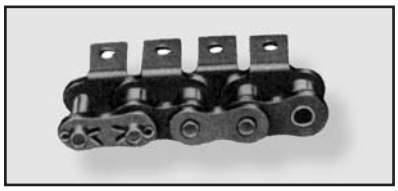
TSUBAKI CONVEYOR CHAIN

TSUBAKI CONVEYOR CHAIN

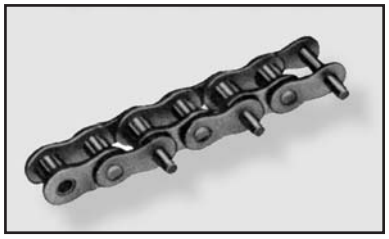
Standard Attachment Chain

TSUBAKI STANDARD ATTACHMENT CHAIN (Cross reference)

Tsubaki can offer attachments for all chain types – single or double pitch. We offer standard and make-to-order custom attachments to suit customer applications. The chain can be supplied in a variety of different materials including carbon steel, stainless steel, nickel plated, Lambda, plastic, Ultra WP and Neptune.



A-1 Attachment Chain



D-1 Attachment Chain

Converting from Another Manufacturer's Chain

If you are using another manufacturer's chain, it's easy to change to Tsubaki Attachment Chain.

Pitch	Tsubaki Name	Other Name	Description
Single and Double Pitch	A-1	B1 one hole	Bent attachment, one side, one hole
Single and Double Pitch	K-1	B2 one hole	Bent attachment, both sides, one hole
Single and Double Pitch	SA-1	S1 one hole, M35	Straight attachment, one side, one hole
Single and Double Pitch	SK-1	S2 one hole, M1	Straight attachment, both sides, one hole
Single and Double Pitch	D-1	E1	One extended pin
Single and Double Pitch	D-3	E2	Two extended pins
Double Pitch	A-2	B1 two holes	Bent attachment, one side, two holes
Double Pitch	K-2	B2 two holes	Bent attachment, both sides, two holes
Double Pitch	SA-2	S1 two holes, M35-2	Straight attachment, one side, two holes
Double Pitch	SK-2	S2 two holes, M2	Straight attachment, both sides, two holes
Single Pitch Wide Contour	WA-1	WCB1 one hole	Wide contour, bent attachment, one side, one hole
Single Pitch Wide Contour	WA-2	WCB1 two holes	Wide contour, bent attachment, one side, two holes
Single Pitch Wide Contour	WK-1	WCB2 one hole	Wide contour, bent attachment, both sides, one hole
Single Pitch Wide Contour	WK-2	WCB2 two holes	Wide contour, bent attachment, both sides, two holes
Single Pitch Wide Contour	WSA-1	WCS1 one hole, WM35	Wide contour, straight attachment, one side, one hole
Single Pitch Wide Contour	WSA-2	WCS1 two holes, WM35-2	Wide contour, straight attachment, one side, two holes
Single Pitch Wide Contour	WSK-1	WCS2 one hole, WM-1	Wide contour, straight attachment, both sides, one hole
Single Pitch Wide Contour	WSK-2	WCS2 two holes, WM-2	Wide contour, straight attachment, both sides, two holes

Standard Attachment Chain

TSUBAKI

RS Attachment Types:

A-1 Roller Link

K-1 Roller Link

SA-1 Roller Link

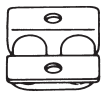
SK-1 Roller Link

WA-0 Roller Link

WK-0 Roller Link

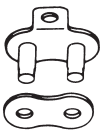
WA-1 Roller Link

WK-1 Roller Link

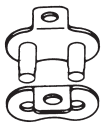


WA-2 Roller Link

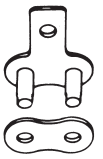
A-1 Pin Link



K-1 Pin Link



SA-1 Pin Link



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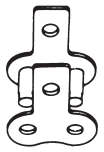
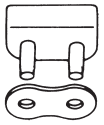


WA-0 Pin Link



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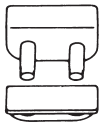

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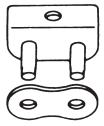

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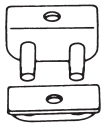

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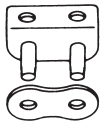
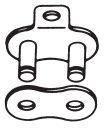


A-1 Spring Clip Connecting Link



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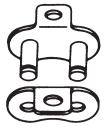

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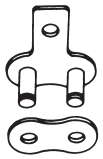

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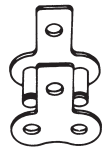

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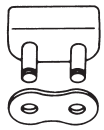

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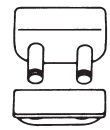

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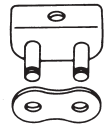

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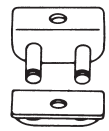
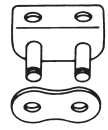
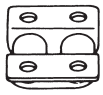


WA-2 Spring Clip Connecting Link



WK-2 Roller Link

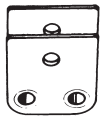


WSA-0 Roller Link

WSK-0 Roller Link

WSA-1 Roller Link

WSK-1 Roller Link



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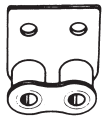

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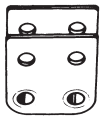
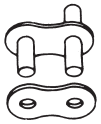
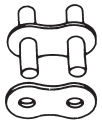


D-1 Pin Link



D-3 Pin Link



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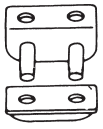
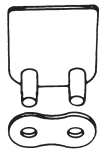
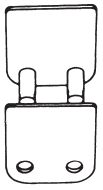


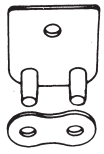
WSA-0 Pin Link



WSK-0 Pin Link



WSA-1 Pin Link



WSK-1 Pin Link

WSA-2 Pin Link

WSK-2 Pin Link

D-1 Spring Clip Connecting Link

D-3 Spring Clip Connecting Link

WK-2 Spring Clip Connecting Link

WSA-0 Spring Clip Connecting Link

WSK-0 Spring Clip Connecting Link

WSA-1 Spring Clip Connecting Link

WSK-1 Spring Clip Connecting Link

WSA-2 Spring Clip Connecting Link

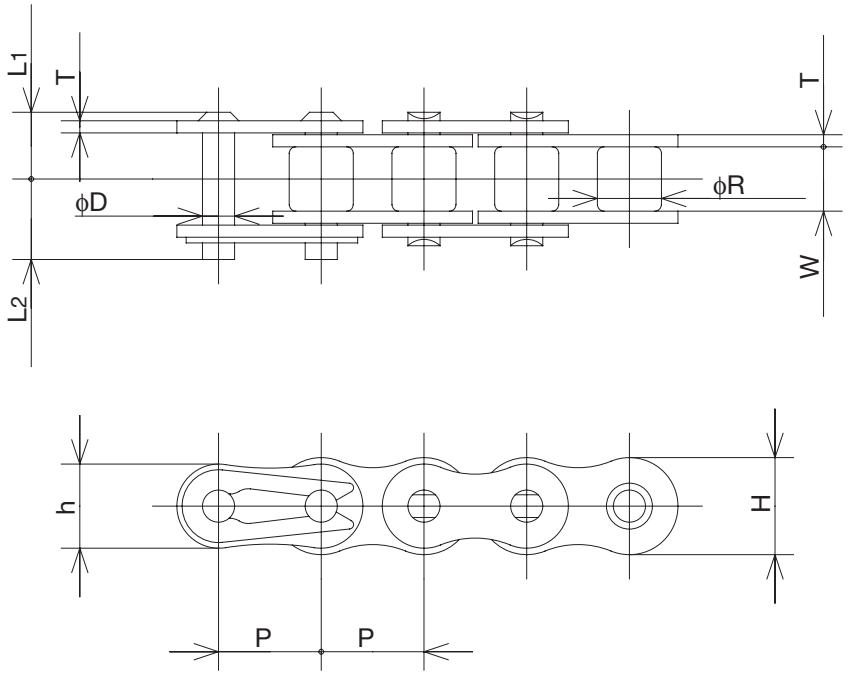
WSK-2 Spring Clip Connecting Link

Standard Attachment Chain

RS Single Pitch

Standard Attachment Chain

Tsubaki RS single pitch roller chains may be adapted to conveying applications by the addition of attachments. The standard attachment types include bent or straight type attachments on one or both sides, extended pin; and wide contour attachments. Tsubaki stocks a wide variety of assembled chain and components.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2			
RS25	0.250	* 0.130	0.125	0.030	0.230	0.199	0.090	0.327	0.150	0.177	930	140	0.09
RS35	0.375	* 0.200	0.188	0.050	0.354	0.307	0.141	0.500	0.230	0.270	2,120	340	0.22
RS40	0.500	0.312	0.313	0.060	0.472	0.409	0.156	0.717	0.325	0.392	3,750	590	0.43
RS50	0.625	0.400	0.375	0.080	0.591	0.512	0.200	0.878	0.406	0.472	6,170	970	0.70
RS60	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	9,040	1,410	1.03
RS80	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	15,400	2,400	1.78
RS100	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.778	0.900	24,300	3,830	2.67
RS120	1.500	0.875	1.000	0.187	1.425	1.228	0.437	2.118	0.980	1.138	34,000	5,380	3.97
RS140	1.750	1.000	1.000	0.221	1.661	1.433	0.500	2.307	1.059	1.248	45,900	7,280	5.02
RS160	2.000	1.125	1.250	0.250	1.898	1.638	0.562	2.705	1.254	1.451	58,000	9,190	6.77

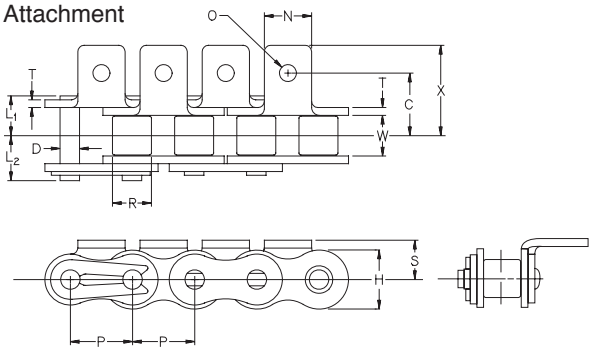
* denotes that sizes RS25 and RS35 are rollerless. The value shown is for the bushing diameter.
Note: Spring clip type connecting links will be provided for RS25 to RS60 unless otherwise specified.

TSUBAKI

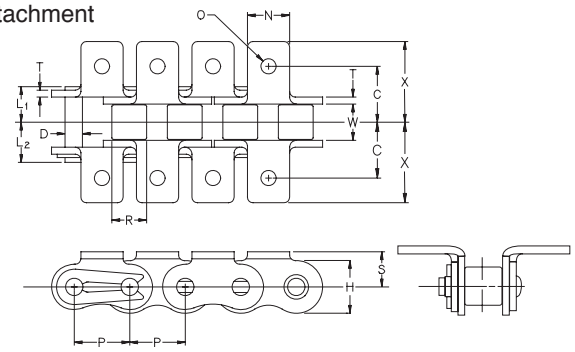
RS Single Pitch

Standard Attachment Chain

A-1 Attachment



K-1 Attachment



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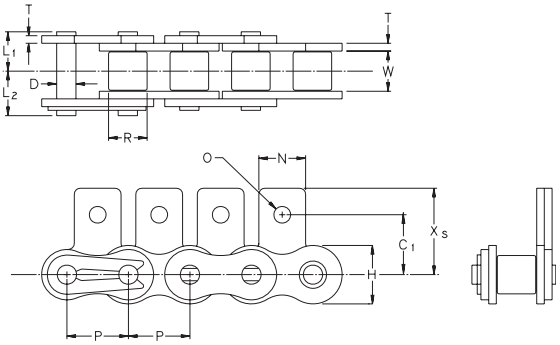
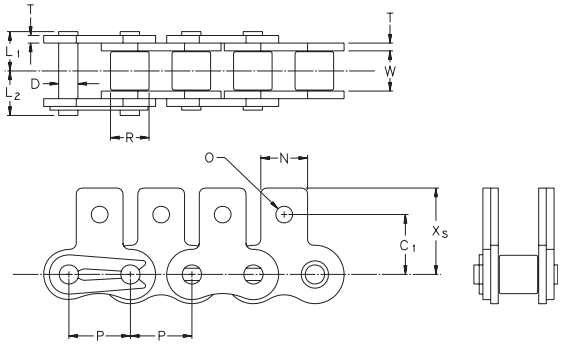
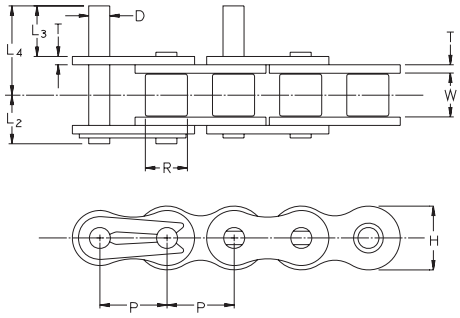


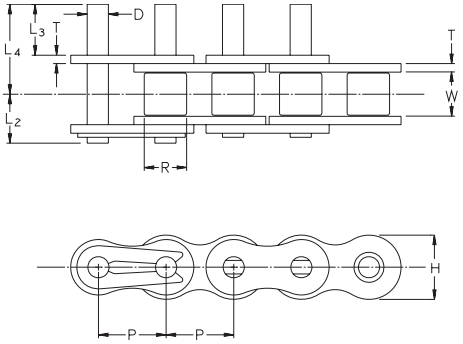
SK-1 Attachment



D-1 Attachment



D-3 Attachment



All dimensions in inches unless otherwise stated.

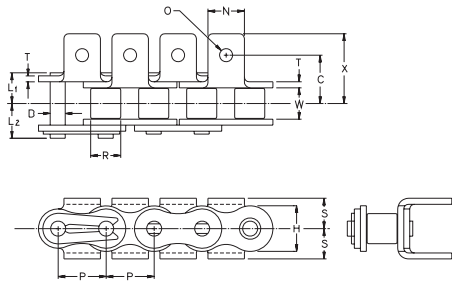
Chain Number	Attachment Dimensions									Additional Wt. per Attach. (lbs.)		
	C	C_1	N	O	S	X	X_s	L_3	L_4	A, SA Attach.	K, SK Attach.	D Attach.
RS25	0.281	0.313	0.220	0.134	0.187	0.421	0.459	-	-	0.001	0.002	-
RS35	0.375	0.375	0.311	0.102	0.250	0.563	0.573	0.375	0.575	0.002	0.004	0.002
RS41	0.469	0.500	0.375	0.141	0.281	0.646	0.656	0.375	0.608	0.004	0.007	0.002
RS40	0.500	0.500	0.375	0.141	0.315	0.701	0.685	0.375	0.659	0.004	0.009	0.002
RS50	0.625	0.625	0.500	0.205	0.406	0.921	0.907	0.469	0.827	0.007	0.013	0.004
RS60	0.750	0.720	0.625	0.205	0.469	1.110	1.057	0.563	1.014	0.015	0.031	0.007
RS80	1.000	0.970	0.752	0.268	0.626	1.441	1.396	0.752	1.333	0.029	0.057	0.015
RS100	1.250	1.252	1.000	0.343	0.780	1.768	1.732	0.937	1.644	0.057	0.115	0.026
RS120	1.500	1.437	1.126	0.386	0.906	2.197	2.081	1.126	2.024	0.097	0.194	0.044
RS140	1.750	1.750	1.375	0.448	1.125	2.420	2.437	1.311	2.264	0.157	0.313	0.066
RS160	2.000	2.000	1.500	0.516	1.250	2.840	2.750	1.500	2.654	0.214	0.428	0.099

Standard Attachment Chain

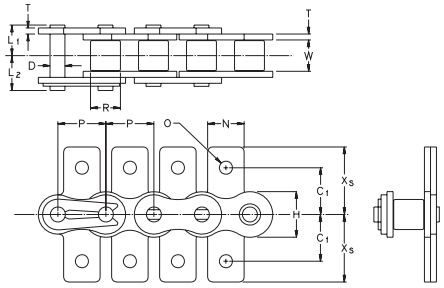
RS Single Pitch

Standard Attachment Chain

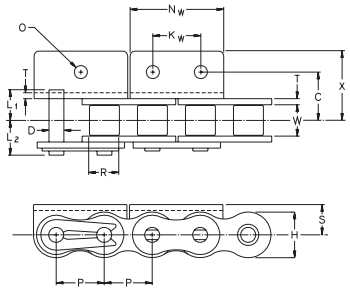
AA-1 Attachment



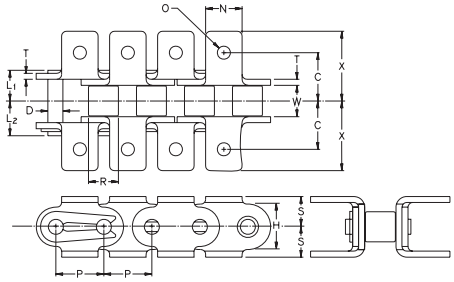
SAA-1 Attachment



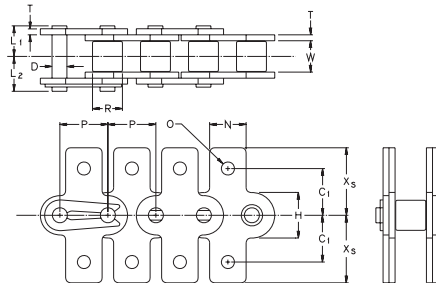
WA-1, WA-2 Attachment



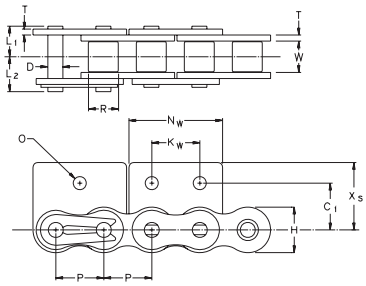
KK-1 Attachment



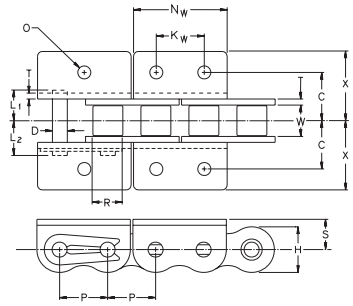
SKK-1 Attachment



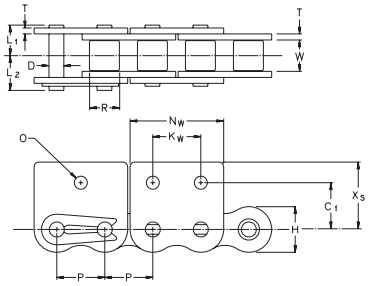
WSA-1, WSA-2 Attachment



WK-1, WK-2 Attachment



WSK-1, WSK-2 Attachment



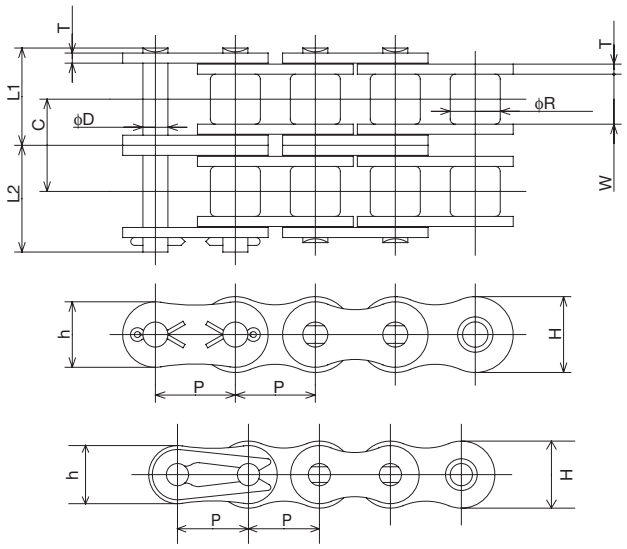
All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions										Additional Weight per Attachment (lbs.)			
	C	C_1	N	O	S	T	X	X_s	N_W	K_W	AA, SAA Attach.	KK, SKK Attach.	WA, WSA Attach.	WK, WSK Attach.
RS40	0.500	0.500	0.375	0.141	0.315	0.060	0.701	0.685	0.970	0.500	0.007	0.014	0.007	0.014
RS50	0.625	0.625	0.500	0.205	0.406	0.080	0.921	0.907	1.210	0.625	0.013	0.026	0.015	0.030
RS60	0.750	0.720	0.625	0.205	0.469	0.094	1.110	1.057	1.460	0.750	0.031	0.062	0.026	0.052
RS80	1.000	0.970	0.752	0.268	0.626	0.125	1.441	1.396	1.940	1.000	0.057	0.114	0.062	0.124
RS100	1.250	1.252	1.000	0.343	0.780	0.156	1.768	1.732	2.410	1.250	0.121	0.242	0.121	0.242
RS180	2.250	-	1.653	0.590	1.409	0.281	3.156	-	-	-	0.284	0.568	0.408	0.816
RS200	2.500	2.500	1.889	0.688	1.688	0.314	3.287	3.366	4.543	2.500	0.348	0.696	0.500	1.000
RS240	3.000	3.000	2.251	0.826	1.877	0.374	3.854	4.200	5.452	2.244	0.517	1.035	0.743	1.486
RF320T	4.000	-	3.000	1.000	3.366	0.500	5.537	-	-	-	1.005	2.010	1.444	2.888
RF400T	5.000	4.724	4.000	1.511	3.125	0.629	7.008	7.086	9.645	5.000	1.772	3.543	2.539	5.079

Consult with Tsubaki Technical Support for attachment availablity and delivery for sizes RS180, RS200, RS240, RF320T and RF400T.

RS Single Pitch-Double Strand

Standard Attachment Chain



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	
RS25-2	0.250	* 0.130	0.125	0.030	0.230	0.199	0.091	0.591	0.276	0.315	0.252
RS35-2	0.375	* 0.200	0.188	0.049	0.354	0.307	0.141	0.898	0.429	0.469	0.398
RS40-2	0.500	0.312	0.313	0.059	0.472	0.409	0.156	1.283	0.608	0.675	0.567
RS50-2	0.625	0.400	0.375	0.079	0.591	0.512	0.200	1.594	0.762	0.833	0.713
RS60-2	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.988	0.955	1.033	0.898
RS80-2	1.000	0.625	0.625	0.126	0.949	0.819	0.313	2.551	1.217	1.335	1.154
RS100-2	1.250	0.750	0.750	0.157	1.185	1.024	0.376	3.091	1.484	1.606	1.409
RS120-2	1.500	0.875	1.000	0.189	1.425	1.228	0.437	3.906	1.874	2.031	1.787
RS140-2	1.752	1.000	1.000	0.220	1.661	1.433	0.500	4.232	2.022	2.211	1.925
RS160-2	2.000	1.125	1.250	0.252	1.898	1.638	0.563	5.012	2.407	2.604	2.303

Chain Number	Attachment Dimensions								
	C_A	C_1	N	O	S	X_A	X_S	L_3	L_4
RS25-2	0.407	0.312	0.220	0.133	0.187	0.547	0.458	-	-
RS35-2	0.572	0.374	0.311	0.102	0.250	0.761	0.572	-	-
RS40-2	0.783	0.500	0.374	0.141	0.314	0.984	0.685	0.374	0.942
RS50-2	0.982	0.625	0.500	0.204	0.405	1.277	0.907	0.468	1.183
RS60-2	1.198	0.720	0.625	0.204	0.468	1.559	1.057	0.562	1.462
RS80-2	1.576	0.968	0.751	0.267	0.625	2.017	1.395	0.751	1.911
RS100-2	1.954	1.251	1.000	0.342	0.779	2.472	1.732	0.937	2.352
RS120-2	2.393	1.437	1.125	0.386	0.905	3.090	2.080	1.125	2.917
RS140-2	2.714	1.751	1.374	0.448	1.125	3.446	2.500	1.311	3.226
RS160-2	3.151	2.000	1.500	0.516	1.251	3.978	2.759	1.500	3.805

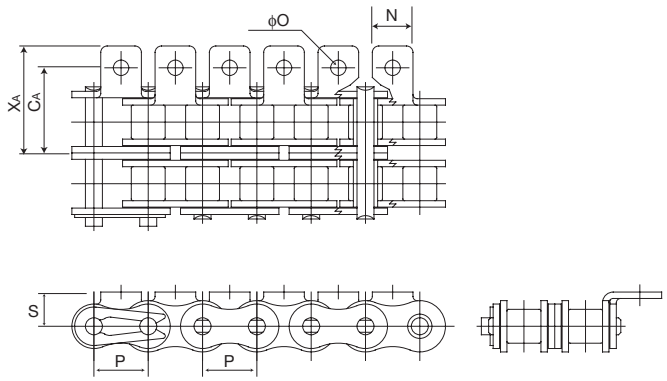
* denotes that sizes RS25 and RS35 are rollerless. The value shown is for the bushing diameter.
Note: Spring clip type connecting links will be provided for RS25 to RS60 unless otherwise specified.

