	.234 (6.94mm)	.094 (29.72mm)	1.11 (27.69mm)	1.04 (27.69mm)	....	.990	8500

C/L dimension will depend upon tip and pin extension selected.

## RING LEADER® O-RING PIN OVEN CHAIN

Diamond RING LEADER pin oven chains are built with Diamond Chain's O-Ring technology to seal lubricant in and keep contaminants out at operating temperatures up to 450° F /232° C. RING LEADER pin oven chain can be provided with bendable, breakaway, or stainless steel carrier pins.

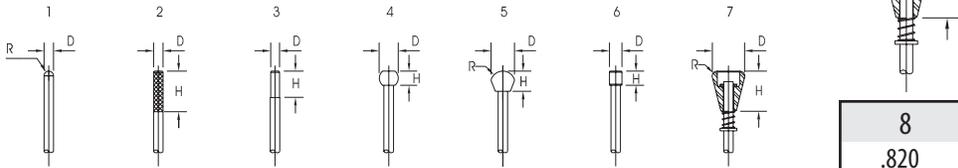


Diamond Number	Pitch Inches	Roller Width	Roller Diamete	Pin Diameter	Link Plate Thickness	C	R	C/L	Weight lbs/ft (kg/m)	Average Tensile Strength
50XLO	5/8 (19.53mm)	3/8 (9.53mm)	.400 (10.16mm)	.200 (5.08mm)	.080 (2.032mm)	.95 (24.13mm)	.89 (22.61mm)	....	.72 (1.07kg/m)	6500
60XLO	3/4 (19.05mm)	1/2 (12.70mm)	.469 (11.91mm)	.234 (6.94mm)	.094 (29.72mm)	1.17 (29.72mm)	1.04 (27.69mm)	....	1.01 (1.50kg/m)	7700

C/L dimension will depend upon tip and pin extension selected.

## PIN OVEN CHAIN TIP ASSORTMENT

Diamond Chain produces over fifty different tips and pin extensions for use with pin oven chain. These tips are available in a variety of materials including steel, aluminum, heat stabilized nylon and Diamond Chain's proprietary high temperature PEEK™ which is designed to withstand higher temperatures without drying, cracking, or wearing out. The following are the most common tips, additional tip and pin extension information can be found by contacting the Diamond Chain Company at 1-800-872-4246.



	1	2	3	4	5	6	7
<b>D</b>	.234 (5.94mm)	.247 (6.27mm)	.215 (5.46mm)	.468 (11.89mm)	.575 (14.61mm)	.352 (8.94mm)	.875 (22.23mm)
<b>H</b>	N/A	1.000 (25.40mm)	.650 (16.51mm)	.350 (8.89mm)	.472 (11.99mm)	.350 (8.89mm)	1.000 (25.40mm)
<b>R</b>	.117 (2.97mm)	N/A	N/A	N/A	.300 (7.62mm)	N/A	45 deg.

**8**

.820  
(20.83mm)

1.000  
(25.40mm)

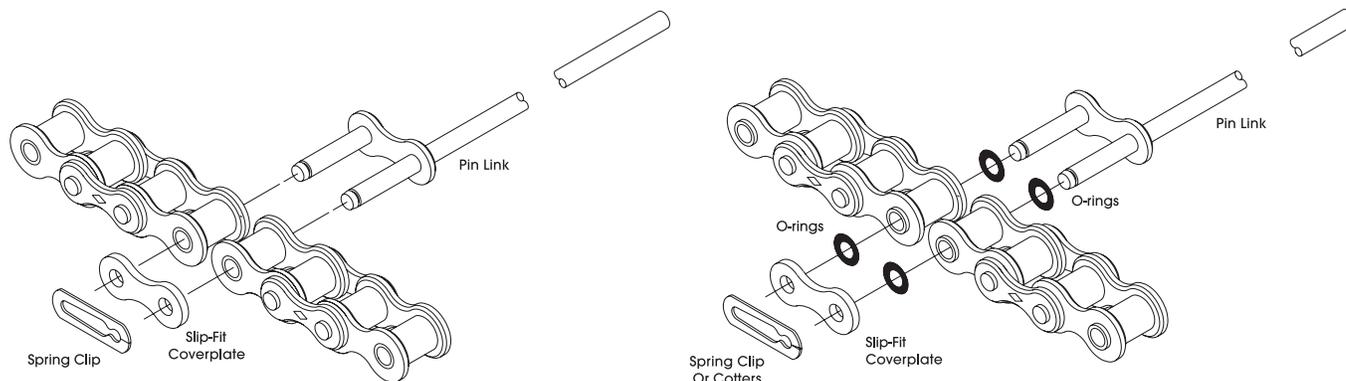
.125  
(3.18mm)