Standard Attachment Chain

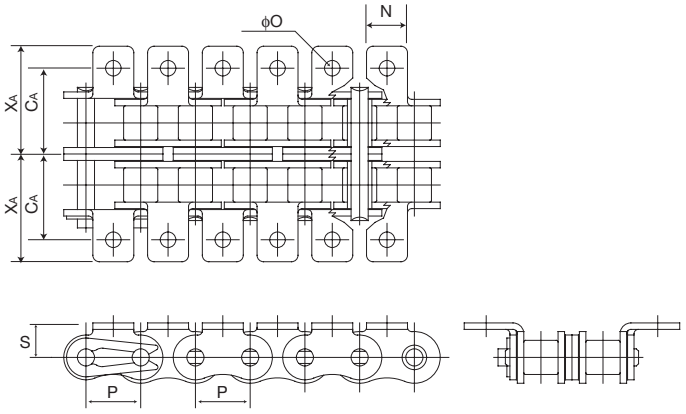
RS Single Pitch-Double Strand

Standard Attachment Chain

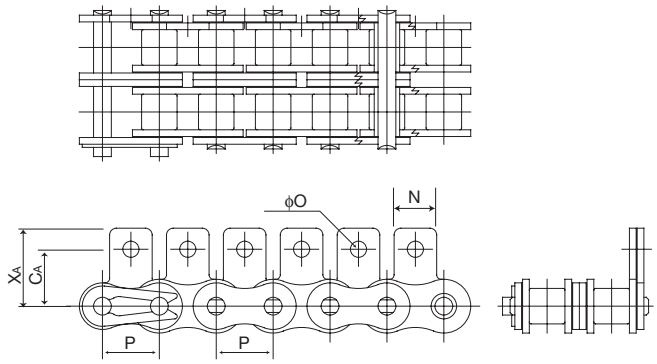
A-1 Attachment



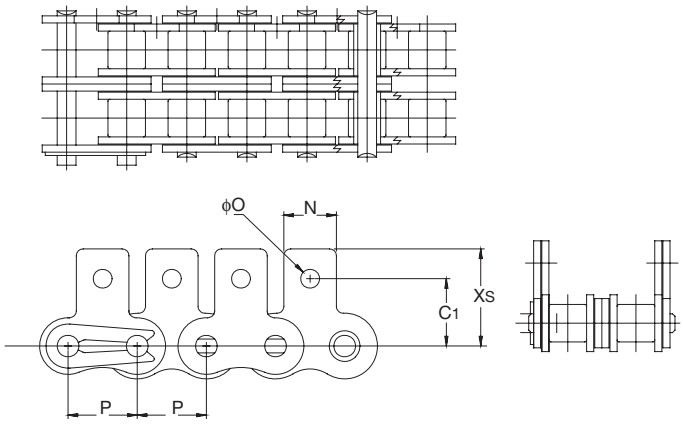
K-1 Attachment



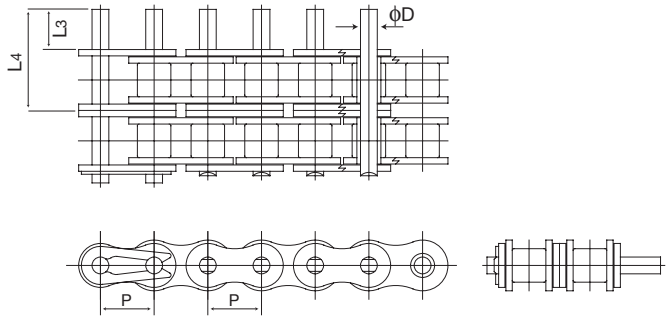
SA-1 Attachment



SK-1 Attachment



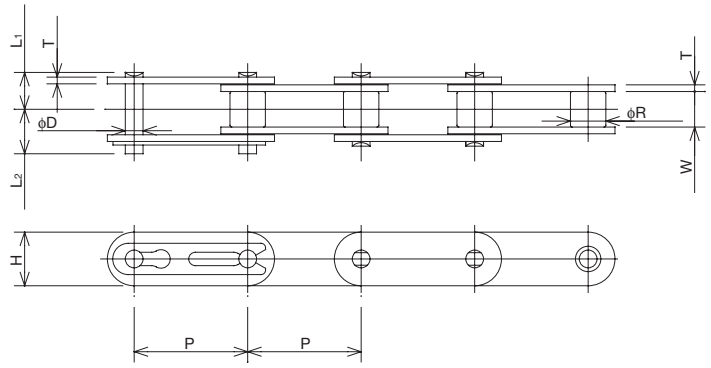
D-1 Attachment



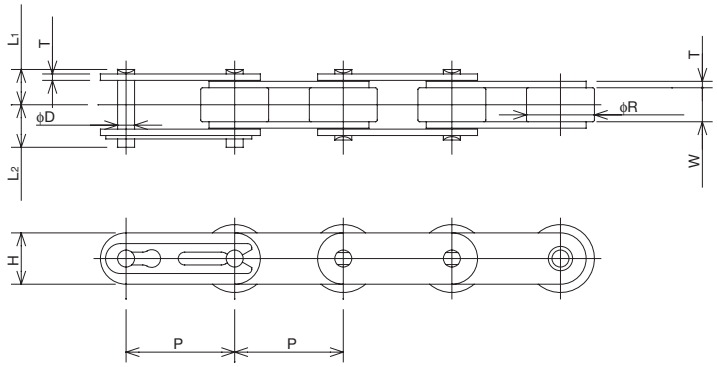
Double Pitch

Standard Attachment Chain

Standard Roller Type



Oversize Roller Type



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2			
Standard Roller Type												
C2040	1.000	0.312	0.313	0.059	0.472	0.156	0.717	0.325	0.392	3,750	590	0.34
C2050	1.250	0.400	0.375	0.079	0.591	0.200	0.878	0.406	0.472	6,170	970	0.56
C2060H	1.500	0.469	0.500	0.126	0.677	0.235	1.224	0.573	0.652	9,040	1,410	1.01
C2080H	2.000	0.625	0.625	0.157	0.906	0.313	1.543	0.720	0.823	15,400	2,400	1.61
C2100H	2.500	0.750	0.750	0.189	1.125	0.376	1.823	0.858	0.965	24,300	3,830	2.37
C2120H	3.000	0.875	1.000	0.219	1.370	0.427	2.240	1.030	1.210	34,000	5,380	3.41
C2160H	4.000	1.125	1.250	0.281	1.897	0.563	2.851	1.337	1.514	58,000	9,190	6.02
Oversize Roller Type												
C2042	1.000	0.625	0.313	0.059	0.472	0.156	0.717	0.325	0.392	3,750	590	0.58
C2052	1.250	0.750	0.375	0.079	0.591	0.200	0.878	0.406	0.472	6,170	970	0.87
C2062H	1.500	0.875	0.500	0.126	0.677	0.235	1.224	0.573	0.652	9,040	1,410	1.47
C2082H	2.000	1.125	0.625	0.157	0.906	0.313	1.543	0.720	0.823	15,400	2,400	2.36
C2102H	2.500	1.563	0.750	0.189	1.125	0.376	1.823	0.858	0.965	24,300	3,830	3.89
C2122H	3.000	1.750	1.000	0.219	1.370	0.427	2.240	1.030	1.210	34,000	5,380	5.46
C2162H	4.000	2.250	1.250	0.281	1.897	0.563	2.851	1.337	1.514	58,000	9,190	9.21

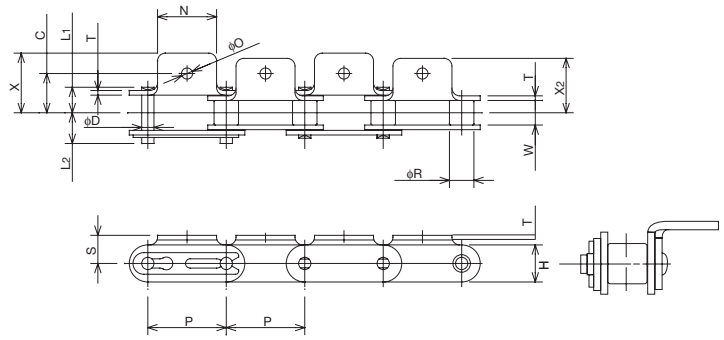
Note: Chain sizes over C2080 use cotter pins for connecting links.

Standard Attachment Chain

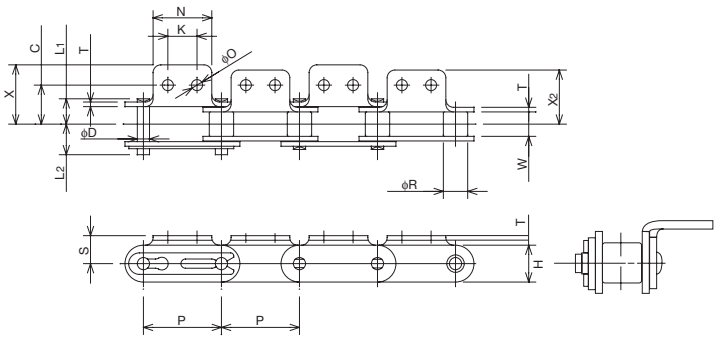
Double Pitch

Standard Attachment Chain

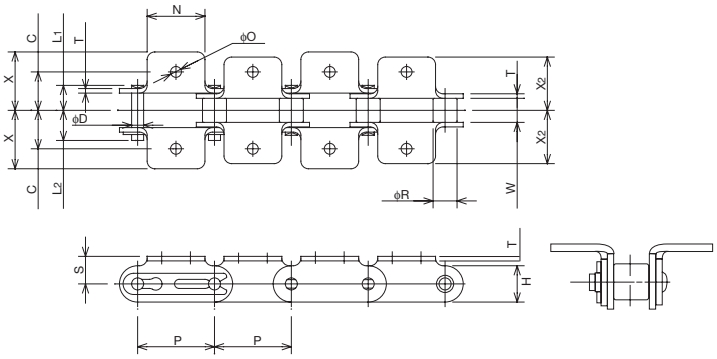
A-1 Attachment



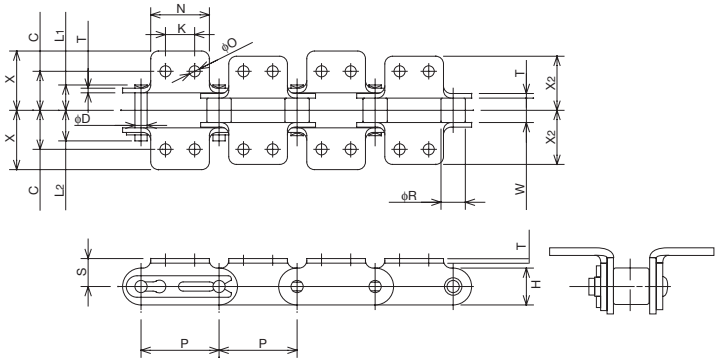
A-2 Attachment



K-1 Attachment



K-2 Attachment



All dimensions in inches unless otherwise stated.

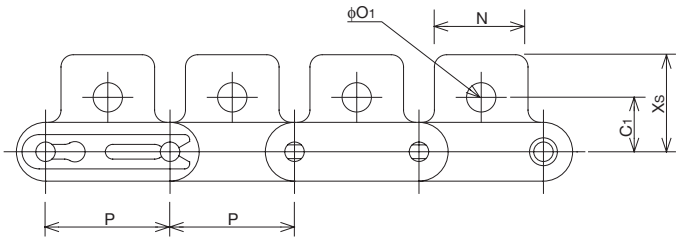
Chain Number	A-1, A-2, K-1 and K-2 Attachment Dimensions							Additional Wt. per Attach. (lbs.)	
	X	X_2	C	S	K	N	O	A Attachment	K Attachment
C2040	0.760	0.693	0.500	0.358	0.374	0.752	0.142	0.007	0.013
C2050	0.953	0.866	0.626	0.437	0.469	0.937	0.205	0.013	0.026
C2060H	1.240	1.110	0.844	0.579	0.563	1.126	0.205	0.037	0.075
C2080H	1.602	1.441	1.094	0.752	0.752	1.500	0.268	0.071	0.141
C2100H	1.950	1.768	1.312	0.922	0.937	1.875	0.323	0.132	0.265
C2120H	2.390	2.142	1.562	1.093	1.125	2.250	0.386	0.221	0.441
C2160H	3.060	2.760	2.062	1.437	1.500	3.000	0.516	0.448	0.895

TSUBAKI

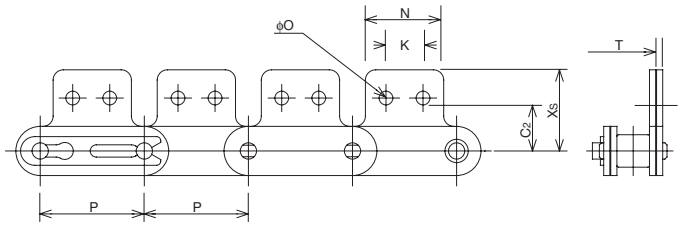
Double Pitch

Standard Attachment Chain

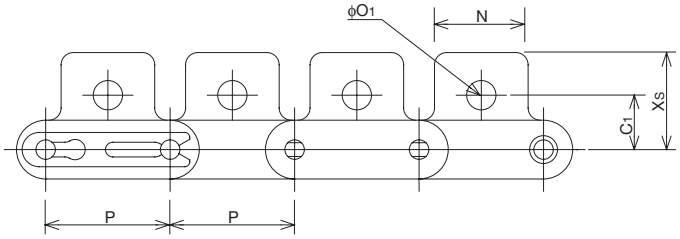
SA-1 Attachment



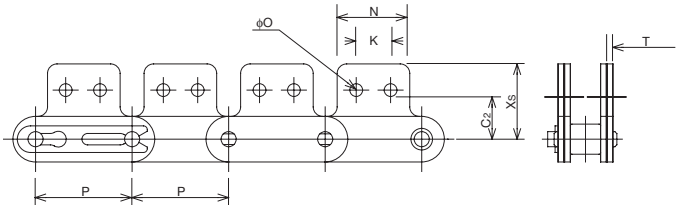
SA-2 Attachment



SK-1 Attachment



SK-2 Attachment



All dimensions in inches unless otherwise stated.

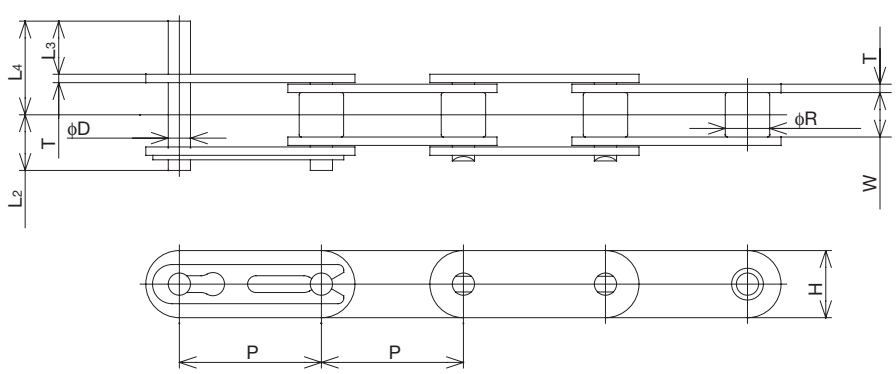
Chain Number	SA-1, SA-2, SK-1 and SK-2 Attachment Dimensions								Additional Wt. per Attach. (lbs.)	
	X_S	C_1	C_2	K	N	O	O_1	T	SA Attachment	SK Attachment
C2040	0.780	0.437	0.535	0.374	0.752	0.142	0.205	0.060	0.007	0.013
C2050	0.969	0.563	0.626	0.469	0.937	0.205	0.268	0.080	0.013	0.026
C2060H	1.205	0.689	0.752	0.563	1.126	0.205	0.343	0.125	0.037	0.075
C2080H	1.594	0.874	1.000	0.752	1.500	0.268	0.406	0.156	0.071	0.141
C2100H	1.984	1.125	1.250	0.938	1.875	0.323	0.516	0.187	0.132	0.265
C2120H	2.361	1.312	1.468	1.125	2.250	0.386	0.578	0.219	0.221	0.441
C2160H	3.093	1.750	2.000	1.500	3.000	0.516	0.771	0.281	0.448	0.895

Standard Attachment Chain

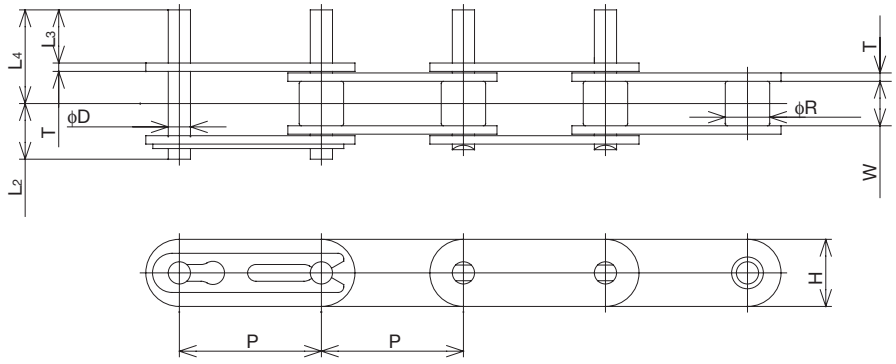
Double Pitch

Standard Attachment Chain

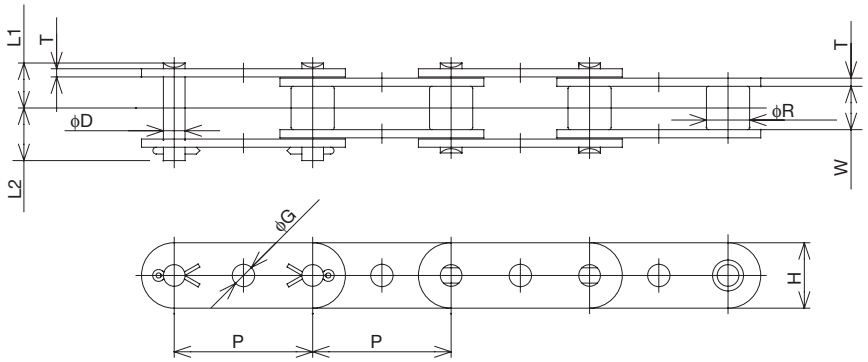
D-1 Attachment



D-3 Attachment



GK-1 Attachment (except large roller type)



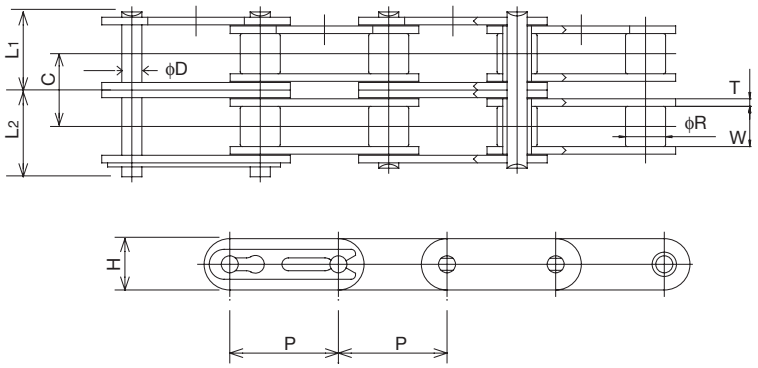
All dimensions in inches unless otherwise stated.

Chain Number	D and GK-1 Attach. Dimensions				Additional Wt. per Attach. (lbs.)	
	D	L_3	L_4	G	D-1 Attachment	D-3 Attachment
C2040	0.156	0.374	0.663	0.161	0.002	0.004
C2050	0.200	0.469	0.833	0.201	0.004	0.008
C2060H	0.234	0.563	1.083	0.240	0.007	0.014
C2080H	0.312	0.752	1.401	0.319	0.015	0.030
C2100H	0.375	0.937	1.687	-	0.026	0.052
C2120H	0.437	1.125	2.062	-	0.044	0.088
C2160H	0.562	1.500	2.718	-	0.099	0.198

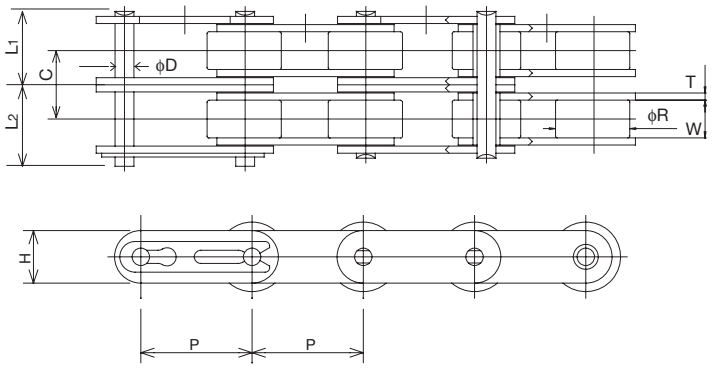
Double Pitch-Double Strand

Standard Attachment Chain

Standard Roller Type



Oversize Roller Type



All dimensions in inches unless otherwise stated.

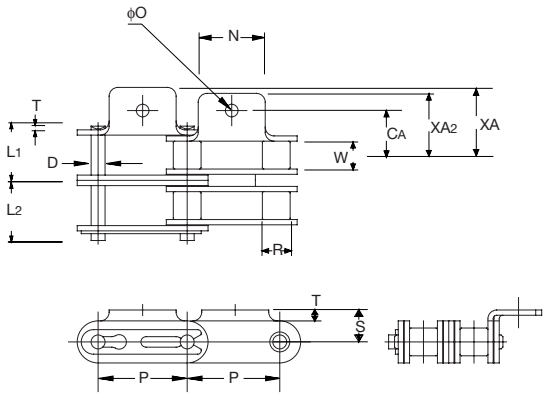
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Transverse Pitch C
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	
Standard Roller Type										
C2040-2	1.000	0.312	0.313	0.059	0.472	0.156	1.283	0.608	0.675	0.566
C2050-2	1.250	0.400	0.375	0.079	0.591	0.200	1.593	0.761	0.832	0.712
C2060H-2	1.500	0.469	0.500	0.126	0.677	0.235	2.255	1.090	1.165	1.031
C2080H-2	2.000	0.625	0.625	0.157	0.906	0.313	2.830	1.362	1.468	1.283
Oversize Roller Type										
C2042-2	1.000	0.625	0.313	0.059	0.472	0.156	1.283	0.608	0.675	0.566
C2052-2	1.250	0.750	0.375	0.079	0.591	0.200	1.593	0.761	0.832	0.712
C2062H-2	1.500	0.875	0.500	0.126	0.677	0.235	2.255	1.090	1.165	1.031
C2082H-2	2.000	1.125	0.625	0.157	0.906	0.313	2.830	1.362	1.468	1.283

Standard Attachment Chain

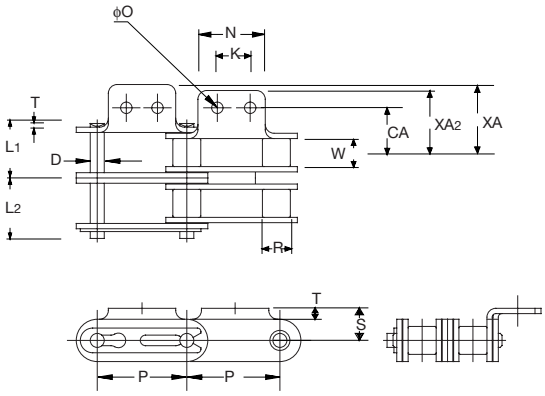
Double Pitch-Double Strand

Standard Attachment Chain

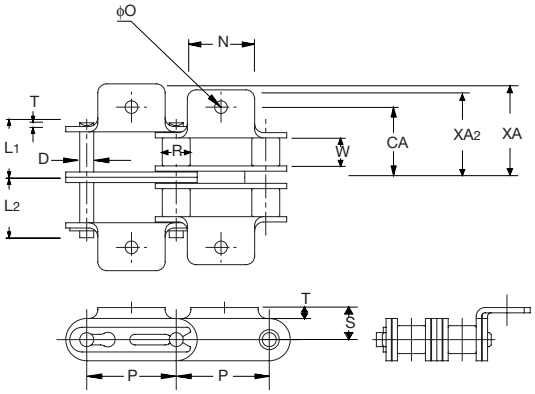
A-1 Attachment



A-2 Attachment



K-1 Attachment



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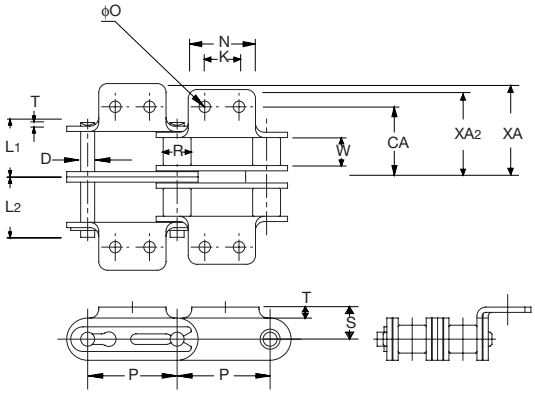
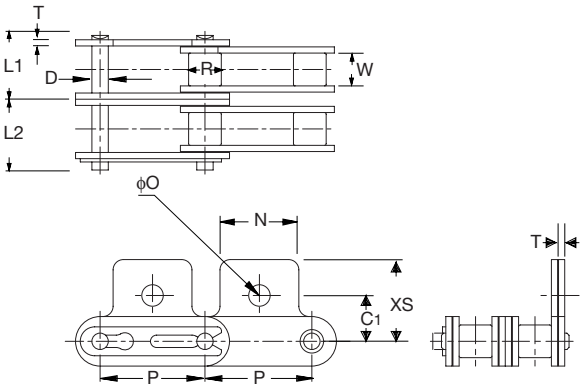


SA-1 Attachment



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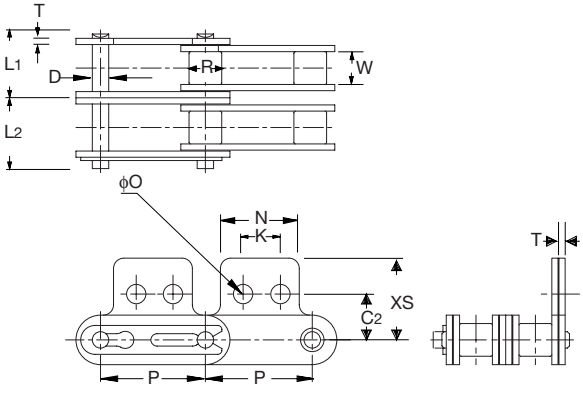
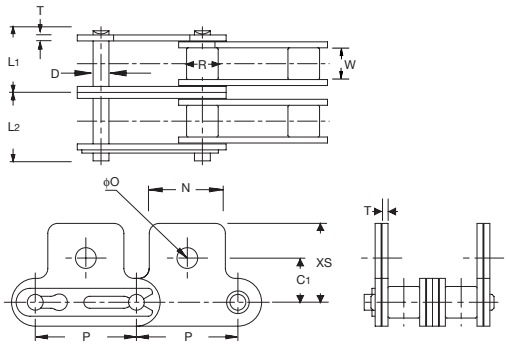


Double Pitch-Double Strand

Standard Attachment Chain

SK-1 Attachment



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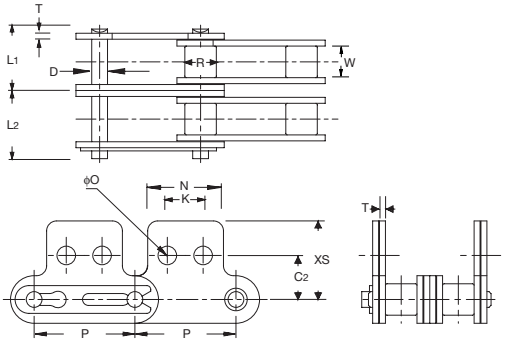
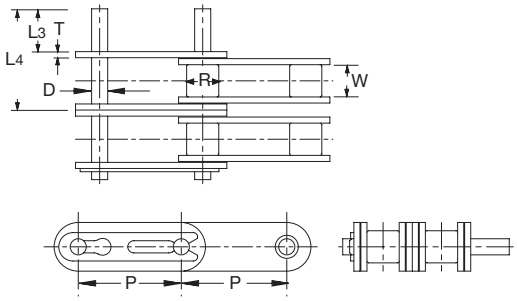
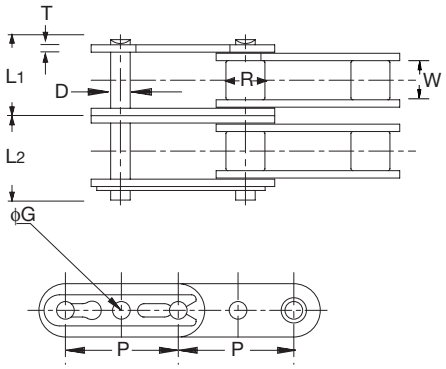


D Attachment



GK-1 Attachment



All dimensions in inches unless otherwise stated.

Chain Number	Chain Number	Attachment Dimensions						
		P	C_A	C_1	C_2	K	N	O
C2040-2	C2042-2	1.000	0.783	0.437	0.535	0.374	0.752	0.142
C2050-2	C2052-2	1.250	0.982	0.563	0.626	0.469	0.937	0.205
C2060H-2	C2062H-2	1.500	1.360	0.689	0.752	0.563	1.126	0.205
C2080H-2	C2082H-2	2.000	1.736	0.874	1.000	0.752	1.500	0.268

Chain Number	Chain Number	Attachment Dimensions									
		O_1	S	T	X_A	X_{A2}	X_S	D	L_3	L_4	G
C2040-2	C2042-2	0.205	0.358	0.060	1.043	0.976	0.780	0.156	0.374	0.942	0.161
C2050-2	C2052-2	0.268	0.437	0.078	1.309	1.222	0.969	0.200	0.469	1.183	0.201
C2060H-2	C2062H-2	0.343	0.579	0.125	1.755	1.625	1.205	0.234	0.563	1.598	0.240
C2080H-2	C2082H-2	0.406	0.752	0.156	2.244	2.082	1.594	0.312	0.752	2.039	0.319

Attachment Chain Selection Procedure

Tsubaki ANSI single and double pitch roller chain is widely used for conveyor service. The following procedure is useful for economical and quick chain selection.

Step 1 : Confirm the operating conditions of the conveyor
Step 2 : Tentatively select the chain size
Step 3 : Calculate the design chain tension (actual chain tension)
Step 4 : Verify the chain selection
Step 5 : Verify the allowable roller load

Step 1 **Confirm the operating conditions of the conveyor**

The following information is needed to design a chain conveyor.

① Type of conveyor (slat conveyor, bucket elevator, etc.)
② Method of chain travel (horizontal, inclined, or vertical conveyor)
③ Type, weight, and size of materials to be conveyed
④ Weight of materials to be transported per foot of conveyor length
⑤ Conveyor speed
⑥ Conveyor length
⑦ Lubrication
⑧ Considerations for special environments

Step 2 **Tentatively select chain size**

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

T (lbs.) = MT X f X k1 ····· (1)

MT: Total weight of material conveyed (lbs)

f: Coefficient of friction, sliding and/or rolling (f_1. f_2 of Table I and II)

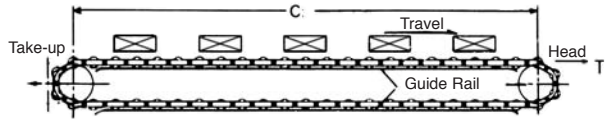
k1: Chain speed coefficient (Table III)

Step 3 **Calculate chain tension**

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

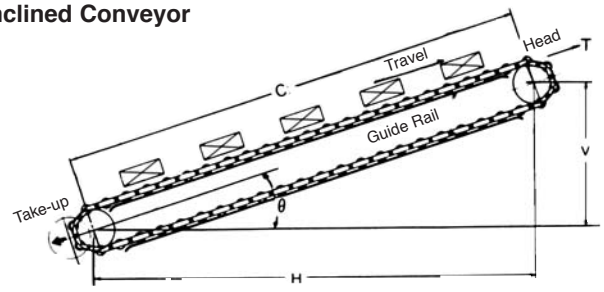
1. Chain rolling

■ **Horizontal Conveyor**



$T = (M + 2.1w)\ f_1 C$ .....(2)

■ **Inclined Conveyor**



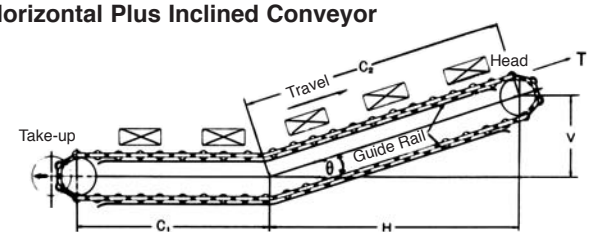
$T = (M + w)\ (f_1\ C\cos\theta + C\sin\theta) + 1.1w\ (f_1 C\cos\theta - C\sin\theta)$.....(3)

When $(f_1 C\cos\theta - C\sin\theta) < 0$. 1.1 w $(f_1 C\cos\theta - C\sin\theta) = 0$

or $T = (M + w)\ (V + f_1 H) + 1.1w\ (f_1 H - V)$ .....(4)

When $(f_1 H - V) < 0$. 1.1 w $(f_1 H - V) = 0$

■ **Horizontal Plus Inclined Conveyor**



$T = (M+2.1w)\ f_1 C_1 + (M+w)\ (f_1 C_2\cos\theta + C_2\sin\theta)$

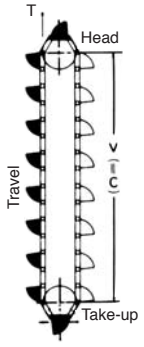
$+ 1.1w\ (f_1 C_2\cos\theta - C_2\sin\theta)$ .....(5)

When $(f_1 C_2\cos\theta - C_2\sin\theta) < 0$. 1.1 w $(f_1 C\cos\theta - C_2\sin\theta) = 0$.

or $T = (M+2.1w)\ f_1 C_1 + (M+w)\ (V+f_1 H) + 1.1w\ (f_1 H - V)$

When $(f_1 H - V) < 0$. 1.1w $(f_1 H - V) = 0$ .....(6)

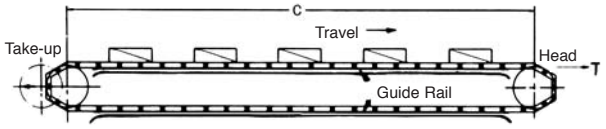
■ **Vertical Conveyor**



$T = (M + w)V$ ·····(7)

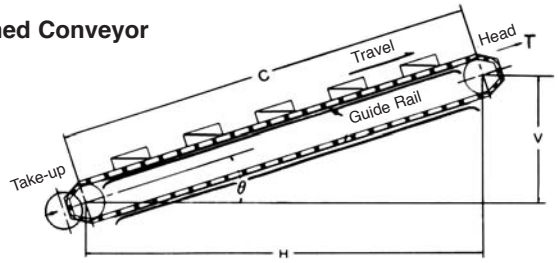
2. Chain sliding

■ **Horizontal Conveyor**



$$T = (M + 2.1w)\, f_2 C \quad \text{..... (8)}$$

■ **Inclined Conveyor**



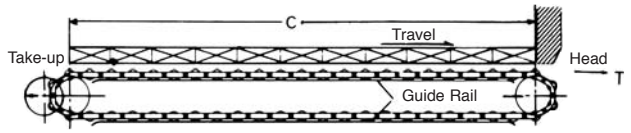
$$T = (M + w)(f_2 C\cos\theta + C\sin\theta) + 1.1w(f_2 C\cos\theta - C\sin\theta)$$
$$\text{..... (9)}$$

When $(f_2 C\cos\theta - C\sin\theta) < 0$. $1.1w(f_2 C\cos\theta - C\sin\theta) = 0$

or $T = (M + w)(V + f_2 H) + 1.1w(f_2 H - V)$ ..... (10)

When $(f_2 H - V) < 0$. $1.1w(f_2 H - V) = 0$.

Horizontal Conveyor for Top Roller Chain and Plastic Side Roller Chain



$$T = \left\{ (M(f_1 + f_2) + 2.1w \frac{f_1 + f_2}{2} \right\} C \quad \text{..... (11)}$$

3. Calculate the required power

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

■ **Horizontal and/or Inclined Conveyor**

$$HP = \frac{T \cdot S}{33{,}000 \times \eta} \quad \text{.....(12)}$$

■ **Vertical Conveyor**

$$HP = \frac{M \cdot V \cdot S}{33{,}000 \times \eta} \quad \text{.....(13)}$$

Where

T = Chain tension (lbs.)
w = Weight of chain and attachments per ft. (lbs./ft.)
M = Weight of material conveyed per ft. (lbs./ft.)
V = Vertical center distance of conveyor (ft.)
H = Horizontal center distance of conveyor (ft.)
C = Center distance between sprocket (ft.)
f_1 = Coefficient of rolling friction between chain and guide rail (Table I)
f_2 = Coefficient of sliding friction between chain and guide rail (Table II)
η = Transmission efficiency

$$S = \text{Speed} = \frac{P \cdot N \cdot n}{12} \text{ (ft./min.)}$$

P = Chain pitch (inch)
N = Number of teeth
n = Sprocket speed (rpm)

Table I : Coefficient of Rolling Friction (f_1)

Type of Roller	Dry	Lubricated
Oversize "R" roller type	0.12	0.08
Standard "S" roller type	0.21	0.14
Top roller type	0.09	0.06

Table II : Coefficient of Sliding Friction (f_2)

Dry	Lubricated
0.3	0.2

Step 4 **Verify chain selection**

Multiply the chain tension (T) by the chain speed coefficient (k1) listed in Table III and verify the following formula.

$T \times k_1 \leq$ Max. allowable load of the chain . . . . . .(14)

Table III : Chain Speed Coefficient (k_1)

Chain Speed (ft./min)	Speed Factor (K_1)
0 ~ 50	1.0
50 ~ 100	1.2
100 ~ 160	1.4
160 ~ 230	1.6
230 ~ 300	2.2
300 ~ 360	2.8
360 ~ 400	3.2

When the design chain tensions ($T \times k_1$) is over the allowable load or much less than it, try the same steps again for the next bigger or smaller chain size to select a more suitable chain.

Step 5 **Verify the allowable roller load**

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

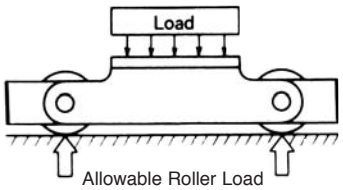


Table IV : Allowable Roller Load

Chain No.		Allowable Roller Load lbs./roller		
		Oversize Roller	Plastic Oversize Roller	Standard Roller
C2040	**RS 40**	143	44	33
C2050	**RS 50**	220	66	44
C2060H	**RS 60**	350	110	66
C2080H	**RS 80**	590	198	120
C2100H	**RS100**	880	286	180
C2120H	**RS120**	1,320	–	260
–	**RS140**	–	–	300
C2160H	**RS160**	2,160	–	430

Note: Oversize "R" rollers are available only for double pitch roller chains.

Attachment Chain Selection Procedure

Points to consider:

1) For long conveyors, use take-up devices to eliminate chain slack.
   Take-up stroke = (center distance between sprockets X 0.02) + catenary sag allowance.
2) Chain must always be engaged with at least 3 sprocket teeth.
3) When two or more strands of conveyor chain operate, all sprocket teeth on the head shaft should be aligned. The chain may be matched at the factory for uniform length and attachment alignment for accurate multiple strand operation.

Considerations for Use in Special Environments

ANSI standard and double pitch conveyor chain can be operated normally in ambient temperatures between 15°F and 140°F without trouble. When the chain is operated in very low or high temperatures, or in an abrasive or corrosive atmosphere, the following should be taken into account.

1. Under very low or high temperatures:
   chain must be selected in a different manner when it is operated in freezing chambers, cold areas, when it passes through a heat-treatment furnace, or is affected by heat from the material conveyed.

2. In wet conditions:
   When chain is exposed to water, e.g., in a sterilizer or water screen, excessive wear due to insufficient lubrication and rust may shorten chain life. In these cases, a larger chain size provides less bearing pressure and stainless steel or plated chain will provide rust prevention.

3. In corrosive conditions:
   When chain is exposed to an acidic or alkaline solution and/or operated in a corrosive atmosphere, excessive wear may occur due to chemical corrosion on the chain parts in addition to mechanical wear.

4. In dusty conditions:
   When conveyor chain is operated in dusty conditions, i.e., in the presence of metal powder, and sand, etc., the chain wears very quickly because foreign material gets between the parts of the chain and also the engaging surfaces of the sprocket teeth and chain.

   In such cases, select a larger chain size to reduce the bearing pressure or choose a chain especially designed for high wear resistance.

The foregoing information is intended to provide general guidelines for conveyor chain selection. Consult with Tsubaki for specific application problems.

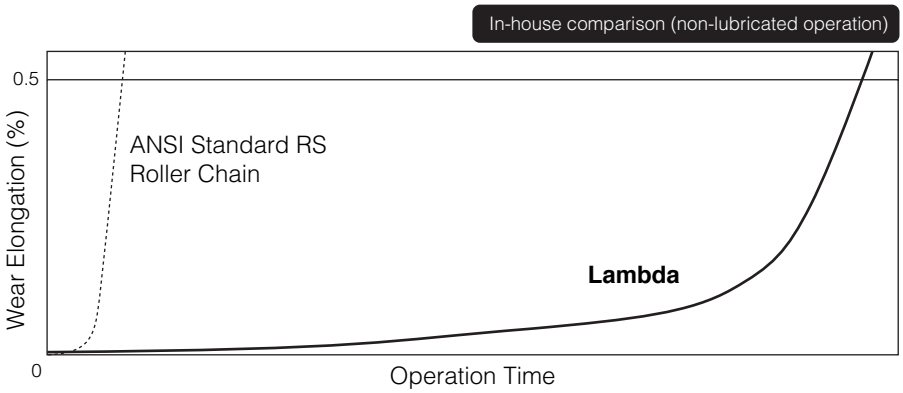
"Original" Lambda Lube-Free Conveyor Chain

Lambda chain increases productivity and saves money.
- Reduce maintenance time.
- Eliminate product contamination.
- Reduce downtime.

■ Long life and low maintenance

Lambda chains use special oil-impregnated bushings to provide lubrication and to prolong wear life.

Ambient Temperature: –10°C ~ +60°C (+14°F ~ +140°F)



- More than 14 times the wear elongation life of ANSI Standard RS Roller Chain
  (N.B. #120 and #140 have 5 times the life of ANSI Standard RS Roller Chain)

■ Interchangeability

Lambda Chain is interchangeable with ANSI Standard RS Roller Chain. However, as the pins are longer than that of Standard RS Roller Chain, please make sure that there is no interference with the machine.

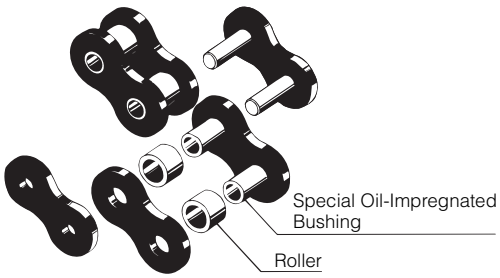
■ Operating Temperature

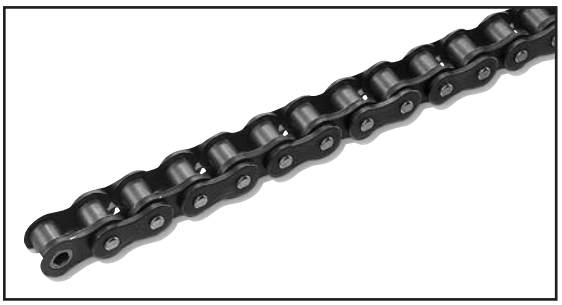
–10°C ~ +150°C (+14°F ~ +302°F)

■ Sprocket

ANSI Standard RS Roller Chain sprockets can be used. (Limited to single strand Roller Chain only)

■ Basic Construction

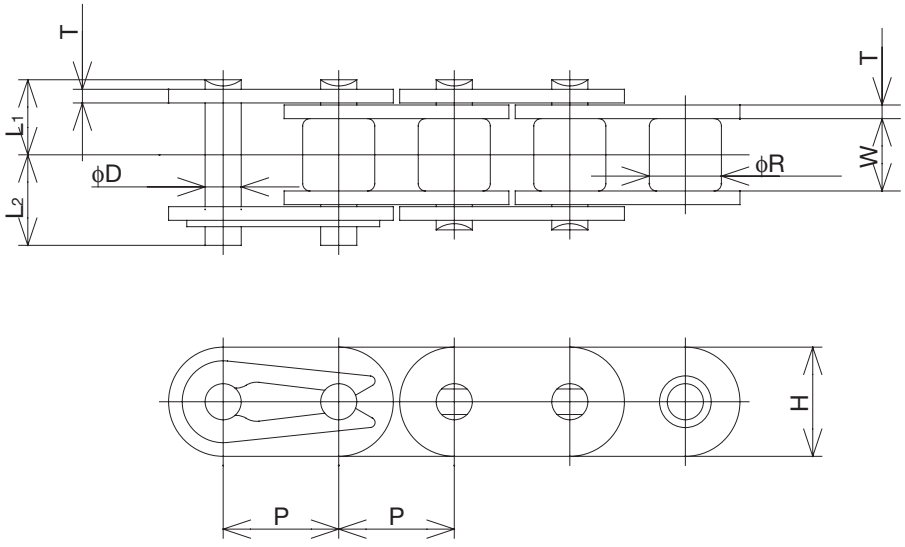




Lambda Chain (Std.): Inner/Outer plates are blackened
Lambda Chain (Nickel Plated): All nickel-plated (except bushings)

RS Single Pitch Carbon Steel/Nickel Plated

Conveyor Lambda



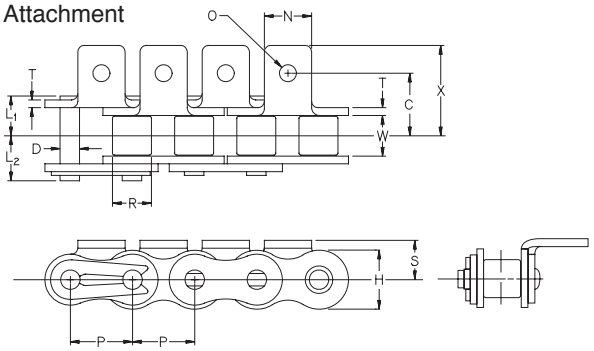
All dimensions in inches unless otherwise stated.

Carbon Steel Chain Number	Nickel Plated (NP) Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
					Thickness T	Height H	Dia. D	Length L_1+L_2	Length L_1	Length L_2			
RSC35 LAMBDA	RSC35NP LAMBDA	0.375	* 0.200	0.188	0.049	0.354	0.118	0.500	0.230	0.270	2,110	340	0.22
RSC40 LAMBDA	RSC40NP LAMBDA	0.500	0.312	0.313	0.059	0.472	0.156	0.717	0.325	0.392	3,520	590	0.43
RSC50 LAMBDA	RSC50NP LAMBDA	0.625	0.400	0.375	0.079	0.591	0.200	0.878	0.406	0.472	5,720	970	0.70
RSC60 LAMBDA	RSC60NP LAMBDA	0.750	0.469	0.500	0.094	0.713	0.235	1.087	0.506	0.581	8,360	1,410	1.03
RSC80 LAMBDA	RSC80NP LAMBDA	1.000	0.625	0.625	0.126	0.949	0.313	1.398	0.640	0.758	14,300	2,400	1.78
RSC100 LAMBDA	RSC100NP LAMBDA	1.250	0.750	0.750	0.157	1.185	0.376	1.677	0.778	0.900	22,440	3,830	2.67

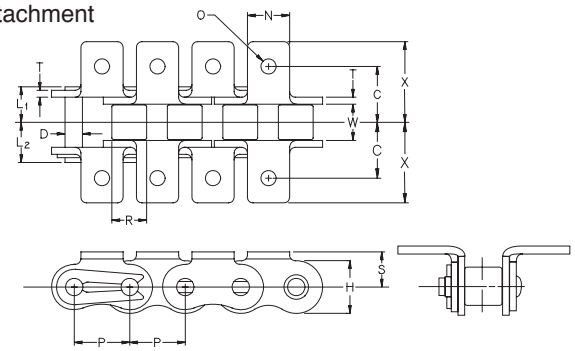
RS Single Pitch Carbon Steel/Nickel Plated

Conveyor Lambda

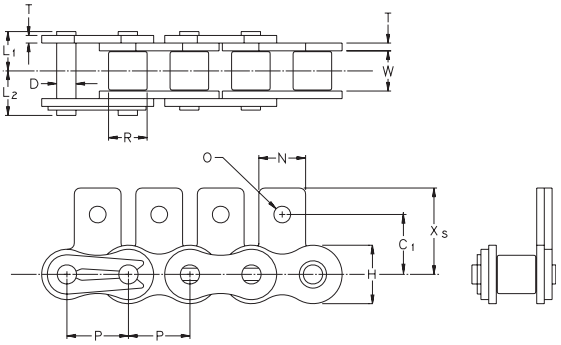
A-1 Attachment



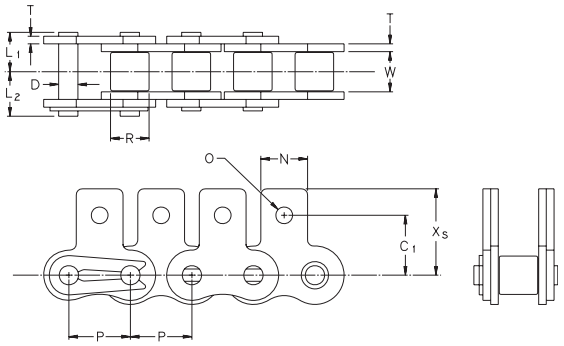
K-1 Attachment



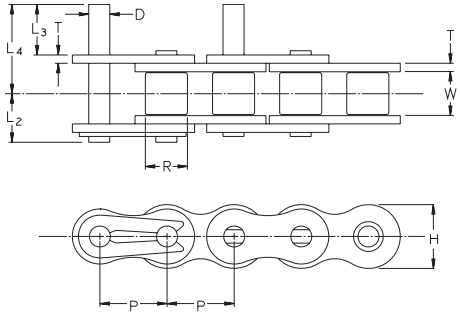
SA-1 Attachment



SK-1 Attachment



D-1 Attachment



All dimensions in inches unless otherwise stated.