Features Diamond Chains  
PEEK\* Tip

Tips 1-7 are made to order. Tip 8 is in stock.

## PIN OVEN PIN REPLACEMENT

Diamond pin oven chains are designed without the swaged pin heading so that if a link should need to be repaired, it can be done quickly and easily without grinding pins. Start by removing the air pressure in the tension device and clamp the chain in place. Use a pin extractor to remove the pin link and replace with a repair link. The chain is then ready to resume production.



## ORDERING INSTRUCTIONS

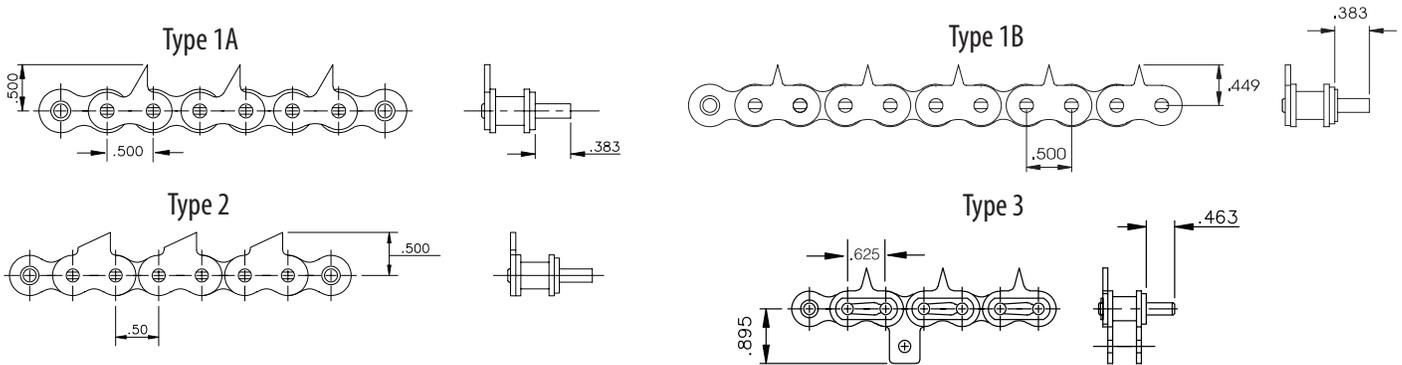
**Ordering Instructions:** Use the above drawing showing available tips and specify whether Standard or RING LEADER base chain is desired, type of pin material (bendable, breakable or stainless), type of tip configuration and the extension from the **centerline** of the chain to the end of the pin including the tip.

\*PEEK is a trademark of Amoco Performance Products, Inc.

## SPECIALTY APPLICATION CHAIN

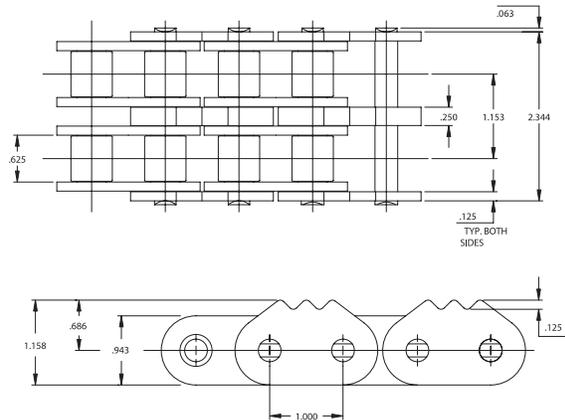
### PLASTIC FILM FEEDER CHAIN

These special chains are designed for thermoforming applications and unusual conveying applications such as creating polystyrene plates, shrink wrap, blister packs and many other plastic items. The chain features precise, pointed link plates combined with extended pins or straight attachments (for additional rigidity in operation) which make them ideal for conveying plastic film into thermoforming operations. Several models are available for your conveying needs.

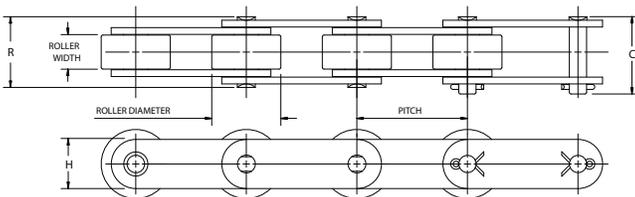


### SERRATED TOP CHAIN

Serrated top chains are designed for lumber industry applications such as edge finishing. This chain features specially designed link plates to maximize grip while minimizing wood damage. When lubricated properly, Diamond Serrated Top chain offers superior performance, longer service life and reduced downtime due to elongation and fatigue failures. Serrated Top chain 80-2 is stocked and offers features such as double thickness serrated top centerplates for shock loading advantages and superior chain lubricant for smoother running and tracking. Single and other multiple strand versions may be ordered to meet your conveying needs. Our engineering staff can help determine the Diamond chain that best suits your operating conditions.



### DOUBLE-PITCH ROLLER CHAIN



### OVERSIZED DIAMETER ROLLER

Dimensions inches

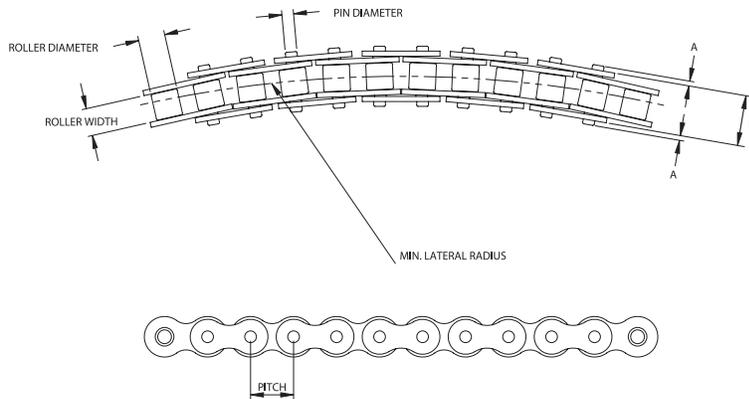
ANSI Number	Pitch Inches	Roller Width	Roller Diameter	Pin Diameter	Link Plate Thickness	C	R	Weight per foot	Minimum Tensile Strength
C2042	1	5/16	.625	.156	.060	.76	.68	.50	3125
C2052	1 1/4	3/8	.750	.200	.080	.92	.84	.81	4880
C2062H	1 1/2	1/2	.875	.234	.125	1.25	1.18	1.42	7030

# SPECIAL APPLICATION CHAIN

## Straight Running and Side-Flexing Roller Chain

Base chains are designed with special extended pins to retain plastic “snap on” flat top plates. Diamond offers chains for both straight running and side-flexing applications. These chains can be used with standard ASME/ANSI 40 and ASME/ANSI 60 sprockets. Chains are available both in carbon steel and stainless steel material.