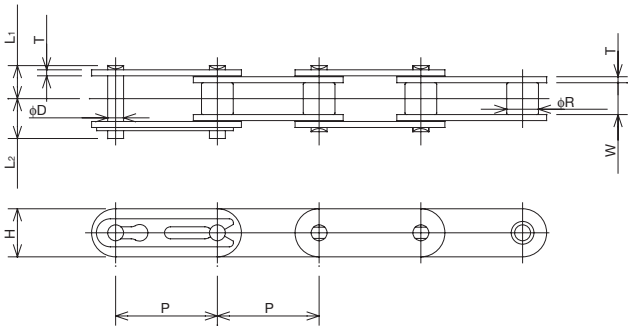
Carbon Steel Chain Number	Nickel Plated (NP) Chain Number	C	C_1	N	O	S	X	X_2	X_S	L_3	L_4	Additional Wt. per Attach. (lbs.)		
												A, SA	K, SK	D
RSC35 LAMBDA	RSC35NP LAMBDA	0.374	0.374	0.311	0.102	0.250	0.563	0.563	0.573	0.374	0.575	0.002	0.004	0.002
RSC40 LAMBDA	RSC40NP LAMBDA	0.500	0.500	0.374	0.142	0.315	0.701	0.701	0.685	0.374	0.659	0.004	0.009	0.002
RSC50 LAMBDA	RSC50NP LAMBDA	0.626	0.626	0.500	0.205	0.406	0.921	0.921	0.907	0.469	0.827	0.007	0.013	0.004
RSC60 LAMBDA	RSC60NP LAMBDA	0.750	0.720	0.626	0.205	0.469	1.110	1.110	1.057	0.563	1.014	0.015	0.031	0.007
RSC80 LAMBDA	RSC80NP LAMBDA	1.000	0.969	0.752	0.268	0.626	1.441	1.441	1.396	0.752	1.333	0.029	0.057	0.015
RSC100 LAMBDA	RSC100NP LAMBDA	1.250	1.252	1.000	0.343	0.780	1.768	1.768	1.732	0.937	1.644	0.057	0.114	0.026

* denotes that this size RSC35 is rollerless. The value shown is for the bushing diameter.

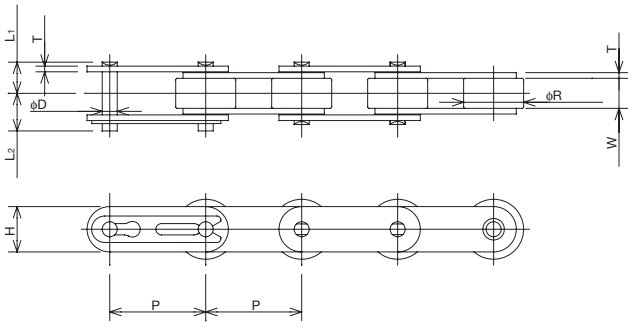
Carbon Steel/Nickel Plated-Double Pitch

Conveyor Lambda

Standard Roller Type



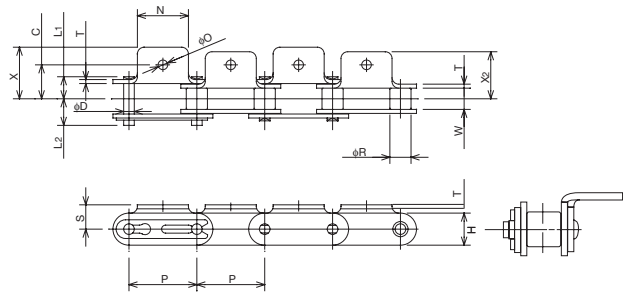
Oversize Roller Type



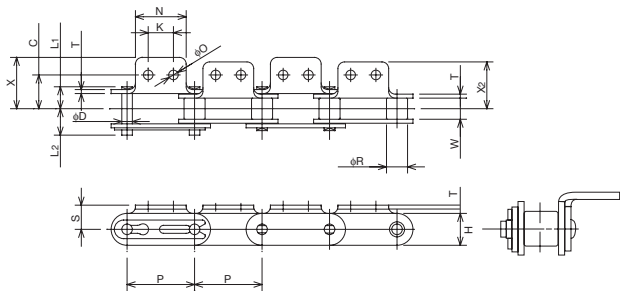
All dimensions in inches unless otherwise stated.

Carbon Steel Chain Number	Nickel Plated (NP) Chain Number	Pitch P	Roller Diameter		Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight	
			Std. Roller Type R	O/S Roller Type R		Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2			Standard type Roller (lbs./ft.)	O/S type Roller (lbs./ft.)
C2040 LAMBDA	C2040NP LAMBDA	1.000	0.312	0.625	0.313	0.059	0.472	0.156	0.717	0.325	0.392	3,520	590	0.34	0.58
C2050 LAMBDA	C2050NP LAMBDA	1.250	0.400	0.750	0.375	0.079	0.591	0.200	0.878	0.406	0.472	5,720	970	0.56	0.87
C2060H LAMBDA	C2060HNP LAMBDA	1.500	0.469	0.875	0.500	0.126	0.677	0.235	1.224	0.573	0.652	8,360	1,410	1.01	1.47
C2080H LAMBDA	C2080HNP LAMBDA	2.000	0.625	1.125	0.625	0.157	0.906	0.313	1.543	0.720	0.823	14,300	2,400	1.61	2.36
C2100H LAMBDA	C2100HNP LAMBDA	2.500	0.750	1.563	0.750	0.189	1.126	0.376	1.823	0.858	0.965	22,440	3,830	2.37	3.89

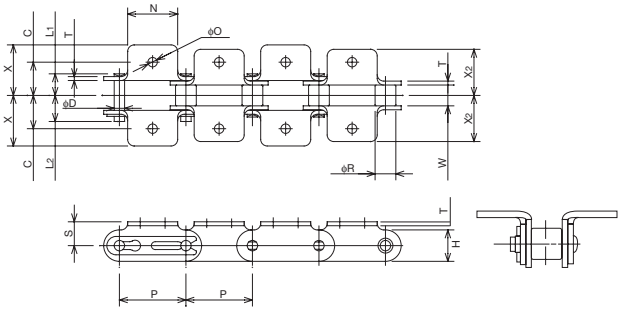
A-1 Attachment



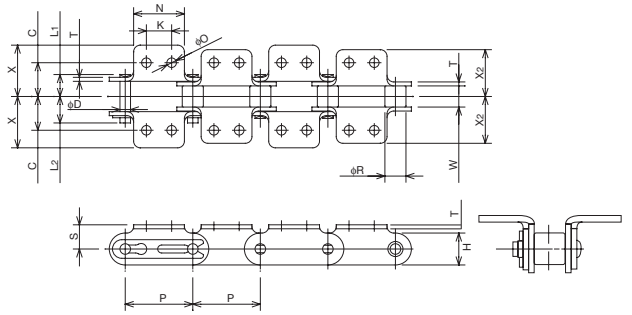
A-2 Attachment



K-1 Attachment

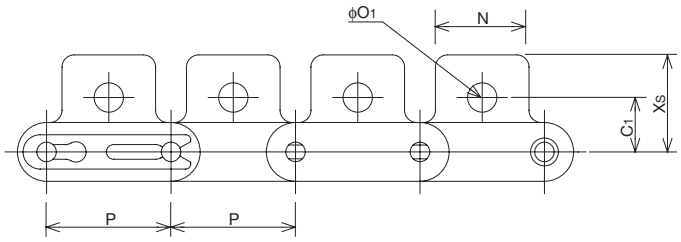


K-2 Attachment

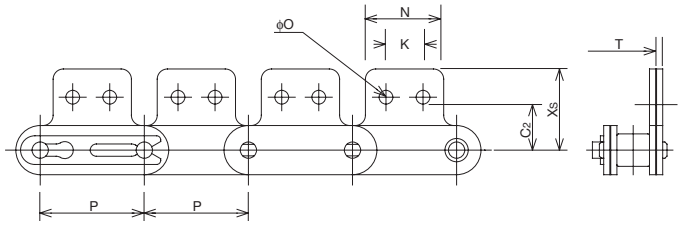


Carbon Steel/Nickel Plated-Double Pitch

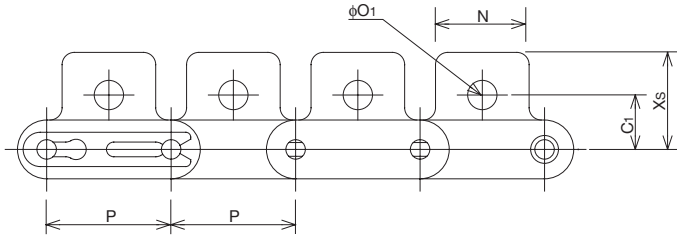
Conveyor Lambda



SA-1 Attachment



SA-2 Attachment



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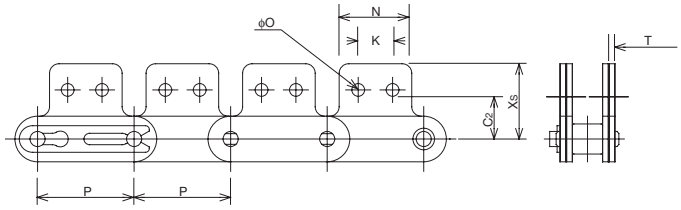
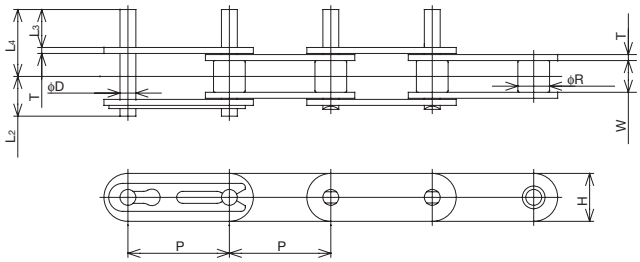


SK-2 Attachment



D Attachment

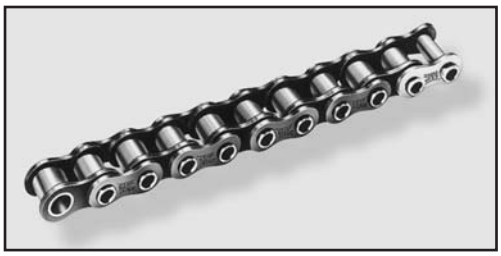
All dimensions in inches unless otherwise stated.

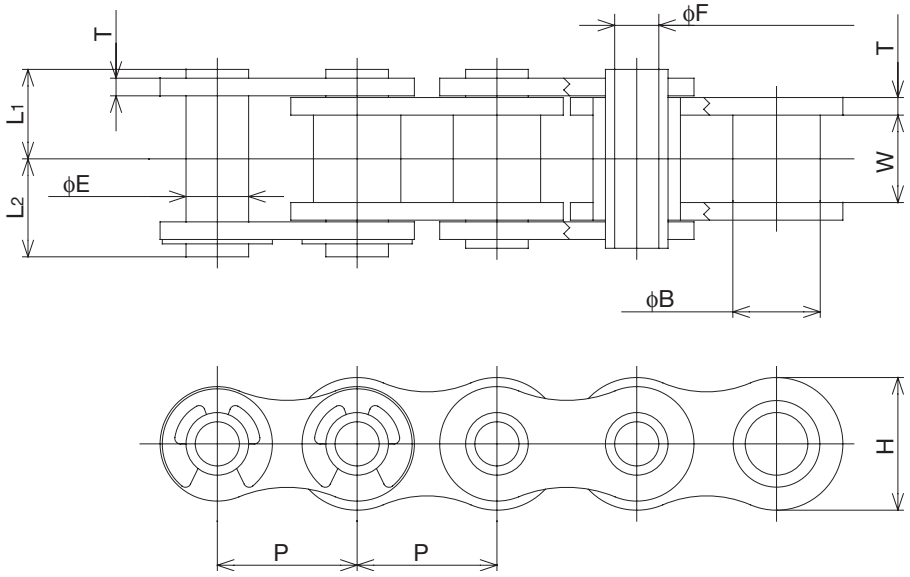
Carbon Steel Chain Number	Nickel Plated (NP) Chain Number	Attachment Dimensions							
		C	C_1	C_2	K	N	O	O_1	S
C2040 LAMBDA	C2040NP LAMBDA	0.500	0.437	0.535	0.374	0.752	0.142	0.205	0.358
C2050 LAMBDA	C2050NP LAMBDA	0.626	0.563	0.626	0.469	0.937	0.205	0.268	0.437
C2060H LAMBDA	C2060HNP LAMBDA	0.844	0.689	0.752	0.563	1.126	0.205	0.343	0.579
C2080H LAMBDA	C2080HNP LAMBDA	1.094	0.874	1.000	0.752	1.500	0.268	0.406	0.752
C2100H LAMBDA	C2100HNP LAMBDA	1.313	1.126	1.252	0.937	1.874	0.343	0.563	0.921

Carbon Steel Chain Number	Nickel Plated (NP) Chain Number	Attachment Dimensions								Additional Wt./Attachment (lbs.)		
		T	X	X_2	X_S	D	L_3	L_4	G	A, SA Attach.	K, SK Attach.	D Attach.
C2040 LAMBDA	C2040NP LAMBDA	0.059	0.760	0.693	0.780	0.156	0.374	0.663	0.161	0.007	0.013	0.002
C2050 LAMBDA	C2050NP LAMBDA	0.079	0.953	0.866	0.969	0.200	0.469	0.833	0.201	0.013	0.026	0.004
C2060H LAMBDA	C2060HNP LAMBDA	0.126	1.240	1.110	1.205	0.235	0.563	1.083	0.240	0.037	0.075	0.007
C2080H LAMBDA	C2080HNP LAMBDA	0.157	1.602	1.441	1.594	0.313	0.752	1.401	0.319	0.070	0.141	0.015
C2100H LAMBDA	C2100HNP LAMBDA	0.189	1.965	1.768	1.984	0.376	0.937	1.709	0.398	0.132	0.264	0.026

RS Single Pitch Hollow Pin

Conveyor Lambda



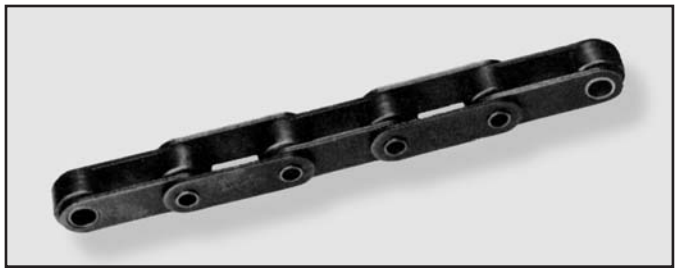


All dimensions in inches unless otherwise stated.

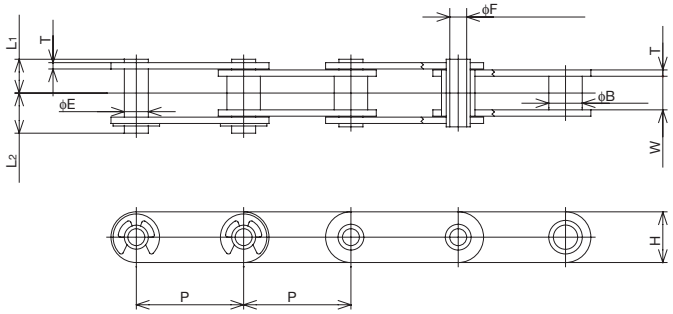
Chain Number	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate		Pin					Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Outer Diameter E	Inner Diameter (min.) F	Length $L_1 + L_2$	Length L_1	Length L_2			
RSC40HP-LAMBDA	0.500	0.312	0.313	0.059	0.472	0.224	0.157	0.689	0.315	0.374	2,420	330	0.36
RSC50HP-LAMBDA	0.625	0.400	0.375	0.079	0.591	0.284	0.202	0.854	0.396	0.459	4,400	570	0.58
RSC60HP-LAMBDA	0.750	0.469	0.500	0.094	0.713	0.330	0.236	1.055	0.494	0.561	5,940	770	0.85
RSC80HP-LAMBDA	1.000	0.625	0.625	0.126	0.949	0.448	0.316	1.341	0.640	0.701	10,780	1,390	1.44

Hollow Pin-Double Pitch

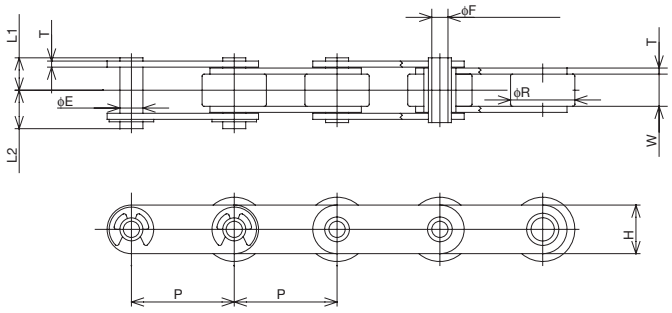
Conveyor Lambda



Standard Bushed Type



Oversize Roller Type

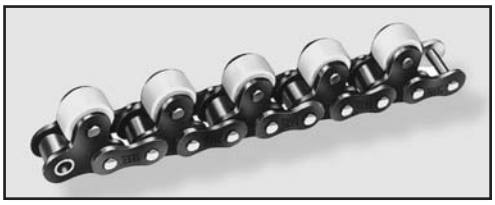


All dimensions in inches unless otherwise stated.

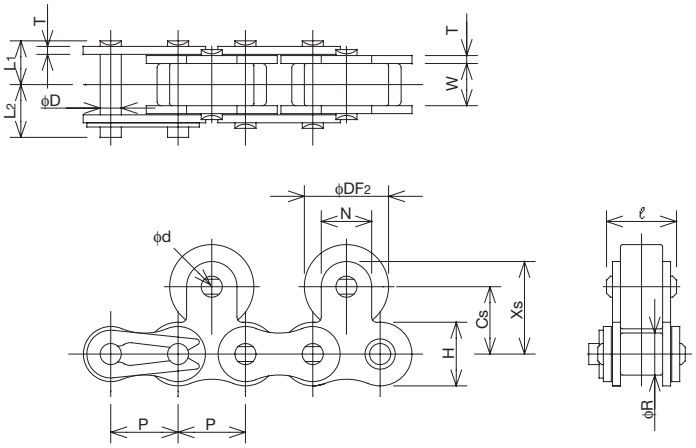
Chain Number	Pitch P	Bushing Diameter B	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin					Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
					Thickness T	Height H	Outer Dia. E	Inner Dia. F (min.)	Length $L_1 + L_2$	Length L_1	Length L_2			
Standard Bushed Type														
C2040HP-LAMBDA	1.000	0.312	-	0.313	0.059	0.472	0.224	0.157	0.689	0.315	0.374	2,420	330	0.31
C2050HP-LAMBDA	1.250	0.400	-	0.375	0.079	0.591	0.284	0.202	0.854	0.396	0.459	4,400	570	0.50
C2060HP-LAMBDA	1.500	0.469	-	0.500	0.094	0.677	0.330	0.236	1.055	0.494	0.561	5,940	770	0.92
C2080HP-LAMBDA	2.000	0.625	-	0.625	0.126	0.905	0.448	0.316	1.341	0.640	0.701	10,780	1,390	1.21
Oversize Roller Type														
C2042HP-LAMBDA	1.000	-	0.625	0.313	0.059	0.472	0.224	0.157	0.689	0.315	0.374	2,420	330	0.55
C2052HP-LAMBDA	1.250	-	0.750	0.375	0.079	0.591	0.284	0.202	0.854	0.396	0.459	4,400	570	0.81
C2062HP-LAMBDA	1.500	-	0.875	0.500	0.094	0.677	0.330	0.236	1.055	0.494	0.561	5,940	770	1.38
C2082HP-LAMBDA	2.000	-	1.125	0.625	0.126	0.905	0.448	0.316	1.341	0.640	0.701	10,780	1,390	1.88

RS Single Pitch Plastic Top Roller

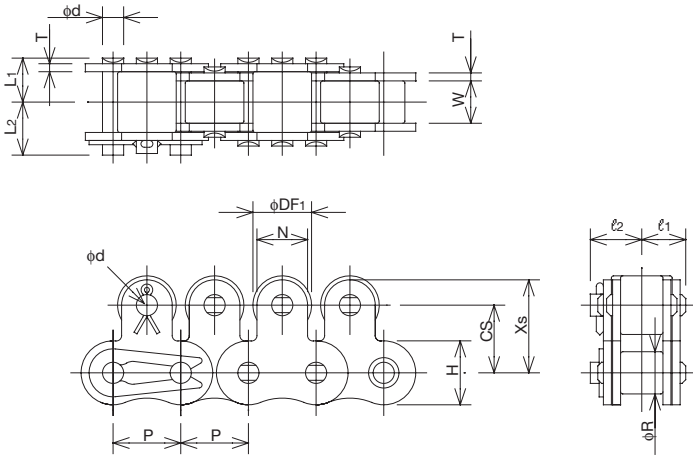
Conveyor Lambda



Top rollers spaced at every second link.



Top rollers spaced at every link.



All dimensions in inches unless otherwise stated.

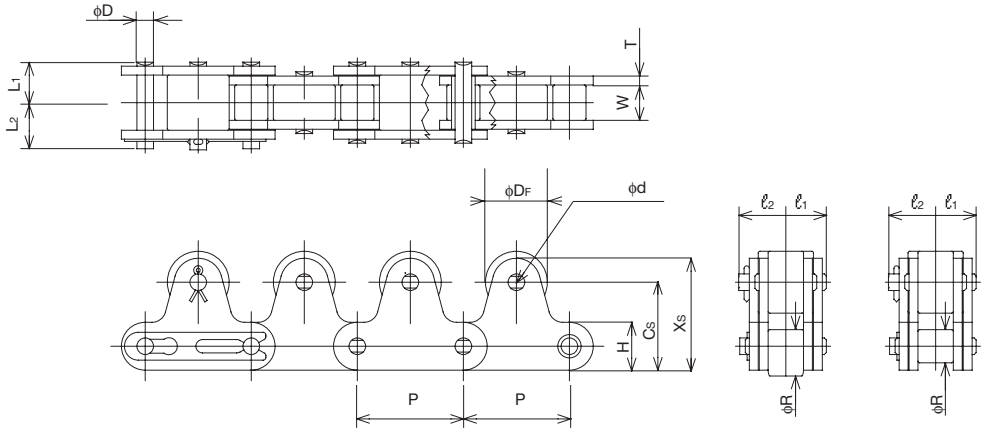
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Approximate Weight	
										Plastic Top Roller	
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	At Every Link (lbs./ft.)	At Every Second LInk (lbs./ft.)
RSC40-LAMBDA-TR-P	0.500	0.312	0.313	0.059	0.472	0.156	0.717	0.325	0.392	0.62	0.57
RSC50-LAMBDA-TR-P	0.625	0.400	0.375	0.079	0.591	0.200	0.878	0.406	0.472	1.05	0.93
RSC60-LAMBDA-TR-P	0.750	0.469	0.500	0.094	0.713	0.235	1.087	0.506	0.581	1.55	1.36

All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions								
	Top Roller								
	DF_1	DF_2	C_S	N	X_S	ℓ	ℓ_1	ℓ_2	d
RSC40-LAMBDA-TR-P	0.433	0.625	0.500	0.374	0.687	0.520	0.325	0.380	0.156
RSC50-LAMBDA-TR-P	0.591	0.750	0.626	0.500	0.876	0.638	0.406	0.469	0.200
RSC60-LAMBDA-TR-P	0.709	0.875	0.720	0.626	1.033	0.811	0.506	0.600	0.235

Plastic Top Roller-Double Pitch

Conveyor Lambda



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	
Standard Roller Type										
C2040-LAMBDA-TR-P	1.000	0.312	0.313	0.059	0.472	0.156	0.717	0.325	0.392	0.61
C2050-LAMBDA-TR-P	1.250	0.400	0.375	0.079	0.591	0.200	0.878	0.406	0.472	0.96
C2060H-LAMBDA-TR-P	1.500	0.469	0.500	0.126	0.677	0.235	1.224	0.573	0.652	1.86
Oversize Roller Type										
C2042-LAMBDA-TR-P	1.000	0.625	0.313	0.059	0.472	0.156	0.717	0.325	0.392	0.85
C2052-LAMBDA-TR-P	1.250	0.750	0.375	0.079	0.591	0.200	0.878	0.406	0.472	1.27
C2062H-LAMBDA-TR-P	1.500	0.875	0.500	0.126	0.677	0.235	1.224	0.573	0.652	2.32

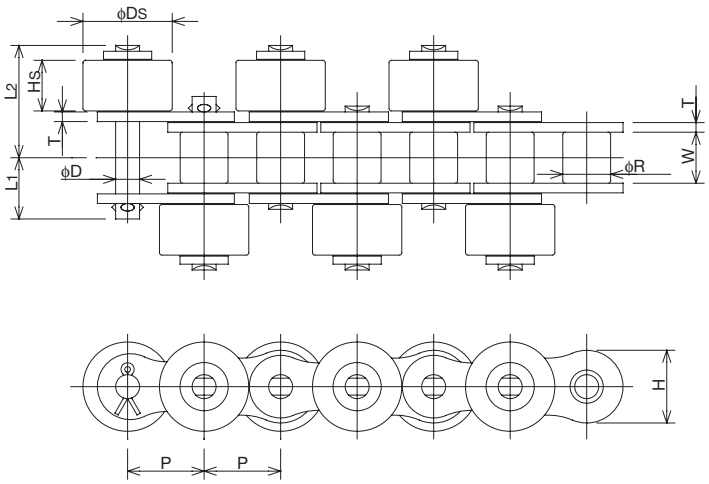
All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions					
	D_F	C_S	X_S	ℓ_1	ℓ_2	d
C2040-LAMBDA-TR-P	0.625	0.591	0.827	0.333	0.380	0.156
C2050-LAMBDA-TR-P	0.750	0.748	1.043	0.413	0.469	0.200
C2060H-LAMBDA-TR-P	0.875	0.906	1.244	0.581	0.667	0.235

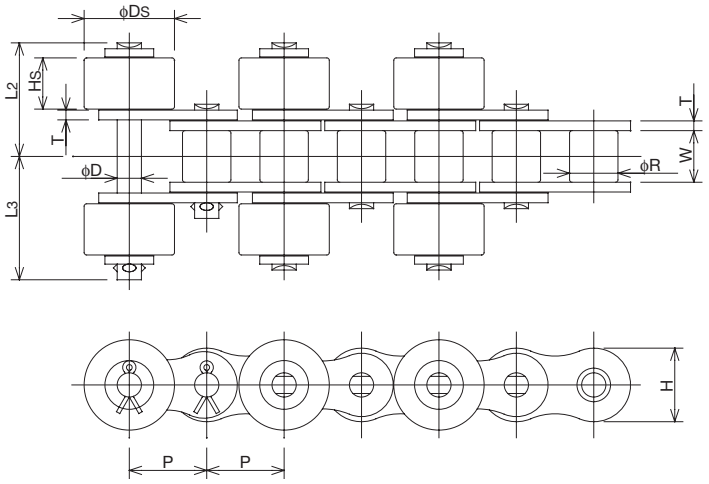
RS Single Pitch Plastic Side Roller

Conveyor Lambda

Staggered Type Installation



Horizontal (crosswise) Type Installation

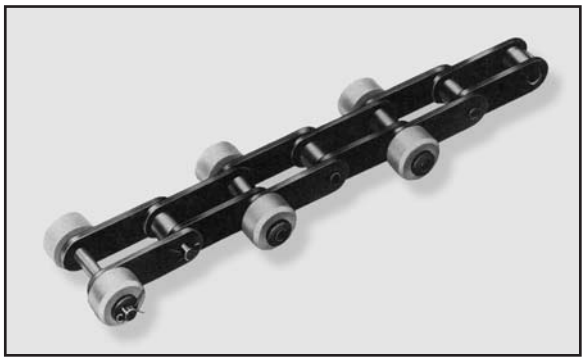


All dimensions in inches unless otherwise stated.