### #43 SB AND #63 SB SIDE-FLEXING ROLLER CHAIN FOR PLASTIC “SNAP ON” FLAT TOP CHAINS

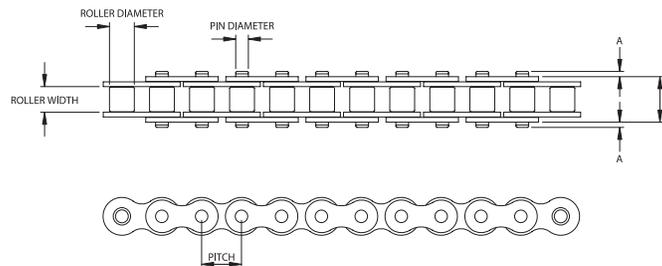


Dimensions inches

Diamond Number	Pitch Inches	Roller Width	Roller Diameter	Pin Diameter	Link Plate Thickness	A	B	Min. Lateral Radius	Weight Per Foot	Average Tensile Strength
43 SB	1/2	5/16	.312	.136	.060	.056	.588	14	.390	2400
63 SB	3/4	1/2	.469	.200	.094	.120	.900	22	.940	6100

Chain is also available in stainless steel. Diamond 43 SB SS and 63 SB SS.

### #43 AND #63 STRAIGHT RUNNING ROLLER CHAIN FOR PLASTIC “SNAP ON” PLASTIC CHAINS



Dimensions inches

Diamond Number	Pitch Inches	Roller Width	Roller Diameter	Pin Diameter	Link Plate Thickness	A	B	Weight Per Foot	Average Tensile Strength
43	1/2	5/16	.312	.136	.060	.065	.568	.410	4000
63	3/4	1/2	.469	.200	.094	.105	.898	.990	8500

Chain is also available in stainless steel. Diamond 43SS and 63SS.

*Note: Diamond does not offer the plastic flat top plates. Offsets are not available or suggested for this application.*

## CONVERSION CHART PITCHES-TO-FEET

CHAIN SIZE	PITCH (INCH)	PITCHES PER FOOT	PITCH (DECIMAL)
47		81.3559	0.147
25	1/4	48	0.250
35	3/8	32	0.375
40 - 41	1/2	24	0.500
50	5/8	19.2	0.625
60	3/4	16	0.750
80	1	12	1.000
100	1 1/4	9.6	1.250
120	1 1/2	8	1.500
140	1 3/4	6.857	1.750
160	2	6	2.000
180	2 1/4	5.333	2.250
200	2 1/2	4.8	2.500
240	3	4	3.000

To convert pitches to feet follow this simple formula:  
(Pitches divided by numbers of pitches per foot = feet)

Example: 84 pitches of #160 chain =  
84 divided by 6 (pitch per foot) = 14 ft

# CHAIN ASSEMBLY AND DISASSEMBLY TOOLS

## CONNECTING TOOLS



**CT35**

**CONNECTING TOOL - SMALL**

For use with ANSI 35 through 60H roller chain.



**CT80**

**CONNECTING TOOL - LARGE**

For use with ANSI 80 through 240 single strand chain and most conveyor and engineered chains with a width of 5/8" or wider between the inside links. For multi-strand chains, a second connecting tool will aid in the alignment of the chain.



**CT80-CABLE**

**CABLE CONNECTING TOOL - LARGE**

For use with ANSI 80 through 240 single strand, multi-strand and double-pitch chain, and most conveyor and engineered chains with a width of 5/8" or wider between the inside links. This tool holds the ends of a chain together during the connection process.

## PIN EXTRACTOR TOOLS



**PE113**

**PIN EXTRACTOR - SMALL**

For use with ANSI 25 through 60H roller chain.



**PE135**

**PIN EXTRACTOR - LARGE**

For use with ANSI 80 through 100H roller chain.



**PERE157**

**PIN EXTRACTOR - EXTRA LARGE**

For use with ANSI 120 through 160 roller chain.



**DC - PIN -EXTRACTOR - MAX**

**CHAIN BREKAKER**

For use with ANSI 35 through 80 roller chain. This device can remove two pins at once with minimal force.

## USING THE ASSEMBLY AND DISASSEMBLY TOOLS

### CONNECTING TOOLS

#### CT35 & CT80

Hook the two arms of the connecting tool onto each end of the chain. Turn the screw clockwise to bring the two ends of chain towards each other. Insert the connecting link and complete assembly. *Note: This tool is not made to stretch chain but to hold chain in place for assembly.*

#### CT80-CABLE

Place the hooks of the connecting tool on the rollers past the link or links to be removed or replaced. The slack in the cable should be taken up with a wrench until the chain between the hooks is relieved of tension. This will allow for the removal of the link with a roller chain pin extractor. A new master or replacement link can then be inserted. The cable can then be released with the lock lever and the tool can be removed.

### PIN EXTRACTORS

#### PE113, PE135 & PERE157

It is recommended that the "side-mashed" or "spun" pin heads be ground flush to the pin linkplate prior to pin extraction to ensure that the chain bushing will not be damaged. Place the jaws of the tool over the roller with the push-out pin centered on the chain pin. Tighten down by turning the top handle clockwise until the chain pin loosens, driving it partially through the linkplate. Follow the same procedure on the other pin. Return to the original pin and force completely through the pin linkplate. Do the same on second pin, freeing linkplate from the pins. Remove disassembled pin link from the chain.

#### DC - PIN - EXTRACTOR - MAX

Begin by grinding the desired pin heads flush with the linkplate. Then, select the correct chain model on the carousel and insert the chain at the point you wish to remove the pin(s) from. Ensure that the pressure pins are resting on the center of each chain pin. Next, pull the lever down and use continuous pressure to force the pins from the chain. Once the pins have been removed, replace the lever to the upright position and disassemble the chain.



### WARNING

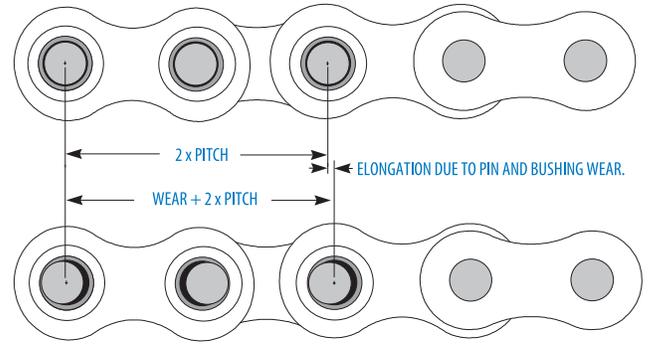
#### WHEN ASSEMBLING OR DISASSEMBLING CHAIN:

- ALWAYS SHUT OFF POWER AND LOCK OUT GEARS AND SPROCKETS BEFORE ATTEMPTING TO REMOVE OR INSTALL CHAINS.
- ALWAYS USE SAFETY GLASSES TO PROTECT YOUR EYES.
- WEAR PROTECTIVE CLOTHING, GLOVES, AND SAFETY SHOES.
- SUPPORT THE CHAIN TO PREVENT UNCONTROLLED MOVEMENT OF CHAIN AND PARTS.
- TOOLS SHOULD BE IN GOOD CONDITION AND PROPERLY USED.
- TOOLS ARE NOT MADE TO SUPPORT TOTAL WEIGHT OF CHAIN, ONLY TO TAKE UP SLACK.
- NEVER USE EXTENSION ON HANDLE WHICH COULD OVERLOAD DEVICE AND CAUSE POSSIBLE INJURY.
- DO NOT ATTEMPT TO CONNECT OR DISCONNECT CHAIN UNLESS YOU KNOW THE CHAIN CONSTRUCTION, INCLUDING THE CORRECT DIRECTION FOR PIN/RIVET REMOVAL OR INSERTION.