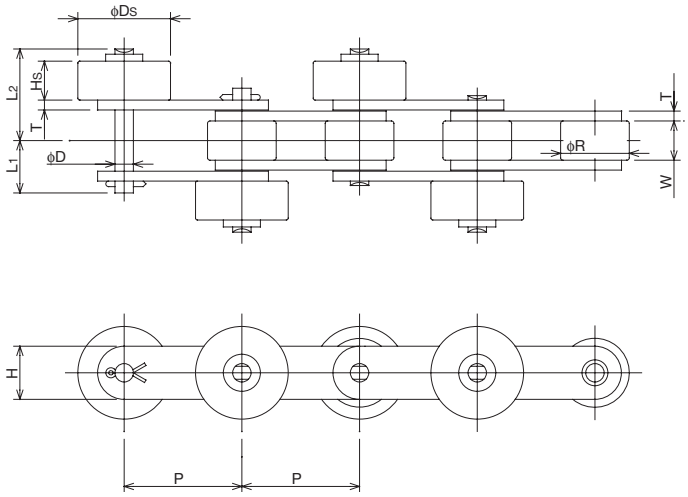
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Side Roller		Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length L_1	Length L_2	Length L_3	Dia. D_S	Height H_S	
RSC40 LAMBDA-SR-P	0.500	0.312	0.313	0.059	0.472	0.156	0.380	0.705	0.760	0.625	0.307	0.63
RSC50 LAMBDA-SR-P	0.625	0.400	0.375	0.079	0.591	0.200	0.469	0.850	0.913	0.750	0.370	0.95
RSC60 LAMBDA-SR-P	0.750	0.469	0.500	0.094	0.713	0.235	0.600	1.100	1.195	0.875	0.496	1.41

Plastic Side Roller-Double Pitch

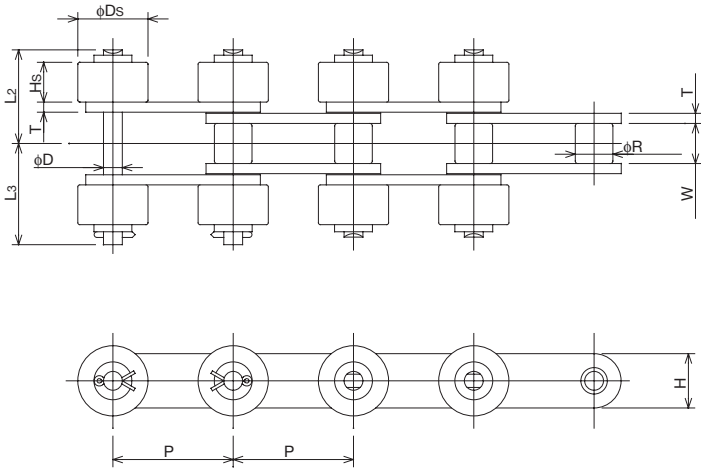
Conveyor Lambda



Staggered Type Installation



Horizontal Type Installation



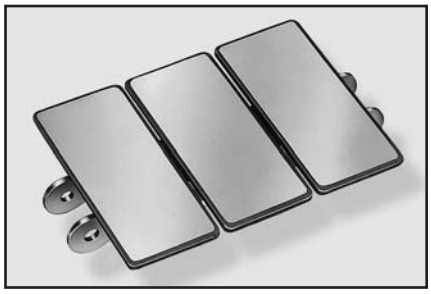
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Side Roller		Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length L_1	Length L_2	Length L_3	Dia. D_S	Height H_S	
Standard Roller Type												
C2040-LAMBDA-SR-P	1.000	0.312	0.313	0.059	0.472	0.156	0.380	0.705	0.760	0.625	0.307	0.44
C2050-LAMBDA-SR-P	1.250	0.400	0.375	0.079	0.591	0.200	0.469	0.850	0.913	0.750	0.370	0.69
C2060H-LAMBDA-SR-P	1.500	0.469	0.500	0.094	0.713	0.235	0.600	1.100	1.195	0.875	0.496	1.21
Oversize Roller Type												
C2042-LAMBDA-SR-P	1.000	0.625	0.313	0.059	0.472	0.156	0.380	0.909	1.000	0.906	0.512	0.83
C2052-LAMBDA-SR-P	1.250	0.750	0.375	0.079	0.591	0.200	0.469	0.996	1.063	1.063	0.512	1.14
C2062H-LAMBDA-SR-P	1.500	0.875	0.500	0.094	0.713	0.235	0.600	1.167	1.262	1.181	0.512	1.77

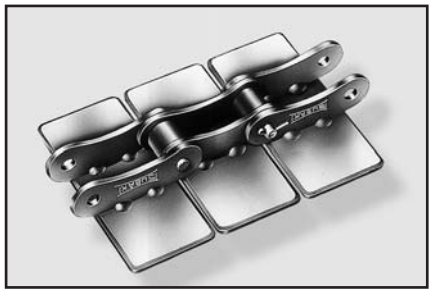
Top Chain Nickel Plated

Conveyor Lambda

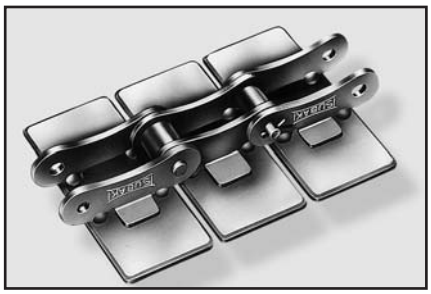
Stainless Steel Top Plates



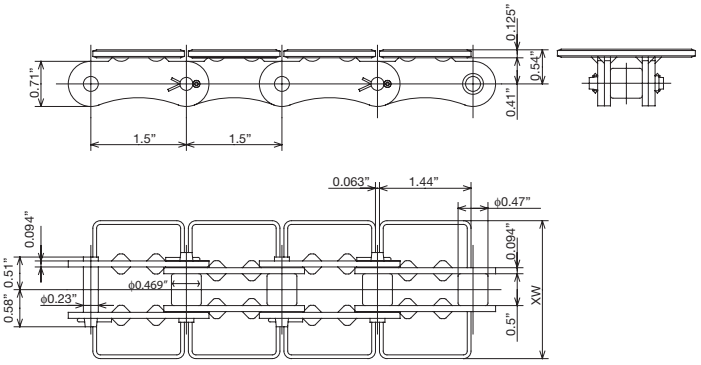
P Type



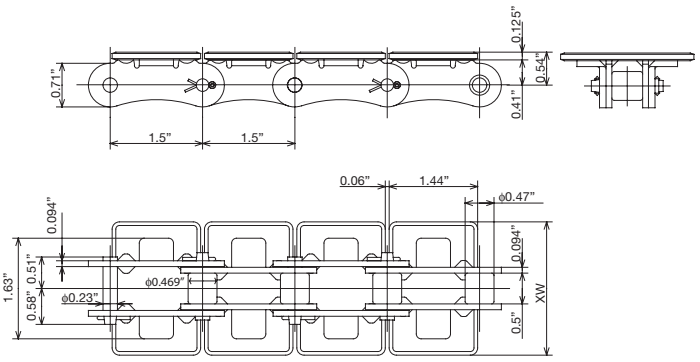
PA Type



P Type



PA Type



All dimensions in inches unless otherwise stated.

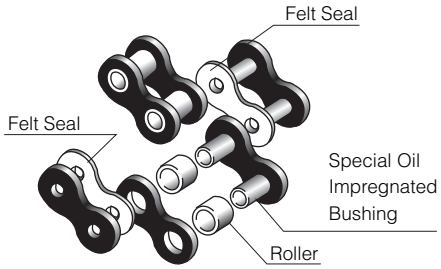
P Type Nickel Plated Chain Number	PA Type Nickel Plated Chain Number	Top Plate Width XW	Approximate Weight		Maximum Allowable Load (lbs.)
			P Type (lbs./ft.)	PA Type (lbs./ft.)	
TS550NP-P-LAMBDA	TS550NP-PA-LAMBDA	2.17"	1.7	1.9	660
TS635NP-P-LAMBDA	TS635NP-PA-LAMBDA	2.50"	1.8	2.0	660
TS762NP-P-LAMBDA	TS762NP-PA-LAMBDA	3.00"	2.0	2.2	660
TS826NP-P-LAMBDA	TS826NP-PA-LAMBDA	3.25"	2.1	2.3	660
TS950NP-P-LAMBDA	TS950NP-PA-LAMBDA	3.74"	2.3	2.5	660
TS1016NP-P-LAMBDA	TS1016NP-PA-LAMBDA	4.00"	2.5	2.7	660
TS1100NP-P-LAMBDA	TS1100NP-PA-LAMBDA	4.33"	2.6	2.8	660
TS1143NP-P-LAMBDA	TS1143NP-PA-LAMBDA	4.50"	2.7	2.9	660
TS1270NP-P-LAMBDA	TS1270NP-PA-LAMBDA	5.00"	2.9	3.1	660
TS1524NP-P-LAMBDA	TS1524NP-PA-LAMBDA	6.00"	3.3	3.5	660
TS1905NP-P-LAMBDA	TS1905NP-PA-LAMBDA	7.50"	3.9	4.1	660

X-Lambda Lube-Free Conveyor Chain

■ Longer (5x) Life than "Original" Lambda Conveyor Chain

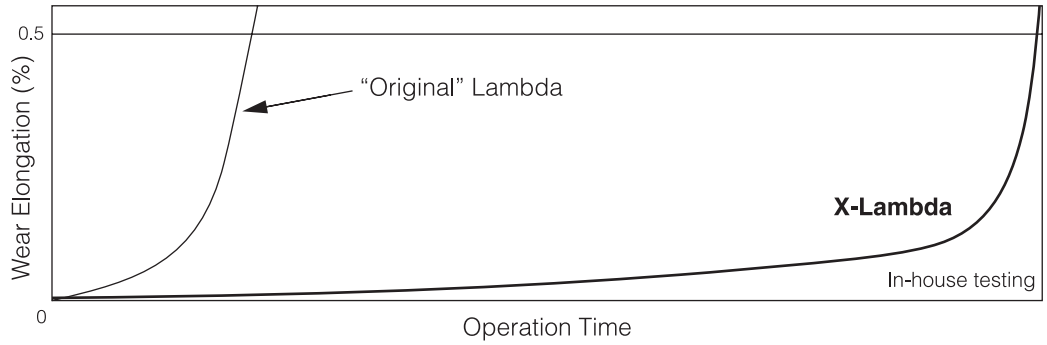
X-Lambda features an oil impregnated felt seal that provides more than 5 times the wear life of "Original" Lambda conveyor chain. (In-house comparison at –10°C ~ +60°C (+14°F ~ +140°F))

Basic Construction



Inner/Outer Plates: Blackened

Ambient temperature range (–10°C ~ +60°C/+14°F ~ +140°F)



■ Operating Temperature

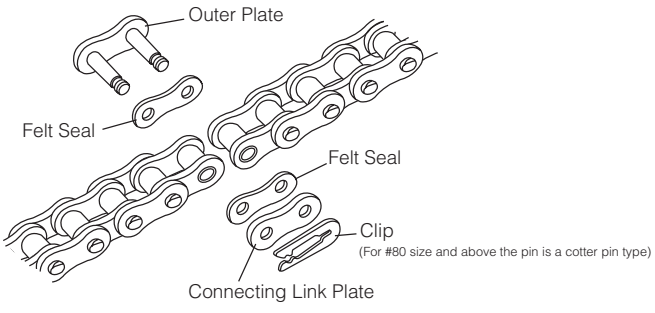
–10°C ~ +150°C (+14°F ~ +302°F)

■ Sprocket

Standard RS Roller Chain sprockets can be used.
(Only for Single Strand Chain)

■ Connecting Method

When connecting the chain, use an X-Lambda Chain connecting link (with a felt seal). As shown in Diag. 1, insert felt seals between the outer plate and the connecting link plate then attach the link.



Diag. 1 Attaching the connecting link

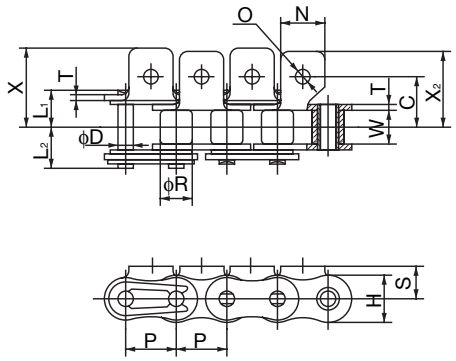
■ Important Notes:

- Inner plate is thicker than Standard RS Roller Chain. Also, due to the insertion of the felt seal, the pin (dimensions L_1 and L_2 in chain diagrams) is now longer.
- Offset links are not available - use an even number of links.
- As the felt seal is oil impregnated, the surface of X-Lambda has more oil on it than "Original" Lambda Chain.

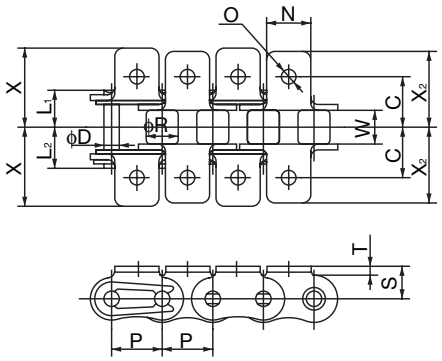
RS Single Pitch

Conveyor X-Lambda

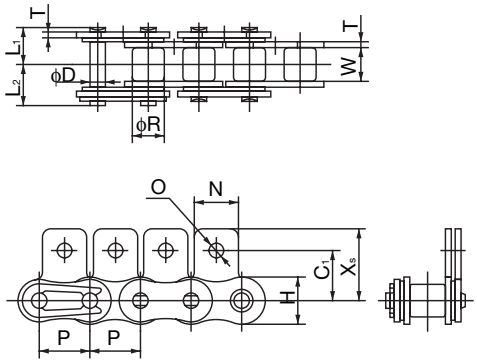
A-1 Attachment



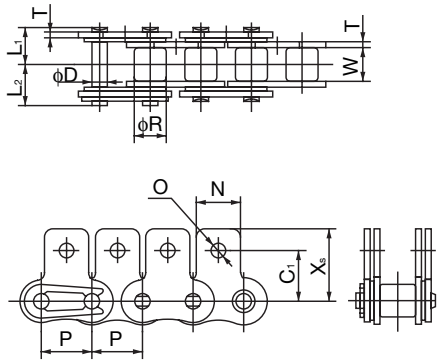
K-1 Attachment



SA-1 Attachment



SK-1 Attachment



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2			
RSC40X-LAMBDA	0.500	0.312	0.313	0.059	0.472	0.156	0.768	0.350	0.417	3,520	590	0.43
RSC50X-LAMBDA	0.625	0.400	0.375	0.079	0.591	0.200	0.933	0.433	0.500	5,720	970	0.70
RSC60X-LAMBDA	0.750	0.469	0.500	0.094	0.713	0.235	1.154	0.539	0.614	8,360	1,410	1.03
RSC80X-LAMBDA	1.000	0.625	0.625	0.126	0.949	0.313	1.465	0.673	0.791	14,300	2,400	1.80
RSC100X-LAMBDA	1.250	0.750	0.750	0.157	1.185	0.376	1.740	0.811	0.929	22,440	3,830	2.69

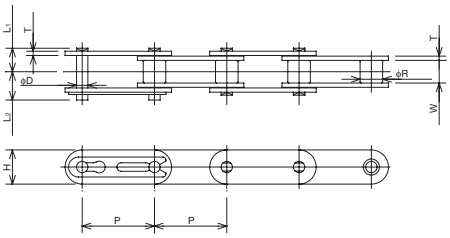
All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions								Additional Wt./Attachment	
	C	C_1	N	O	S	X	X_2	X_s	A, SA Attachment (lbs.)	K, SK Attachment (lbs.)
RSC40X-LAMBDA	0.500	0.500	0.374	0.142	0.315	0.724	0.701	0.685	0.004	0.009
RSC50X-LAMBDA	0.626	0.626	0.500	0.205	0.406	0.949	0.921	0.907	0.007	0.013
RSC60X-LAMBDA	0.750	0.720	0.626	0.205	0.469	1.144	1.110	1.057	0.015	0.031
RSC80X-LAMBDA	1.000	0.969	0.752	0.268	0.626	1.476	1.441	1.396	0.029	0.057
RSC100X-LAMBDA	1.250	1.252	1.000	0.343	0.780	1.795	1.768	1.732	0.057	0.114

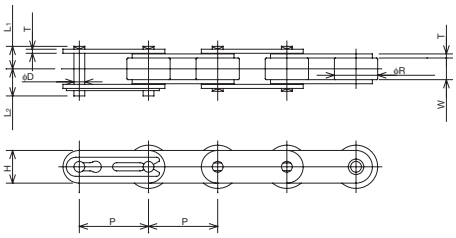
Double Pitch

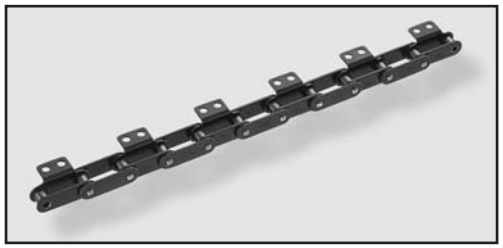
Conveyor X-Lambda

Standard Roller Type



Oversize Roller Type





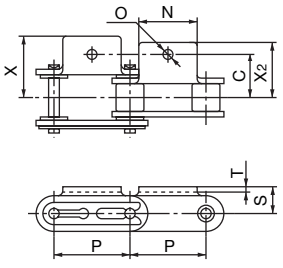
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length L_1+L_2	Length L_1	Length L_2			
Standard Roller Type												
C2040X-LAMBDA	1.000	0.312	0.313	0.060	0.472	0.156	0.768	0.350	0.417	3,520	590	0.34
C2050X-LAMBDA	1.250	0.400	0.375	0.080	0.591	0.200	0.933	0.433	0.500	5,720	970	0.56
C2060X-LAMBDA	1.500	0.469	0.500	0.126	0.677	0.235	1.276	0.600	0.675	8,360	1,410	1.01
C2080X-LAMBDA	2.000	0.625	0.625	0.157	0.906	0.313	1.610	0.754	0.856	14,300	2,400	1.63
C2100X-LAMBDA	2.500	0.750	0.750	0.189	1.126	0.376	1.886	0.890	0.996	22,440	3,830	2.39
Oversize Roller Type												
C2042X-LAMBDA	1.000	0.625	0.313	0.059	0.472	0.156	0.768	0.350	0.417	3,520	590	0.58
C2052X-LAMBDA	1.250	0.750	0.375	0.079	0.591	0.200	0.933	0.433	0.500	5,720	970	0.87
C2062X-LAMBDA	1.500	0.875	0.500	0.126	0.677	0.235	1.276	0.600	0.675	8,360	1,410	1.47
C2082X-LAMBDA	2.000	1.125	0.625	0.157	0.906	0.313	1.610	0.754	0.856	14,300	2,400	2.37
C2102X-LAMBDA	2.500	1.563	0.750	0.189	1.126	0.376	1.886	0.890	0.996	22,440	3,830	3.90

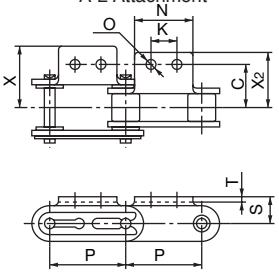
Double Pitch

Conveyor X-Lambda

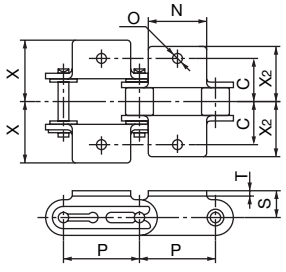
A-1 Attachment



A-2 Attachment



K-1 Attachment



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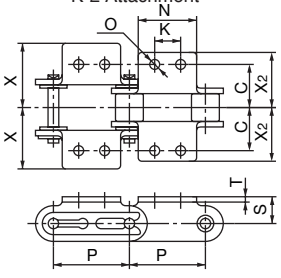
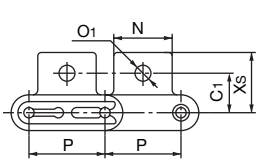
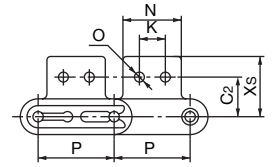


SA-1 Attachment



SA-2 Attachment



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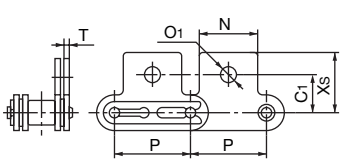

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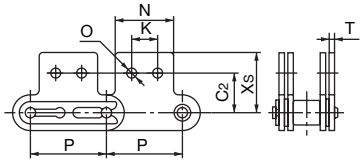


All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions												Added Wt./Attach.	
	C	C_1	C_2	K	N	O	O_1	S	T	X	X_2	X_S	A, SA Attach. (lbs.)	K, SK Attach. (lbs.)
C2040X-LAMBDA	0.500	0.437	0.535	0.374	0.752	0.142	0.205	0.358	0.059	0.783	0.693	0.780	0.007	0.013
C2050X-LAMBDA	0.626	0.563	0.626	0.469	0.937	0.205	0.268	0.437	0.079	0.978	0.866	0.969	0.013	0.026
C2060X-LAMBDA	0.844	0.689	0.752	0.563	1.126	0.205	0.343	0.579	0.126	1.276	1.110	1.205	0.037	0.075
C2080X-LAMBDA	1.094	0.874	1.000	0.752	1.500	0.268	0.406	0.752	0.157	1.638	1.441	1.594	0.070	0.141
C2100X-LAMBDA	1.313	1.126	1.252	0.937	1.874	0.343	0.563	0.921	0.189	2.000	1.768	1.984	0.132	0.264

Anti-Corrosive Conveyor Chain

An Introduction to Tsubaki Anti-Corrosive Conveyor Chains

Ultra WP Conveyor Chain
Ultra WP is an RS Roller Chain that has undergone a special surface treatment (clips are type 301 stainless steel). This chain is more corrosion-resistant in wet environments than NP chain, and is suitable for use in environments exposed to salt-water. The horsepower ratings are the same as RS Roller chain. Ultra WP conveyor chain has magnetic properties.
Working temperature range: -22˚F ~ +302˚F

NP Nickel Plated Conveyor Chain
NP is an RS Roller chain that has been plated with nickel. NP Chain has an attractive appearance and light corrosion resistance that makes it suitable for outdoor conditions where it is exposed to water. The maximum allowable load of nickel plated chain is 15% less than the equivalent RS roller chain.
Nickel plated conveyor chain should not be used where the chain comes into direct contact with food products. Nor should it be used where the nickel plated coating flakes may mix with and or contaminate food products. In non-food applications, a cover should be used where the coating flakes or wear dust may pose a problem.
Nickel plated conveyor chain has magnetic properties.
Working temperature range: +14˚F ~ +140˚F