## ROLLER CHAIN WEAR

Chain does not “stretch” – elongation is caused when material is removed from the pins and bushings.

The individual joints in a roller chain articulate as they enter and exit 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.



### ELONGATION CONTROL

Elongation is normal and may be minimized through proper lubrication and drive maintenance. The rate of wear is dependent upon 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.

### CHECK CHAIN WEAR

Roller chains should be replaced when worn (elongated beyond 3%) or when the chain rollers begin to “ride high” near the tips of the teeth on relatively large sprockets. 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), the chain will not engage the sprockets properly and increased damage to the sprockets may occur.

Chain Wear Elongation Limits							
ANSI Chain No.	Chain Pitch		Measured Length				
	INCH	MM	Pitches	Nominal		At 3% Wear	
				INCH	MM	INCH	MM
25	.250	6.35	48	12.00	305	12.375	314
35	.375	9.52	32	12.00	305	12.375	314
41	.500	12.70	24	12.00	305	12.375	314
40	.500	12.70	24	12.00	305	12.375	314
50	.625	15.88	20	12.50	318	12.875	327
60	.750	19.05	16	12.00	305	12.375	314
80	1.000	25.40	12	12.00	305	12.375	314
100	1.250	31.75	20	25.00	635	25.750	654
120	1.500	38.10	16	24.00	610	24.719	628
140	1.750	44.45	14	24.50	622	25.250	641
160	2.000	50.80	12	24.00	610	24.719	628
180	2.250	57.15	12	27.00	686	27.812	706
200	2.500	63.50	10	25.00	635	25.750	654
240	3.000	76.20	8	24.00	610	24.719	628

For additional chain wear gauges, please contact [The Diamond Chain Company at marketing@diamondchain.com](mailto:marketing@diamondchain.com).

## HOW TO MEASURE CHAIN WEAR

- 1) As a safety precaution, shut off power and lock out gears and sprockets before attempting to measure chain wear.
- 2) Determine the pitch of the chain. This is typically stamped on the outer linkplates of the chain. It can also be determined by measuring the distance from the center of one pin to the center of the next pin. Refer to the Diamond Chain product catalog for a list of ANSI standard chain models and correlating pitch measurements or visit [www.diamondchain.com](http://www.diamondchain.com).
- 3) For reliable linear measurement, a taut span of chain must be used. Using slack chain will result in inaccurate measurements.
- 4) Choose either a 1.5% or 3% wear elongation limit to check your span of chain. Each percentage correlates to a different side of the scale. The maximum allowable wear elongation is typically 3% for most industrial applications, depending upon sprocket design. In drives having fixed center distances, chains running in parallel, or where smoother operation is required, chain wear should be limited to approximately 1.5%.

*Example: Using ASME/ANSI 60 roller chain, 13 pitches would measure 9.75 inches for nominal length (13 pitches x .75 pitch).*

*A maximum wear calculation of 3% would be  $1.03 \times 9.75$  or 10.0425 inches. A maximum wear calculation of 1.5% would be  $1.015 \times 9.75$  or 9.896 inches.*

- 5) Refer to the table on the wear gauge for the number of pitches to inspect. The more pitches (pins) included in the measurement provides the truer representation of the average amount of wear distributed throughout the chain.

*Example: For ASME/ANSI 60 roller chain, 13 pitches will be measured.*

ANSI	BS	NO. OF PITCHES	ANSI	BS	NO. OF PITCHES
25		33P	120	24B	8P
35	06B	23P	140	28B	6P
40	08B	18P	160	32B	5P
50	10B	15P	180		5P
60	12B	13P	200	40B	5P
80	16B	11P	240		4P
100	20B	9P			

- 6) Place the inside corner of the wear scale around one pin, using that pin as "0," or your starting point.



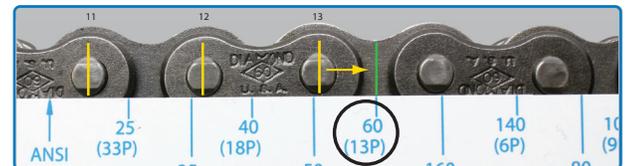
- 7) Starting at "0," count the number of pins/pitches to be measured for your chain's length.

*Example: Count from 0 to 13 for ASME/ANSI 60 roller chain.*



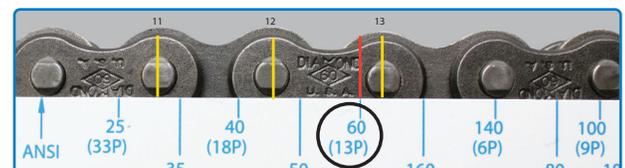
- 8) If the center of the indicated pin does not reach the wear line for the corresponding chain size, the chain has not reached the wear limit.

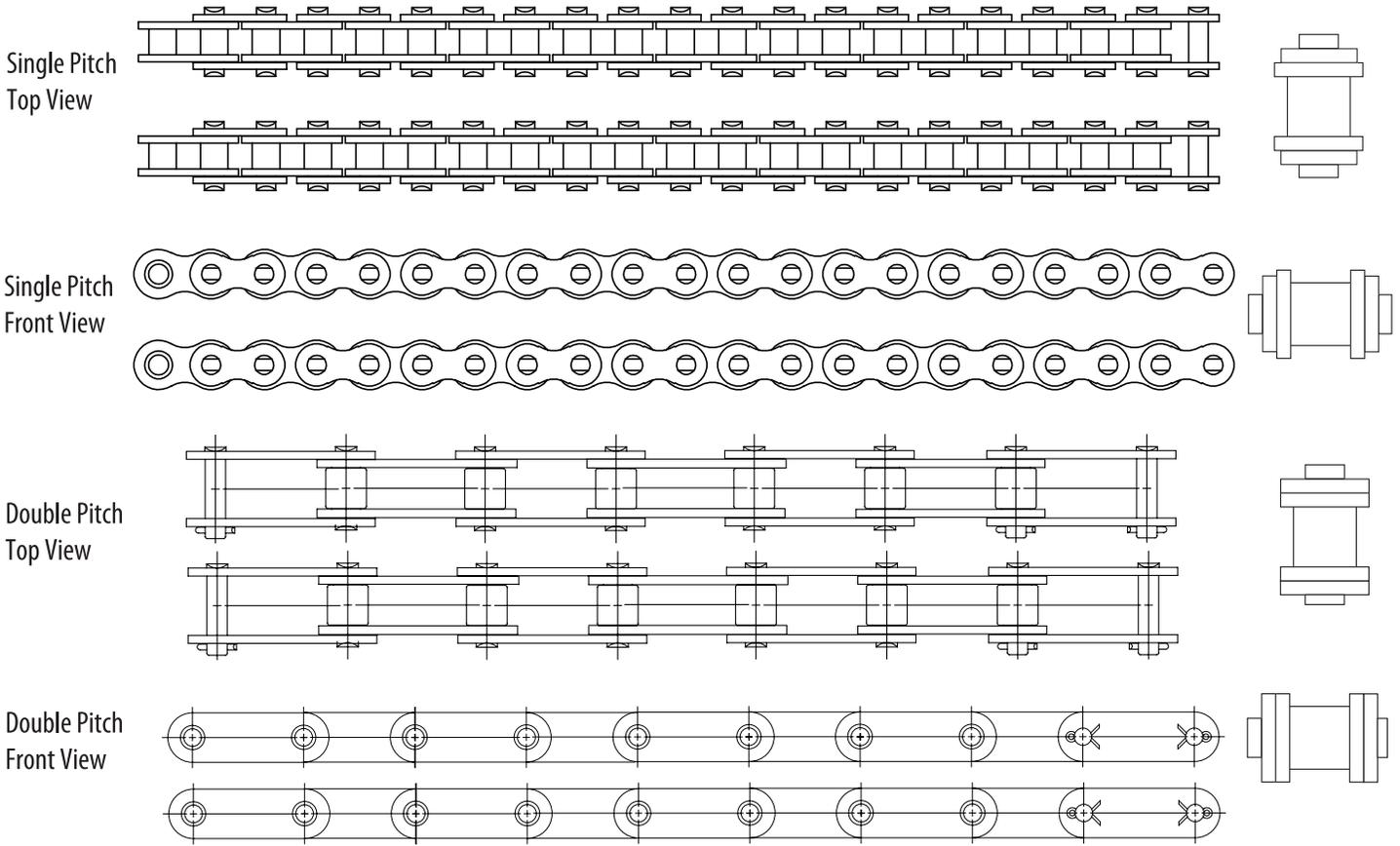
*Example: For ASME/ANSI 60 roller chain, if the center of the 13th pin does not reach the # 60 wear mark, the chain remains usable.*