SS Stainless Steel Conveyor Chain
Stainless steel conveyor chain is composed of type 304 stainless steel (clips are type 301). This chain is more corrosion resistant than RS Roller Chain, NP Roller Chain and Ultra WP Roller Chain. It can be used in special environments such as corrosive conditions underwater and in acids/alkalis. It is non-magnetic, though it may have some magnetic properties at low operating temperatures.
Working temperature range: -4˚F ~ +752˚F

AS Stainless Steel Conveyor Chain
This conveyor chain uses heat-treated hardened stainless steel (type 600) for the pins and rollers. The link plates and bushings are made from type 304 stainless steel (clips are type 301). AS series chains are an excellent choice for drives requiring both corrosion resistance and high load capacity. Maximum allowable load is 50% greater than “SS” series Stainless Steel conveyor chain. Note that type 600 stainless steel has magnetic properties.
Working temperature range: -4˚F ~ +752˚F

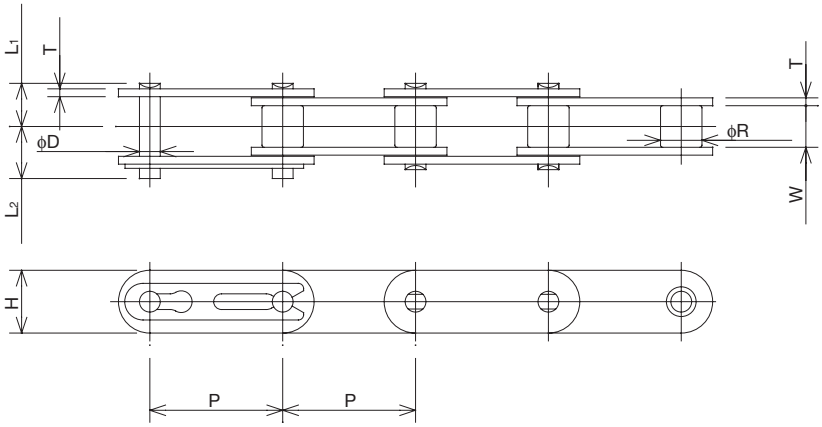
Neptune Conveyor Chain
Neptune is RS Roller Chain that has been both zinc galvanized and specially treated on the surface with a coating that together provide a double plated effect. (The surface treatment is applied to each individual part of the chain before it is assembled). This highly durable chain has superior corrosion resistance to salt-water and all types of weather. Tensile strength and maximum allowable load are identical to carbon steel RS Roller Chain.
Neptune conveyor chain should not be used where the chain comes into direct contact with food products. In non-food applications, a cover should be used where the coating flakes or where dust may pose a problem.
Working temperature range: +14˚F ~ +140˚F

TSUBAKI

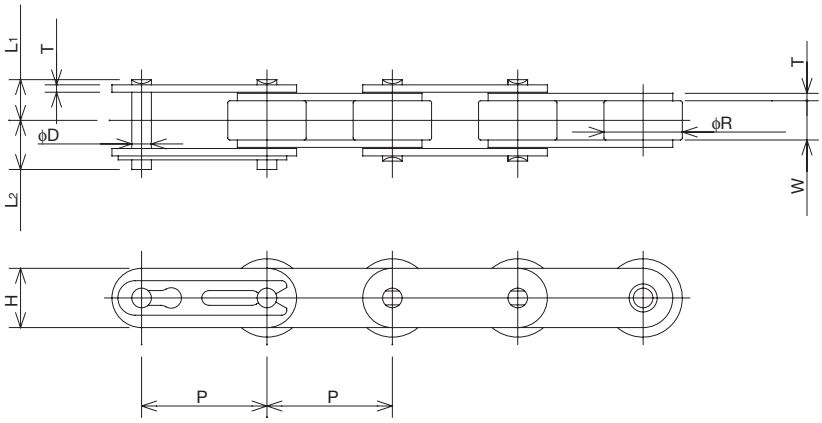
Ultra WP-Double Pitch

Anti-Corrosive Conveyor Chain

Standard Roller Type



Oversize Roller Type



All dimensions in inches unless otherwise stated.

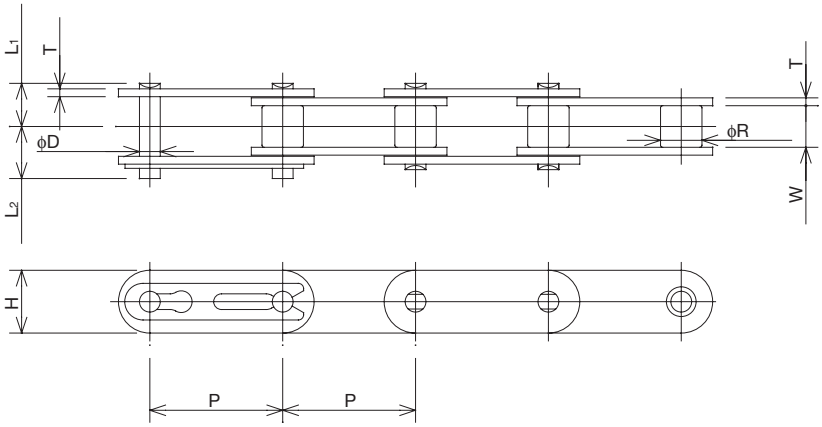
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
Standard Roller Type												
C2040WP	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	590	0.34
C2050WP	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	970	0.56
C2060HWP	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	9,040	1,410	1.01
C2080HWP	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	15,400	2,400	1.62
Oversize Roller Type												
C2042WP	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	590	0.58
C2052WP	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	970	0.87
C2062HWP	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.573	0.652	9,040	1,410	1.47
C2082HWP	2.000	1.125	0.625	0.156	0.906	0.313	1.543	0.720	0.823	15,400	2,400	2.36

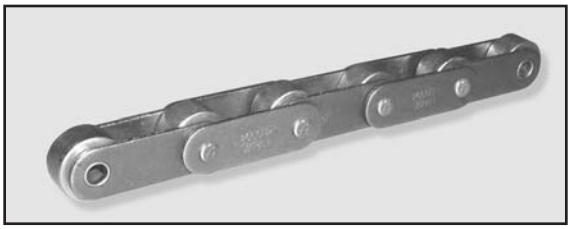
Anti-Corrosive Conveyor Chain

Nickel Plated-Double Pitch

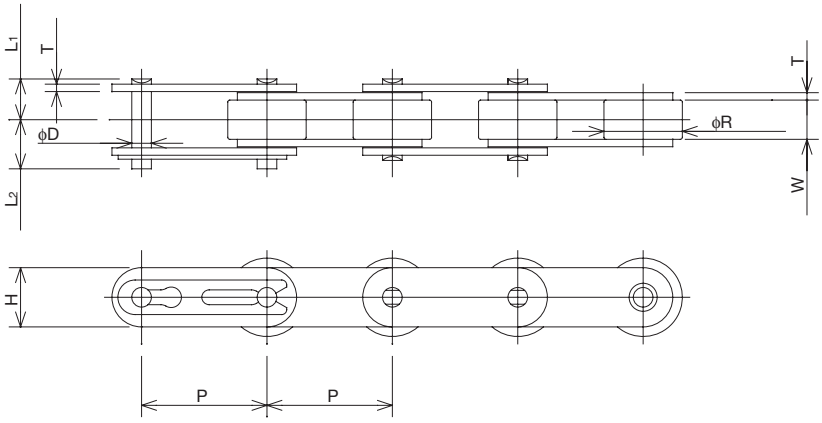
Anti-Corrosive Conveyor Chain

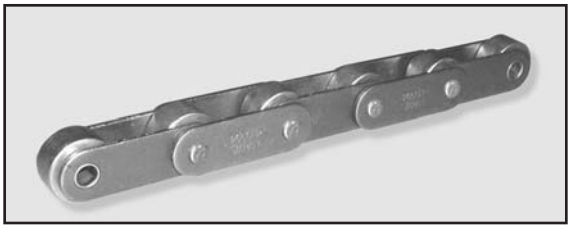
Standard Roller Type





Oversize Roller Type





All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
Standard Roller Type												
C2040NP	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	590	0.34
C2050NP	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	970	0.56
C2060HNP	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	9,040	1,410	1.01
C2080HNP	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	15,400	2,400	1.62
C2100HNP	2.500	0.750	0.750	0.187	1.125	0.376	1.823	0.858	0.965	24,300	3,830	2.37
C2120HNP	3.000	0.875	1.000	0.220	1.354	0.437	2.264	1.061	1.203	33,880	5,370	3.40
C2160HNP	4.000	1.125	1.250	0.281	1.898	0.563	2.850	1.337	1.514	57,860	9,170	6.00
Oversize Roller Type												
C2042NP	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	590	0.58
C2052NP	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	970	0.87
C2062HNP	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.573	0.652	9,040	1,410	1.47
C2082HNP	2.000	1.125	0.625	0.156	0.906	0.313	1.543	0.720	0.823	15,400	2,400	2.36
C2102HNP	2.500	1.563	0.750	0.187	1.125	0.376	1.823	0.858	0.965	24,300	3,830	3.89
C2122HNP	3.000	1.752	1.000	0.220	1.354	0.437	2.264	1.061	1.203	33,880	5,370	5.44
C2162HNP	4.000	2.250	1.250	0.281	1.898	0.563	2.850	1.337	1.514	57,860	9,170	9.18

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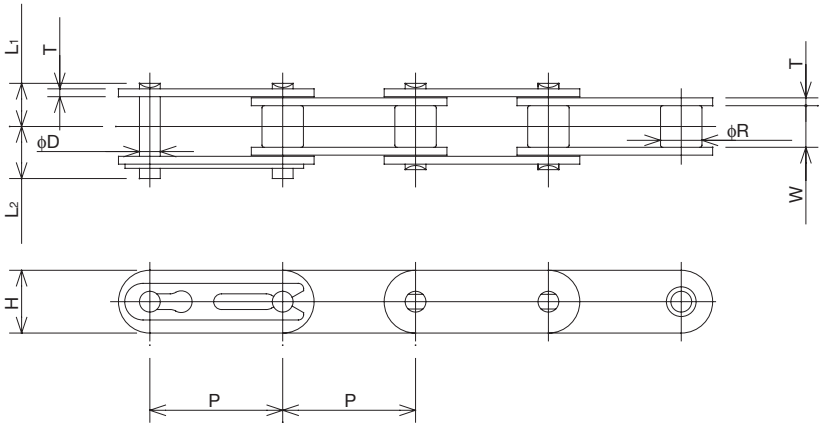
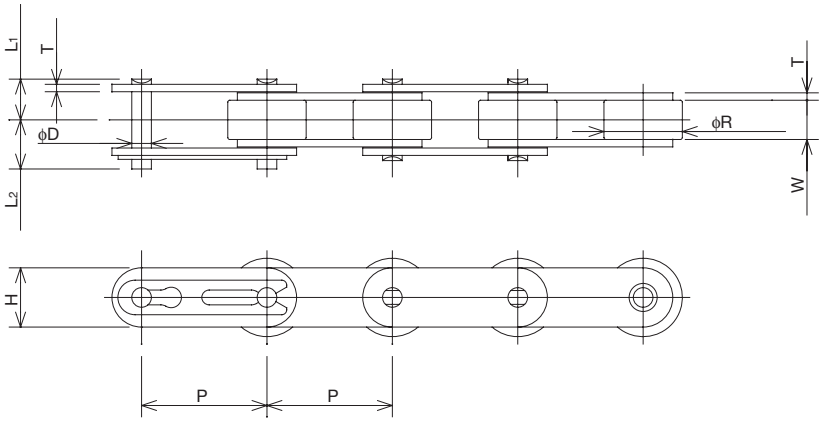
Stainless Steel "SS" Type 304-Double Pitch

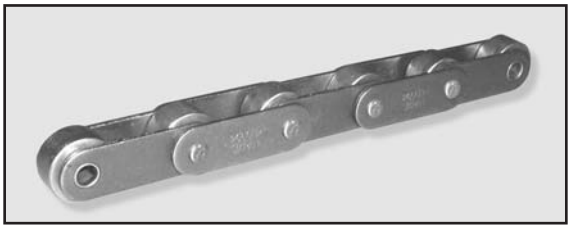
Anti-Corrosive Conveyor Chain

Standard Roller Type



Oversize Roller Type





All dimensions in inches unless otherwise stated.

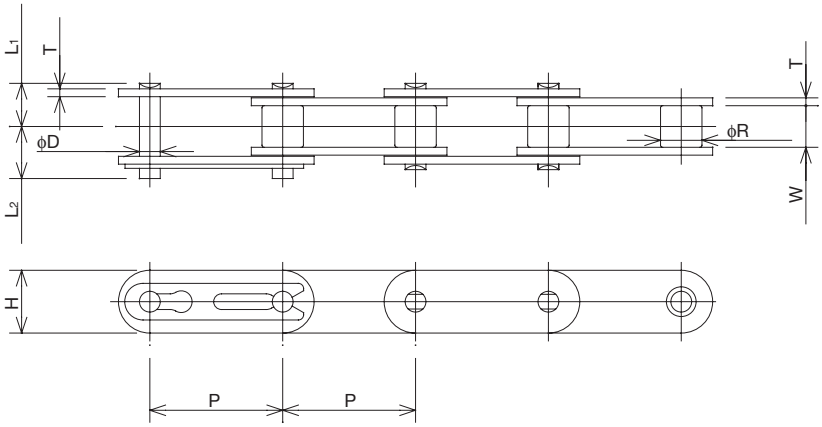
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2		
Standard Roller Type											
C2040SS	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	100	0.34
C2050SS	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	155	0.56
C2060HSS	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	230	1.01
C2080HSS	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	400	1.62
C2100HSS	2.500	0.750	0.750	0.197	1.125	0.376	1.858	0.878	0.980	570	2.45
C2120HSS	3.000	0.875	1.000	0.236	1.354	0.437	2.354	1.104	1.250	860	3.60
C2160HSS	4.000	1.125	1.250	0.315	1.898	0.563	3.024	1.406	1.618	1,430	6.59
Oversize Roller Type											
C2042SS	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392	100	0.58
C2052SS	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472	155	0.87
C2062HSS	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.573	0.652	230	1.47
C2082HSS	2.000	1.125	0.625	0.156	0.906	0.313	1.543	0.720	0.823	400	2.37
C2102HSS	2.500	1.563	0.750	0.197	1.125	0.376	1.858	0.878	0.980	570	3.97
C2122HSS	3.000	1.752	1.000	0.236	1.354	0.437	2.354	1.104	1.250	860	5.64
C2162HSS	4.000	2.250	1.250	0.315	1.898	0.563	3.024	1.406	1.618	1,430	9.77

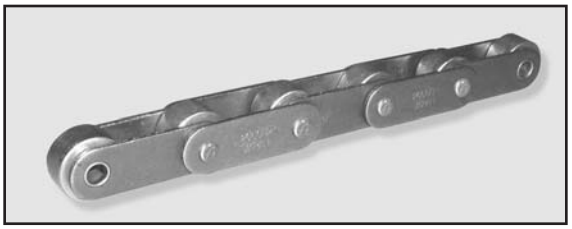
Anti-Corrosive Conveyor Chain

Stainless Steel "AS" Type 600-Double Pitch

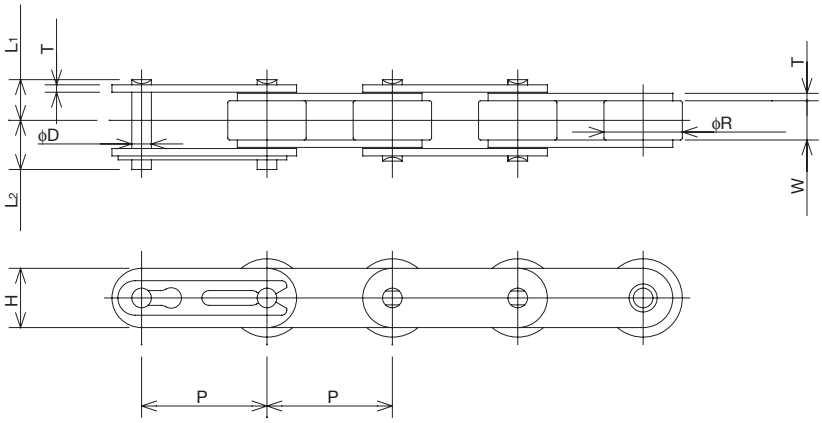
Anti-Corrosive Conveyor Chain

Standard Roller Type





Oversize Roller Type



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2		
Standard Roller Type											
C2040AS	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	150	0.34
C2050AS	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	230	0.56
C2060HAS	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	350	1.01
C2080HAS	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	600	1.62
Oversize Roller Type											
C2042AS	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392	150	0.58
C2052AS	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472	230	0.87
C2062HAS	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.573	0.652	350	1.47
C2082HAS	2.000	1.125	0.625	0.156	0.906	0.313	1.543	0.720	0.823	600	2.36

Note: Material used on oversized roller is grade 304 stainless steel.

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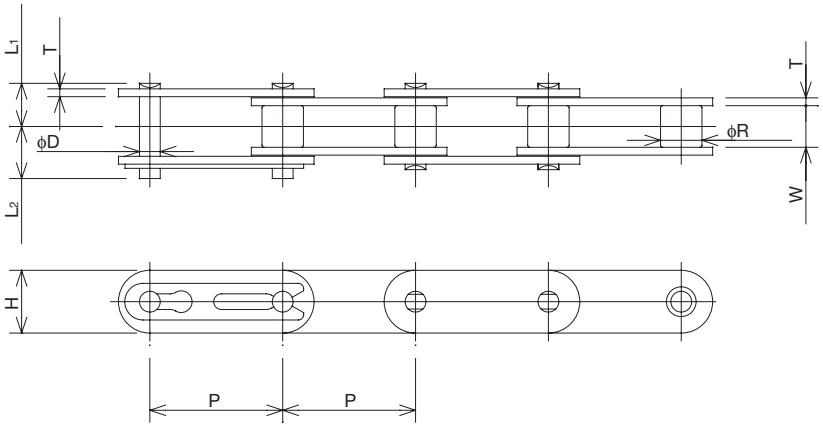
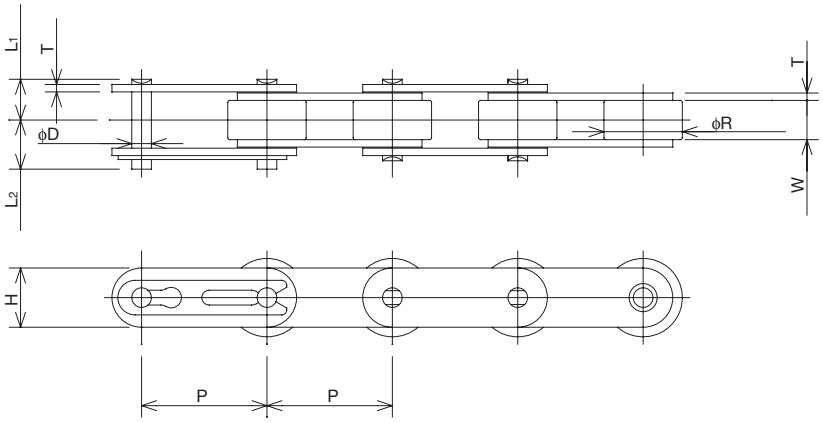
Neptune-Double Pitch

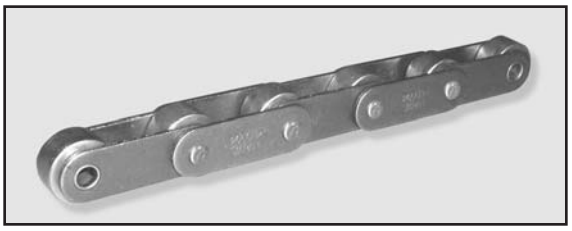
Anti-Corrosive Conveyor Chain

Standard Roller Type



Oversize Roller Type





All dimensions in inches unless otherwise stated.

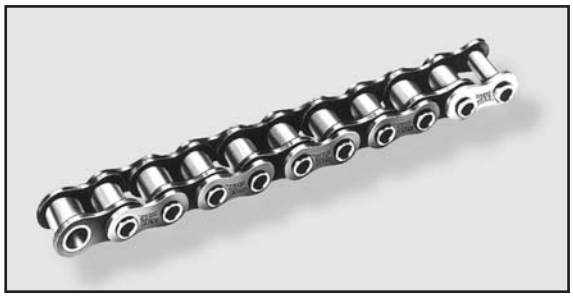
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
Standard Roller Type												
C2040NT	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	590	0.34
C2050NT	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	970	0.56
C2060HNT	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	9,040	1,410	1.01
C2080HNT	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	15,400	2,400	1.62
C2100HNT	2.500	0.750	0.750	0.187	1.125	0.376	1.823	0.858	0.965	24,300	3,830	2.37
Oversize Roller Type												
C2042NT	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	590	0.58
C2052NT	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	970	0.87
C2062HNT	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.573	0.652	9,040	1,410	1.47
C2082HNT	2.000	1.125	0.625	0.156	0.906	0.313	1.543	0.720	0.823	15,400	2,400	2.36
C2102HNT	2.500	1.563	0.750	0.187	1.125	0.376	1.823	0.858	0.965	24,300	3,830	3.89

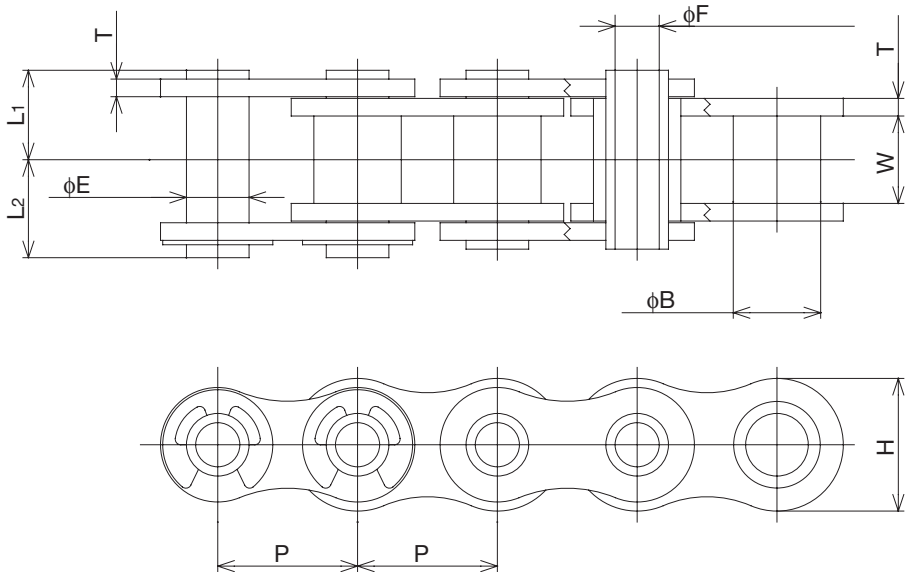
Note: Material used on oversized roller is grade 304 stainless steel.

Anti-Corrosive Conveyor Chain

RS Single Pitch Hollow Pin Stainless Steel "SS" Type 304

Anti-Corrosive Conveyor Chain





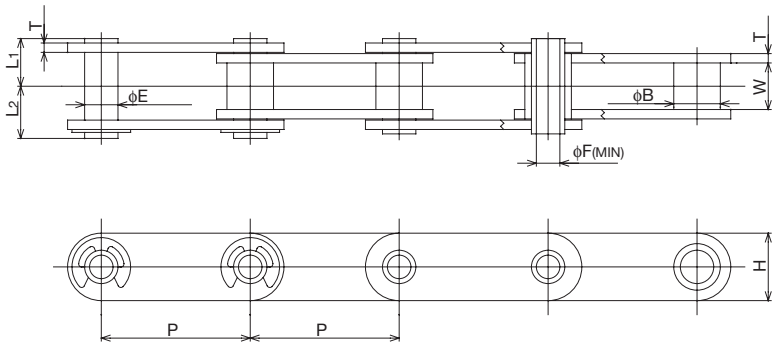
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate		Pin					Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Outer Dia. E	Inner Dia. $F_{(min)}$	Length $L_1 + L_2$	Length L_1	Length L_2			
RS40HP-SS	0.500	0.312	0.312	0.060	0.472	0.224	0.157	0.689	0.315	0.374	2,400	390	0.38
RS50HP-SS	0.625	0.375	0.375	0.080	0.591	0.284	0.202	0.855	0.396	0.459	4,400	700	0.62
RS60HP-SS	0.750	0.500	0.500	0.094	0.713	0.330	0.236	1.055	0.494	0.561	5,900	940	0.91
RS80HP-SS	1.000	0.625	0.625	0.125	0.949	0.448	0.316	1.341	0.640	0.701	10,000	1,700	1.50

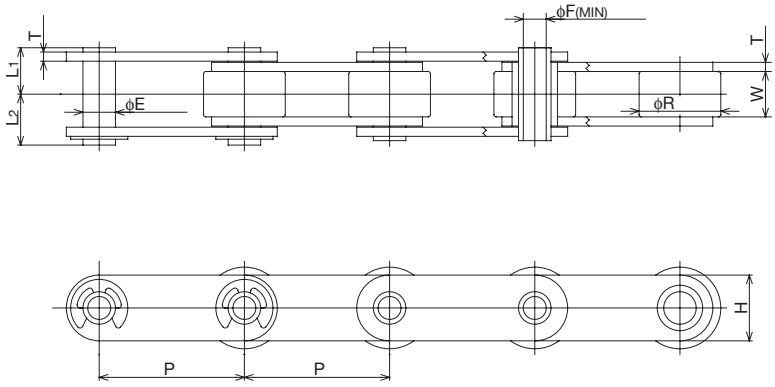
Hollow Pin Stainless Steel "SS" Type 304-Double Pitch

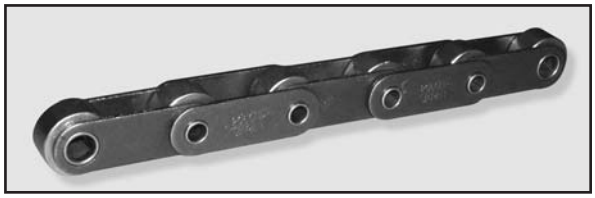
Anti-Corrosive Conveyor Chain

Standard Bushed Type



Oversize Roller Type





All dimensions in inches unless otherwise stated.