- 9) If the center of the indicated pin is at or beyond the indicated line, the chain is worn to the wear limit (1.5% or 3%, depending on the scale used) and should be replaced.

*Example: For ASME/ANSI 60 roller chain, if the center of the 13th pin reaches or exceeds the # 60 wear mark, the chain should be replaced.*





Circle one material/finish:

Carbon Steel, Nickel-Plated, Diamond Chain Anti-Corrosion (ACE<sup>®</sup>) Plated Carbon Steel, Stainless Steel Series – AP, 300, 400, 600

Chain Size \_\_\_\_\_

Attachment Type \_\_\_\_\_

Attachment Cycle \_\_\_\_\_

Chain Length (Pitches) \_\_\_\_\_

No. of chains in a set \_\_\_\_\_

Matching Class I or II \_\_\_\_\_

Company Name \_\_\_\_\_

Your Name \_\_\_\_\_

Phone \_\_\_\_\_

Fax \_\_\_\_\_

**Directions:**

1. Select desired material or finish. If choosing stainless steel, be sure to specify which series.
2. Select chain size, type of attachment, and attachment cycle.
3. Select chain length, number of chains in your set, and which matching class is preferred.
4. Fill in contact information.
5. Scan and email to a Diamond Chain customer service representative at [custsvc@diamondchain.com](mailto:custsvc@diamondchain.com) or fax to 317-613-2243. You may also send this to your Diamond Chain sales representative.

For assistance with filling out this form, please refer to pages five through seven.



# DIAMOND<sup>®</sup> CHAIN COMPANY

## Americas

Corporate Headquarters  
402 Kentucky Avenue  
Indianapolis, Indiana 46225  
PH: 1-800 US CHAIN  
1-800-872-4246  
Fax: 1-317-633-2243

Dallas Service Center  
9120 Premier Row  
Dallas, Texas 75247  
PH: 1-800-872-4246  
Fax: 1-214-631-2374

Sacramento Service Center  
1331 Terminal Street  
West Sacramento, CA 95691  
PH: 1-800-872-4246  
Fax: 1-916-372-5801  
[sales@diamondchain.com](mailto:sales@diamondchain.com)

Canada/Mexico  
PH: 1-317-638-6431  
[www.diamondchain.com](http://www.diamondchain.com)

## United Kingdom

Unit 7 – 9  
Blaydon Industrial Park  
Chainbridge Road  
Blaydon on Tyne  
NE21 5AB  
PH: 44-191-414-8822  
[sales@diamondchain.eu](mailto:sales@diamondchain.eu)  
[www.diamondchain.co.uk](http://www.diamondchain.co.uk)

## Asia

Century Financial Tower, Unit 2005  
No. 1 Suhua Road, SIP, Suzhou  
Jiangsu Province, China 215021  
PH: +86 512-6265-3075  
[salescn@diamondchain.com](mailto:salescn@diamondchain.com)