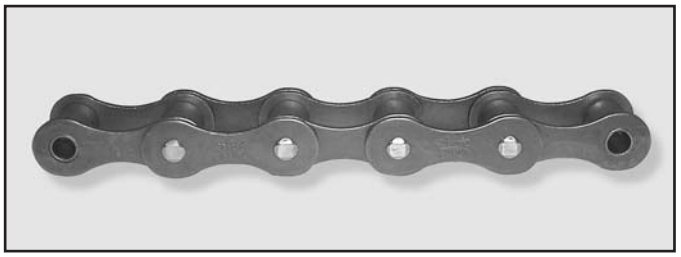
Chain Number	Pitch P	Standard Type Bushing Diameter B	Oversize Type Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin					Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
					Thickness T	Height H	Outer Dia. E	Inner Dia. F (min.)	Length $L_1 + L_2$	Length L_1	Length L_2			
Standard Bushed Type														
C2040HP-SS	1.000	0.312	-	0.313	0.059	0.472	0.224	0.157	0.689	0.315	0.374	2,420	100	0.31
C2050HP-SS	1.250	0.400	-	0.375	0.079	0.591	0.284	0.202	0.854	0.396	0.459	4,400	150	0.50
C2060HP-SS	1.500	0.469	-	0.500	0.094	0.677	0.330	0.236	1.055	0.494	0.561	5,940	230	0.92
C2080HP-SS	2.000	0.625	-	0.625	0.126	0.905	0.448	0.316	1.341	0.640	0.701	10,780	400	1.21
Oversize Roller Type														
C2042HP-SS	1.000	-	0.625	0.313	0.059	0.472	0.224	0.157	0.689	0.315	0.374	2,420	100	0.55
C2052HP-SS	1.250	-	0.750	0.375	0.079	0.591	0.284	0.202	0.854	0.396	0.459	4,400	150	0.81
C2062HP-SS	1.500	-	0.875	0.500	0.094	0.677	0.330	0.236	1.055	0.494	0.561	5,940	230	1.38
C2082HP-SS	2.000	-	1.125	0.625	0.126	0.905	0.448	0.316	1.341	0.640	0.701	10,780	400	1.88

Agricultural Chain

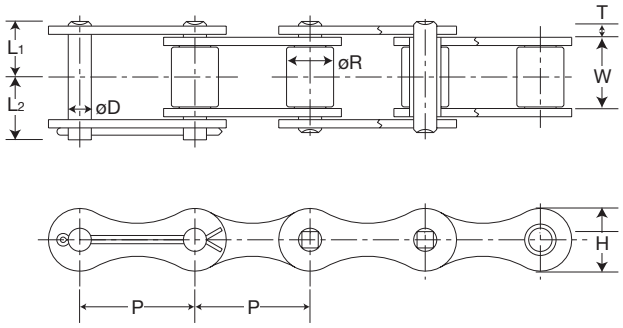
Tsubaki offers both MR type and RF type steel roller chains for agricultural applications. MR type steel roller chains have been designed to replace malleable chains. These chains can be used with the existing sprockets for malleable chains.

They have higher tensile strength, longer life and provide smoother operation for drives and conveyors than malleable chains. Tsubaki MR type steel roller chains with various attachments can also be used for material handling operations.

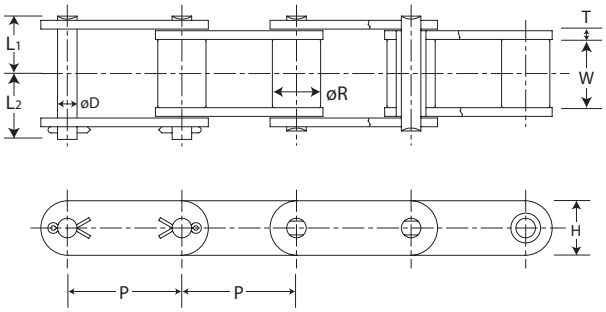
Tsubaki RF type steel roller chains have greater wear resistance and higher tensile strength than MR type steel roller chains.



MR Type



RF Type (CA550 and CA620)



All dimensions in inches unless otherwise stated.

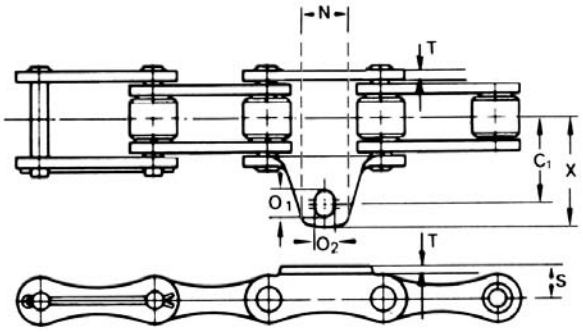
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin			Minimum Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2		
MR32	1.150	0.450	0.625	0.060	0.500	0.175	1.083	0.514	0.569	1,980	0.50
MR42	1.375	0.562	0.750	0.098	0.750	0.275	1.413	0.663	0.750	6,600	1.08
MR52	1.500	0.600	0.875	0.098	0.640	0.225	1.543	0.724	0.819	4,400	1.06
MR55	1.630	0.700	0.875	0.098	0.650	0.225	1.543	0.724	0.819	6,380	1.10
MR45	1.630	0.600	0.875	0.098	0.650	0.225	1.543	0.724	0.819	4,400	0.97
MR62	1.650	0.750	1.000	0.098	0.660	0.225	1.606	0.789	0.817	6,380	1.26
CA550	1.630	0.661	0.795	0.106	0.787	0.281	1.504	0.683	0.821	11,200	1.31
CA620	1.654	0.696	0.984	0.125	0.787	0.281	1.780	0.829	0.951	11,200	1.60

Agricultural Chain Attachments

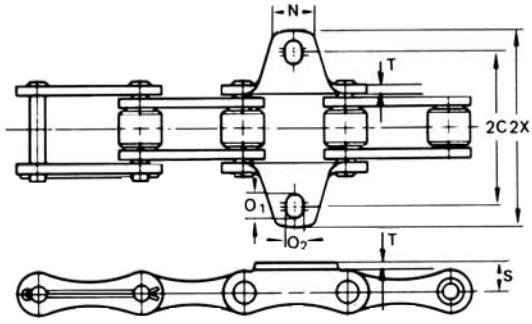
Standard Attachments

Roller Link with A-1 Attachment | Roller Link with K-1 Attachment | Pin Link with A-1 Attachment | Pin Link with K-1 Attachment | Roller Link with SA-1 Attachment | Roller Link with SK-1 Attachment | Pin Link with SA-1 Attachment | Pin Link with SK-1 Attachment

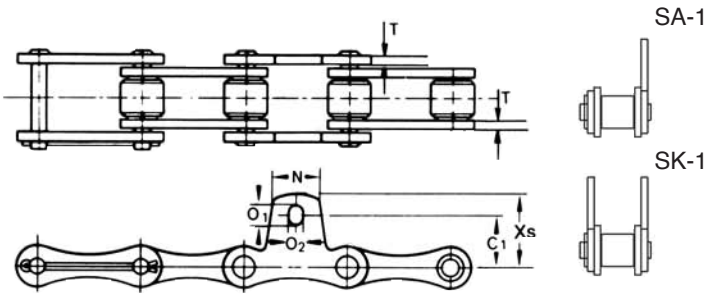
A-1 Attachment



K-1 Attachment



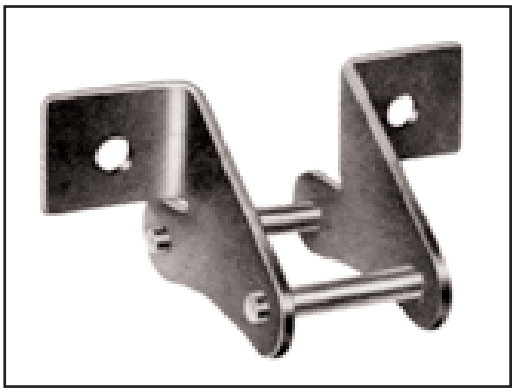
SA-1/SK-1 Attachment

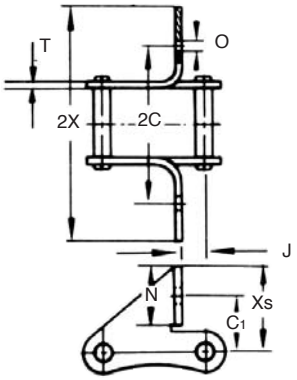


All dimensions in inches unless otherwise stated.

Chain Number	A, SA, K and SK Attachment Dimensions									Additional Wt./Attachment	
	2C	C_1	N	O_1	O_2	S	T	2X	X_S	A, SA Attachment (lbs.)	K, SK Attachment (lbs.)
MR32	1.687	0.681	0.669	0.268	0.205	0.339	0.059	2.358	1.020	0.007	0.014
MR42	2.126	0.929	0.929	0.398	0.272	0.551	0.098	2.953	1.346	0.029	0.058
MR52	2.311	0.870	0.630	0.335	0.272	0.449	0.098	3.012	1.213	0.022	0.044
MR55	2.126	0.780	0.866	0.398	0.272	0.449	0.098	2.913	1.177	0.026	0.052
MR45	2.126	0.780	0.866	0.398	0.272	0.449	0.098	2.913	1.177	0.022	0.044
MR62	2.626	0.969	0.945	0.520	0.272	0.449	0.098	3.752	1.520	0.024	0.048
CA550	Attachments available on a make-to-order basis. Contact Tsubaki for specifications.										
CA620	Attachments available on a make-to-order basis. Contact Tsubaki for specifications.										

"SD" ATTACHMENT PIN LINKS





All dimensions in inches unless otherwise stated.

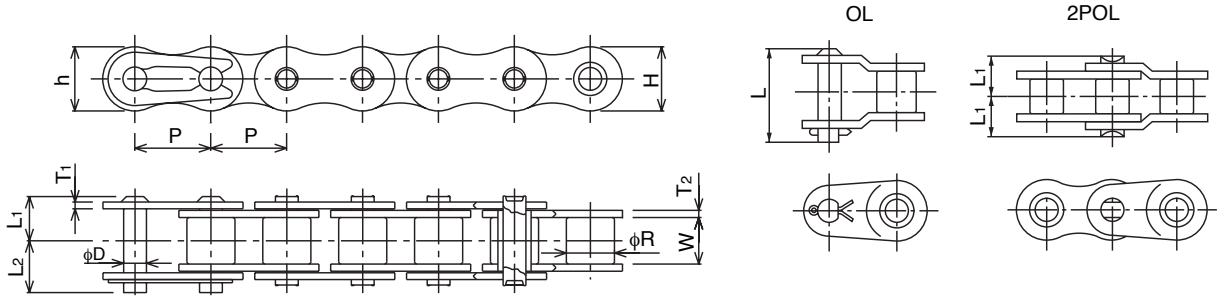
Chain Number	SD Attachment Dimensions								SD Attach. Additional Weight (lbs.)
	2C	C_1	J	N	O	T	2X	X_S	
MR52	2.283	0.787	0.039	0.630	0.260	0.098	3.386	1.102	0.040
MR55	2.283	0.787	0.039	0.630	0.260	0.098	3.386	1.102	0.042
MR45	2.283	0.787	0.039	0.630	0.260	0.098	3.386	1.102	0.042

British Standard/DIN Attachment Chain

Tsubaki British Standard/DIN roller chains are manufactured to the following standards: International Standards Organization (ISO 606), British Standards Institution (BS 228) and Deutsches Institut für Normung (DIN 8187). Tsubaki produces British Standard/DIN roller chain in a variety of sizes (now including RS05B and RS48B) and materials (carbon steel, lube-free Lambda, stainless steel and nickel plated). These chains are ideal for use on equipment that has been imported into Canada or on new machinery that is made in Canada but destined for export.

Features of Tsubaki British Standard/DIN roller chain include:

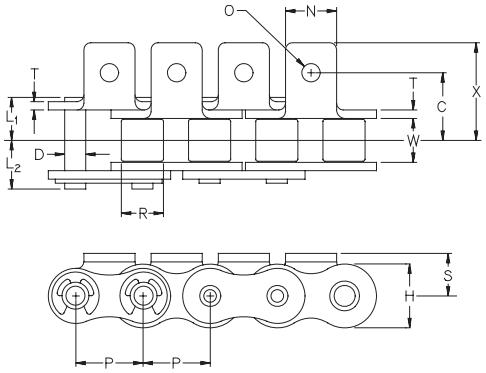
- ***Easy disassembly*** (cutting) on sizes RS08B to RS16B. Users can easily extract the pin on-site, with a standard screw type chain cutter.
- ***Ring coining*** - a process unique to Tsubaki whereby the connecting link is made as strong as the rest of the links in the chain. The ring coining process creates plastic deformation around the pinhole on the link plates of the chain. This generates residual stress around the deformed area, which boosts the transmission capacity of the connecting links to the same level as the chain itself.
- ***Solid rollers, bushes and link plates***, all of which are shot-peened - a process that work hardens the surface of these components, improving their durability at high speed and increasing fatigue strength.
- ***Center sink design of the rivet head*** - the result of years of experience in manufacturing marine diesel chain at Tsubaki. The benefit of the center sink pin design is that notches on the rivet head indicate line of riveting and easy identification in the case of pin rotation caused by overload conditions.
- ***Wider link plate design*** - improving the fatigue strength.
- ***Chain is pre-stressed*** after manufacture to ensure that all components are properly seated. This reduces the need for initial chain adjustment and has also improved the length tolerance.



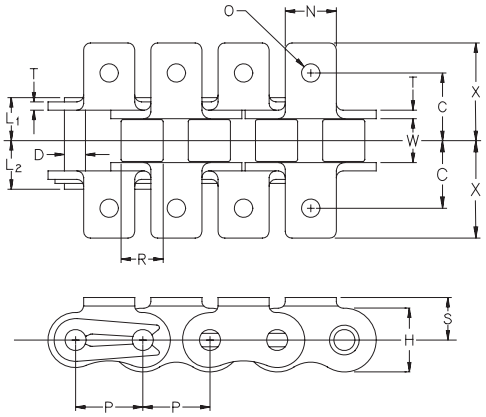
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate				Pin					Nominal Bearing Area (in^2)	Average Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)
				Roller Link Thickness T_1	Pin Link Thickness T_2	Roller Link Height H	Pin Link Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L			
RS08B	0.500	0.335	0.305	0.063	0.063	0.465	0.409	0.175	0.724	0.331	0.394	0.7244	0.078	4,400	0.47
RS10B	0.625	0.400	0.380	0.059	0.059	0.579	0.539	0.200	0.819	0.376	0.443	0.8307	0.104	5,830	0.64
RS12B	0.750	0.475	0.460	0.071	0.071	0.634	0.634	0.225	0.957	0.441	0.516	0.5157	0.138	7,480	0.84
RS16B	1.000	0.625	0.670	0.157	0.126	0.827	0.827	0.326	1.484	0.699	0.785	0.7854	0.326	16,500	1.81

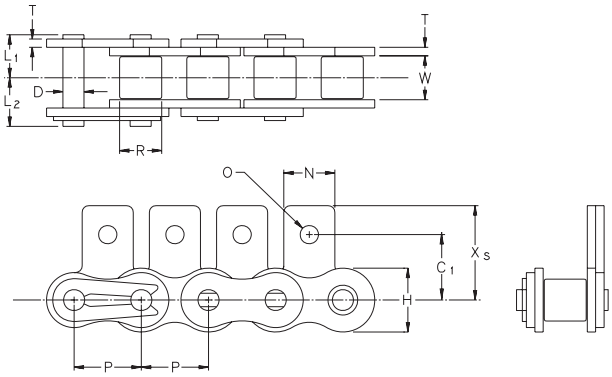
British Standard/DIN Attachment Chain



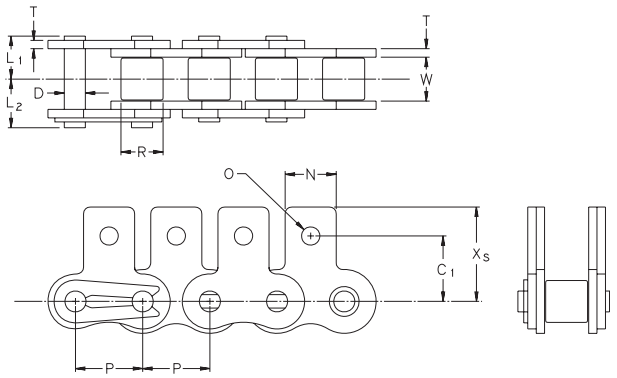
A-1 Attachment



K-1 Attachment



SA-1 Attachment



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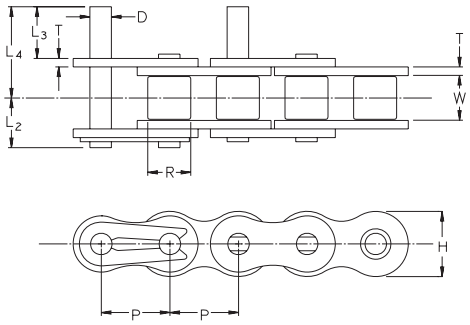
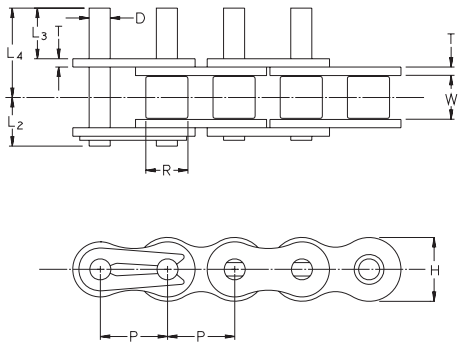


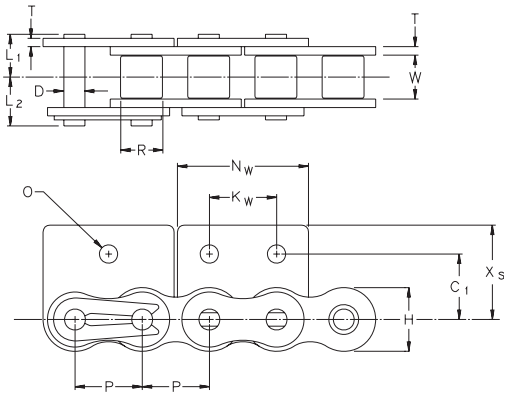
D-1 Attachment



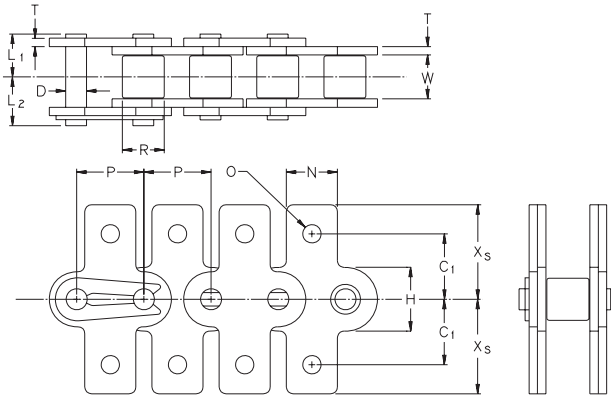
D-3 Attachment

All dimensions in inches unless otherwise stated.

Chain Number	A, SA, K, SK, D_1, D_3 Attachment Dimensions									Additional Weight per Attachment (lbs.)			
	C	C_1	N	O	S	X	X_s	L_3	L_4	A, SA Attach.	K, SK Attach.	D_1 Attach.	D_3 Attach.
RS08B	0.468	0.500	0.448	0.165	0.350	0.750	0.759	0.374	0.667	0.004	0.008	0.002	0.004
RS10B	0.625	0.625	0.500	0.196	0.401	0.875	0.901	0.468	0.799	0.007	0.013	0.004	0.008
RS12B	0.750	0.874	0.649	0.279	0.531	1.175	1.271	0.562	0.956	0.015	0.030	0.007	0.014
RS16B	0.937	0.937	0.948	0.263	0.598	1.470	1.358	0.751	1.389	0.029	0.057	0.015	0.030



WSA-1, WSA-2 Attachment



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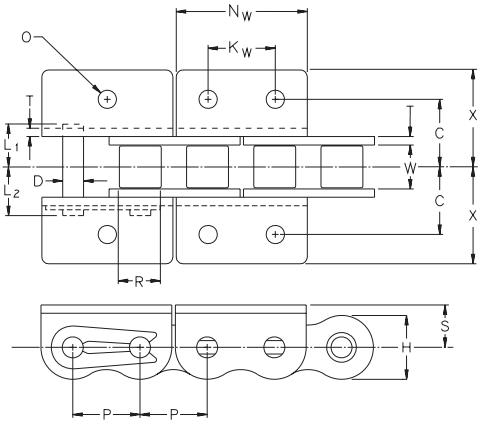
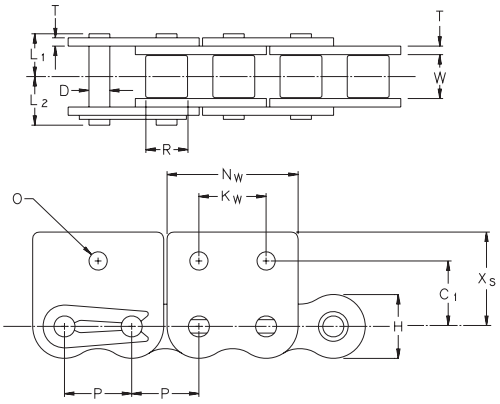


WK-1, WK-2 Attachment



WSK-1, WSK-2 Attachment

All dimensions in inches unless otherwise stated.

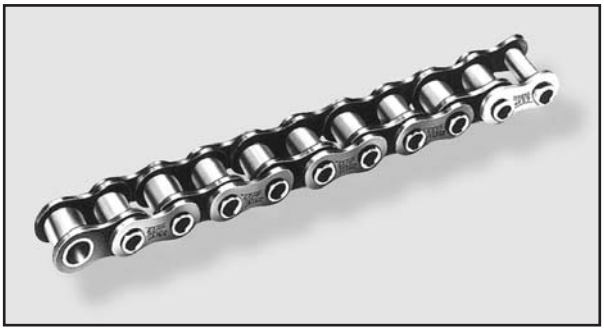
Chain Number	WA, WSA, WK and WSK Attachment Dimensions								Wt. per Attachment (lbs.)	
	C	C_1	O	S	X	X_s	N_W	K_W	WA, WSA Attachment	WK, WSK Attachment
RS08B	0.500	0.515	0.192	0.350	0.799	0.814	0.968	0.500	0.007	0.014
RS10B	0.625	0.653	0.196	0.401	0.899	0.929	1.181	0.625	0.015	0.030
RS12B	0.687	0.692	0.216	0.448	1.009	1.015	1.370	0.751	0.026	0.052
RS16B	1.125	1.023	0.318	0.625	1.545	1.444	1.811	1.000	0.062	0.124

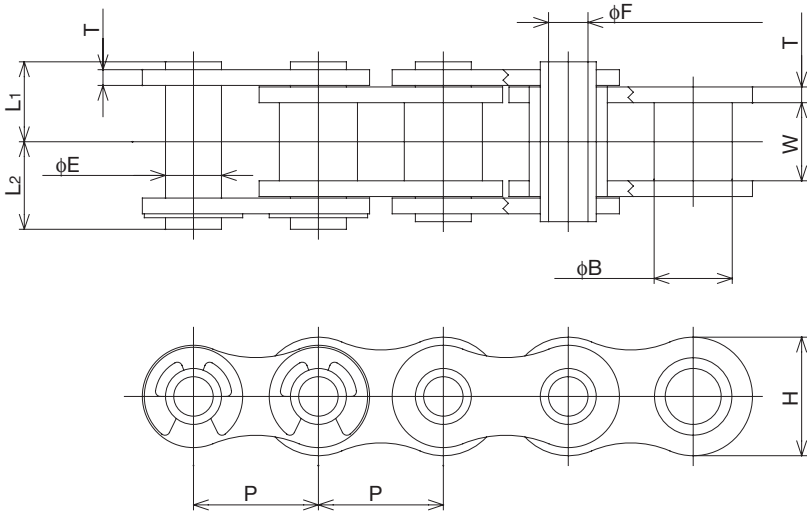
Hollow Pin Attachment Chain

Hollow Pin chains offer versatility in conveyor design, and allow for the insertion of through rods or other attachments. Standard attachments are available for Tsubaki Hollow Pin Chains in both single and double pitch types. Cross rods can be inserted into any link without disassembling the chain.

RS Single Pitch

Hollow Pin Attachment Chain





All dimensions in inches unless otherwise stated.

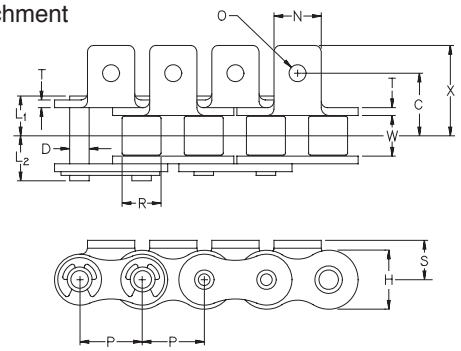
Chain Number	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate		Pin					Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Outer Dia. E	Inner Dia. F (min.)	Length $L_1 + L_2$	Length L_1	Length L_2			
RS40HP	0.500	0.312	0.312	0.060	0.472	0.224	0.157	0.689	0.315	0.374	2,400	390	0.38
RS50HP	0.625	0.375	0.375	0.080	0.591	0.284	0.202	0.855	0.396	0.459	4,400	700	0.62
RS60HP	0.750	0.500	0.500	0.094	0.713	0.330	0.236	1.055	0.494	0.561	5,900	940	0.91
RS80HP	1.000	0.625	0.625	0.125	0.949	0.448	0.316	1.341	0.640	0.701	10,000	1,700	1.50

Hollow Pin Attachment Chain

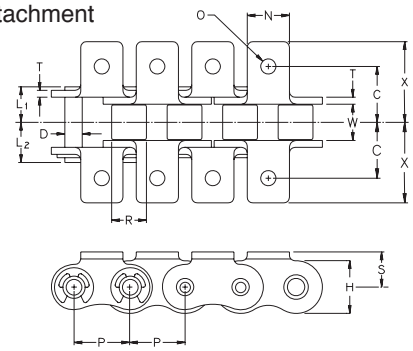
RS Single Pitch

Hollow Pin Attachment Chain

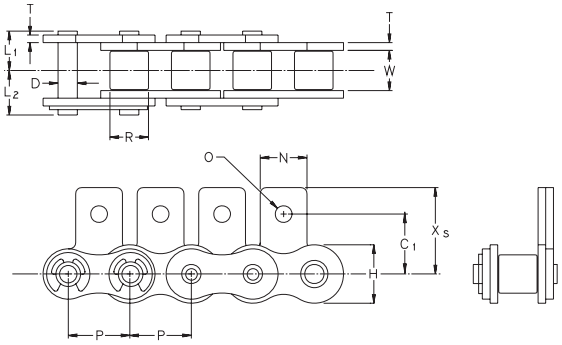
A-1 Attachment



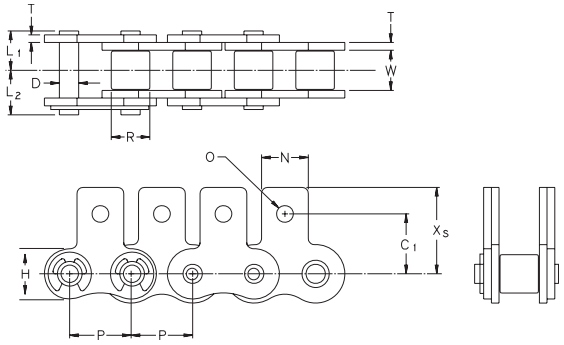
K-1 Attachment



SA-1 Attachment



SK-1 Attachment



All dimensions in inches unless otherwise stated.

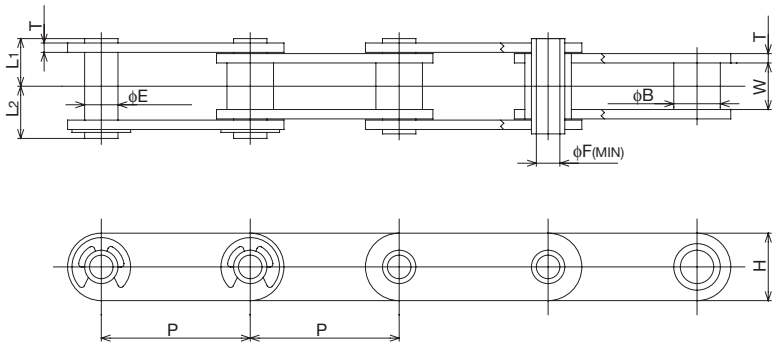
Chain Number	C	C_1	N	O	S	X	X_s	Weight per Attach. (lbs.) A, SA Attachment	Weight per Attach. (lbs.) K, SK Attachment
RS40HP	0.500	0.500	0.374	0.141	0.314	0.700	0.685	0.004	0.009
RS50HP	0.625	0.625	0.500	0.204	0.405	0.921	0.907	0.006	0.013
RS60HP	0.750	0.720	0.625	0.204	0.468	1.110	1.057	0.015	0.031
RS80HP	1.000	0.968	0.751	0.267	0.625	1.440	1.395	0.028	0.057

Hollow Pin Attachment Chain

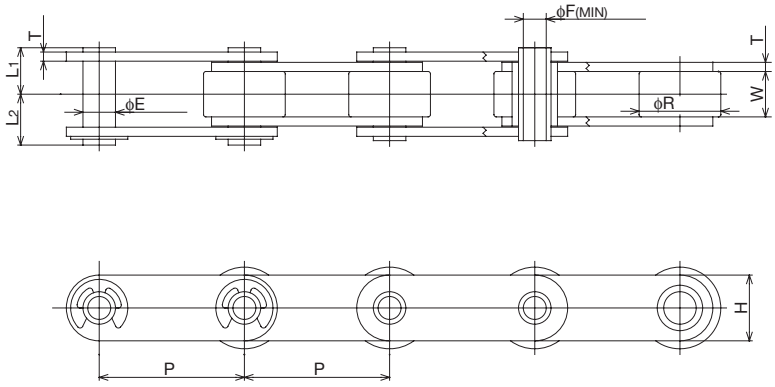
Double Pitch

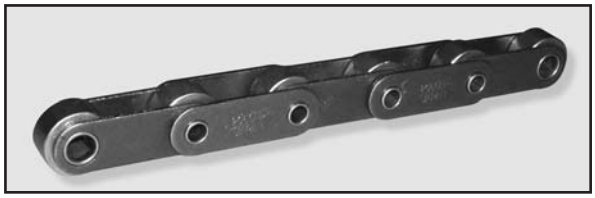
Hollow Pin Attachment Chain

Standard Bushed Type



Oversize Roller Type





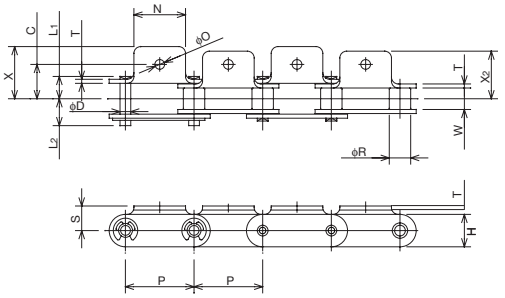
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Standard Type Bushing Diameter B	Oversized Type Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin					Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
					Thickness T	Height H	Outer Dia. E	Inner Dia. F (min.)	Length $L_1 + L_2$	Length L_1	Length L_2			
Standard Bushing Type														
C2040HP	1.000	0.312	-	0.312	0.059	0.472	0.224	0.157	0.689	0.315	0.374	2,400	390	.31
C2050HP	1.250	0.400	-	0.400	0.079	0.591	0.284	0.202	0.854	0.396	0.459	4,400	700	.50
C2060HP	1.500	0.469	-	0.469	0.094	0.677	0.330	0.236	1.055	0.494	0.561	5,900	940	.92
C2080HP	2.000	0.625	-	0.625	0.126	0.905	0.448	0.316	1.341	0.640	0.701	10,000	1,700	1.21
Oversize Roller Type														
C2042HP	1.000	-	0.625	0.312	0.059	0.472	0.224	0.157	0.689	0.315	0.374	2,400	390	.55
C2052HP	1.250	-	0.750	0.400	0.079	0.591	0.284	0.202	0.854	0.396	0.459	4,400	700	.81
C2062HP	1.500	-	0.875	0.469	0.094	0.677	0.330	0.236	1.055	0.494	0.561	5,900	940	1.38
C2082HP	2.000	-	1.125	0.625	0.126	0.905	0.448	0.316	1.341	0.640	0.701	10,000	1,700	1.88

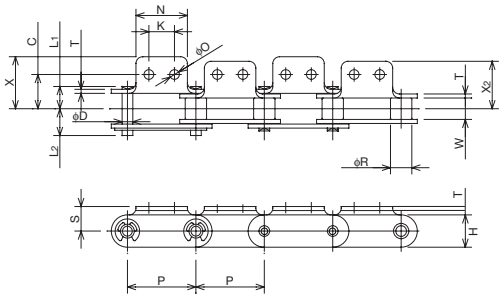
Double Pitch

Hollow Pin Attachment Chain

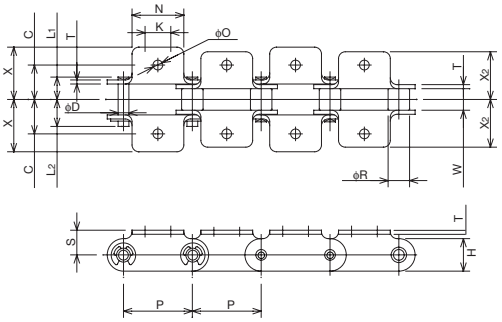
A-1 Attachment



A-2 Attachment



K-1 Attachment



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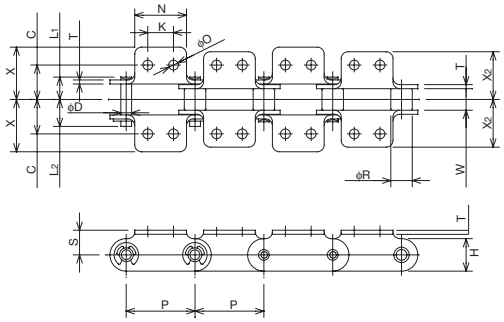
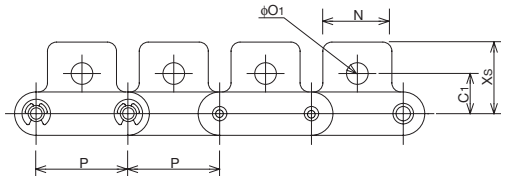
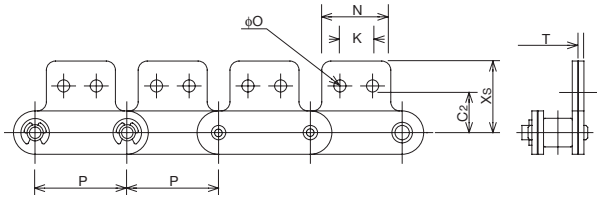


SA-1 Attachment



SA-2 Attachment



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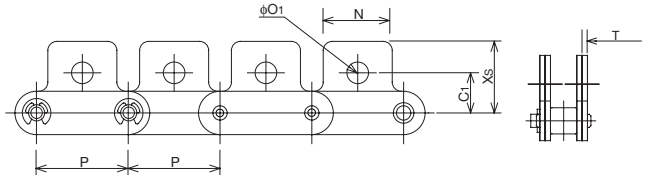
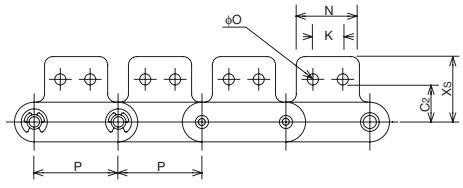


SK-2 Attachment



All dimensions in inches unless otherwise stated.

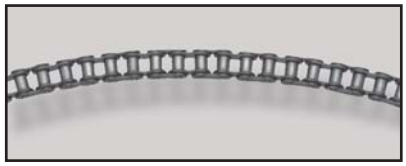
Chain Number	Chain Number	C	C_1	C_2	K	N	O	O_1	S	T	X	X_2	X_S	Weight per Attach. (lbs.) A, SA Attachment	Weight per Attach. (lbs.) K, SK Attachment
C2040HP	C2042HP	0.500	0.437	0.535	0.374	0.751	0.142	0.205	0.358	0.059	0.759	0.692	0.779	0.007	0.013
C2050HP	C2052HP	0.625	0.562	0.625	0.468	0.937	0.205	0.268	0.437	0.078	0.952	0.866	0.680	0.013	0.026
C2060HP	C2062HP	0.844	0.688	0.751	0.562	1.125	0.205	0.343	0.578	0.094	1.240	1.137	1.291	0.037	0.075
C2080HP	C2082HP	1.094	0.874	1.000	0.751	1.500	0.268	0.406	0.751	0.125	1.602	1.468	1.594	0.070	0.141

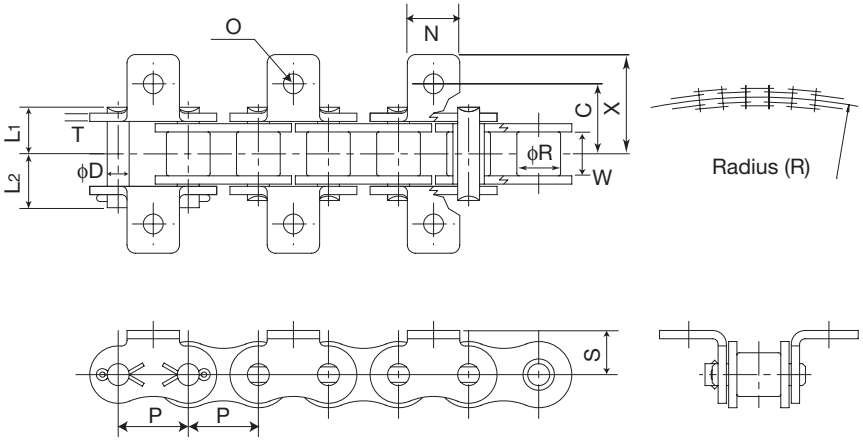
Curved Attachment Chain

Tsubaki Curved Chain has additional clearance between the pins and bushings and between the roller links and pin link plates to permit extra flexibility and greater lateral displacement. The basic dimensions of this chain are the same as those of our ANSI Standard RS Roller Chain. Tsubaki's unique design does not taper the pin; and so the pin diameter is uniform throughout the chain. Tsubaki Curved Chain is also available in Stainless Steel.

RS Single Pitch

Curved Attachment Chain





All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin				Radius r	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2				
RS35CU	0.375	*0.200	0.188	0.050	0.354	0.307	0.125	0.539	0.238	0.301	10	1,800	210	0.22
RS40CU	0.500	0.312	0.313	0.059	0.472	0.409	0.141	0.717	0.333	0.384	14	3,480	420	0.41
RS50CU	0.625	0.400	0.375	0.079	0.591	0.512	0.175	0.905	0.417	0.488	16	5,420	640	0.68
RS60CU	0.750	0.469	0.500	0.094	0.713	0.614	0.211	1.115	0.522	0.593	20	7,830	900	0.94
RS80CU	1.000	0.625	0.625	0.125	0.949	0.819	0.312	1.448	0.659	0.789	24	13,840	1,560	1.66

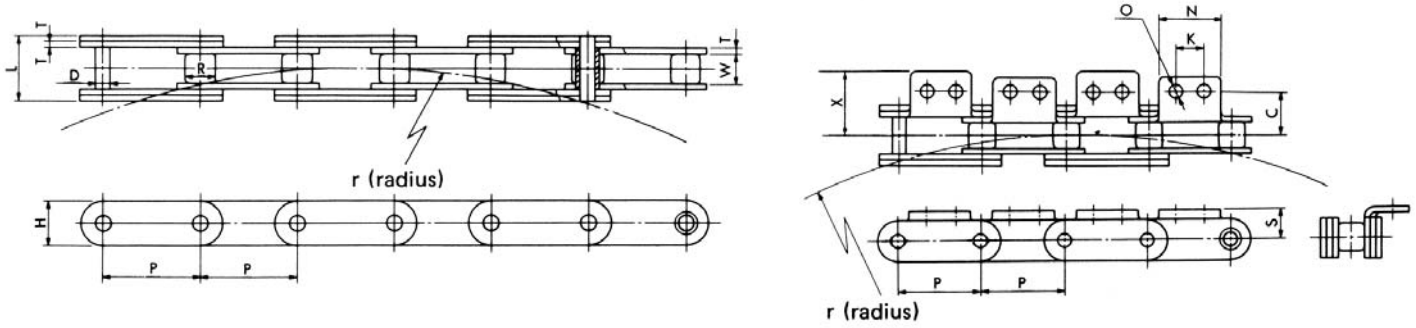
* Denotes that RS35CU is rollerless. The value shown is for the bushing diameter.

All dimensions in inches unless otherwise stated.

Chain Number	C	N	O	S	X	Weight per Attach. (lbs.)	
						A Attachment	K Attachment
RS35CU	0.375	0.311	0.102	0.250	0.571	0.002	0.003
RS40CU	0.500	0.374	0.141	0.315	0.709	0.004	0.009
RS50CU	0.626	0.500	0.205	0.406	0.933	0.007	0.013
RS60CU	0.750	0.625	0.205	0.469	1.122	0.015	0.031
RS80CU	1.000	0.752	0.268	0.626	1.461	0.029	0.057

Guide Plate - Double Pitch

Curved Attachment Chain



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin		Minimum Side Flex Radius r
				Thickness T	Height H	Dia. D	Length L	
Standard Roller Type								
C2040CU-GP	1.000	0.312	0.313	0.060	0.472	0.156	0.704	27.56
C2050CU-GP	1.250	0.400	0.375	0.078	0.591	0.200	0.895	31.50
C2060HCU-GP	1.500	0.469	0.500	0.094	0.677	0.235	1.114	39.37
C2080HCU-GP	2.000	0.625	0.625	0.125	0.906	0.313	1.444	47.24
Oversize Roller Type								
C2042CU-GP	1.000	0.625	0.313	0.060	0.472	0.156	0.704	27.56
C2052CU-GP	1.250	0.750	0.375	0.078	0.591	0.200	0.895	31.50
C2062HCU-GP	1.500	0.875	0.500	0.094	0.677	0.235	1.114	39.37
C2082HCU-GP	2.000	1.125	0.625	0.125	0.906	0.313	1.444	47.24

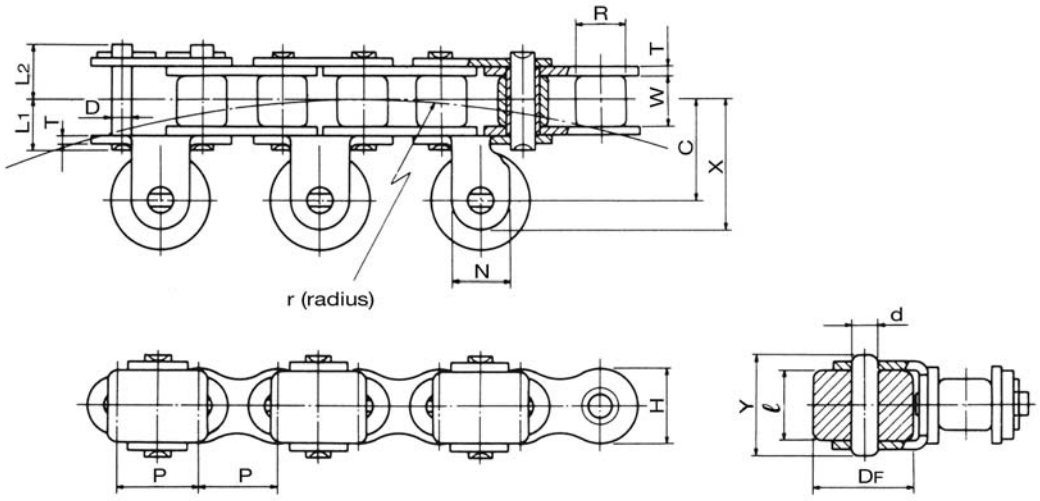
All dimensions in inches unless otherwise stated.

Chain Number	Chain Number	Attachment Dimensions					
		C	K	N	O	S	X
C2040CU-GP	C2042CU-GP	0.500	0.374	0.751	0.142	0.358	0.767
C2050CU-GP	C2052CU-GP	0.625	0.468	0.937	0.205	0.437	0.962
C2060HCU-GP	C2062HCU-GP	0.844	0.562	1.125	0.205	0.578	1.204
C2080HCU-GP	C2082HCU-GP	1.094	0.751	1.500	0.268	0.751	1.540

Curved Attachment Chain

RS Single Pitch Guide Roller

Curved Attachment Chain



All dimensions in inches unless otherwise stated.

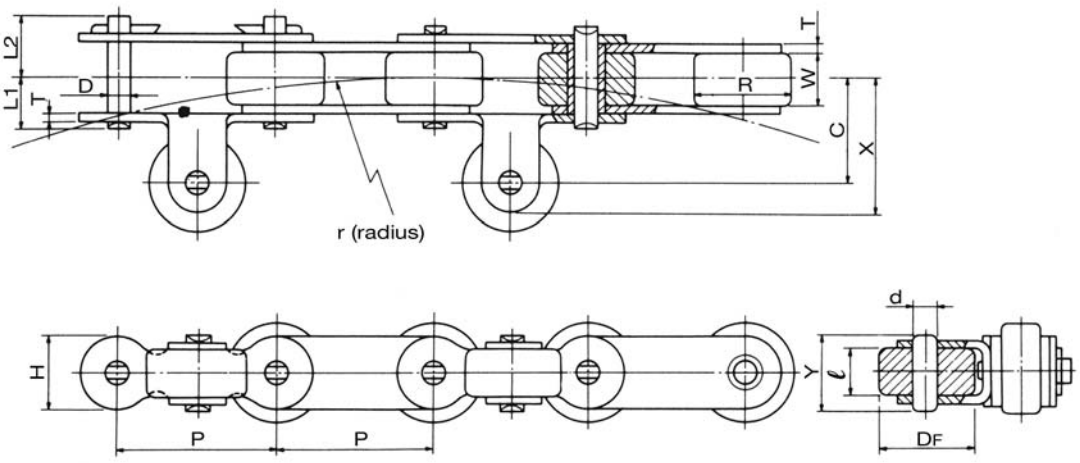
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Minimum Side Flex Radius r
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	
RS40CU-GR	0.500	0.312	0.313	0.059	0.472	0.156	0.715	0.332	0.383	13.80
RS50CU-GR	0.625	0.400	0.375	0.079	0.591	0.200	0.905	0.417	0.488	15.75
RS60CU-GR	0.750	0.469	0.500	0.094	0.713	0.235	1.113	0.521	0.592	19.69
RS80CU-GR	1.000	0.625	0.625	0.125	0.948	0.312	1.448	0.659	0.789	23.62

All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions					Guide Roller	
	C	X	N	Y	d	D_F	ℓ
RS40CU-GR	0.687	0.874	0.374	0.649	0.156	0.625	0.435
RS50CU-GR	0.832	1.082	0.500	0.811	0.200	0.750	0.541
RS60CU-GR	1.000	1.313	0.625	1.011	0.234	0.875	0.694
RS80CU-GR	1.250	1.626	0.751	1.279	0.312	1.125	0.885

Guide Roller - Double Pitch

Curved Attachment Chain



All dimensions in inches unless otherwise stated.

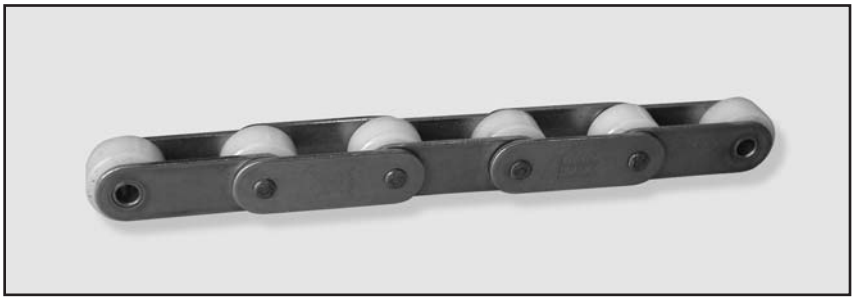
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Minimum Side Flex Radius R
				Thickness T	Height H	Dia. D	Length L_1+L_2	Length L_1	Length L_2	
Standard Roller Type										
C2040CU-GR	1.000	0.312	0.313	0.060	0.472	0.156	0.715	0.332	0.383	27.56
C2050CU-GR	1.250	0.400	0.375	0.080	0.591	0.200	0.905	0.417	0.488	31.50
C2060HCU-GR	1.500	0.469	0.500	0.094	0.677	0.235	1.113	0.521	0.592	39.37
C2080HCU-GR	2.000	0.625	0.625	0.125	0.906	0.313	1.448	0.659	0.789	47.24
Oversize Roller Type										
C2042CU-GR	1.000	0.625	0.313	0.060	0.472	0.156	0.715	0.332	0.383	27.56
C2052CU-GR	1.250	0.750	0.375	0.080	0.591	0.200	0.905	0.417	0.488	31.50
C2062HCU-GR	1.500	0.875	0.500	0.094	0.677	0.235	1.113	0.521	0.592	39.37
C2082HCU-GR	2.000	1.125	0.625	0.125	0.906	0.313	1.448	0.659	0.789	47.24

All dimensions in inches unless otherwise stated.

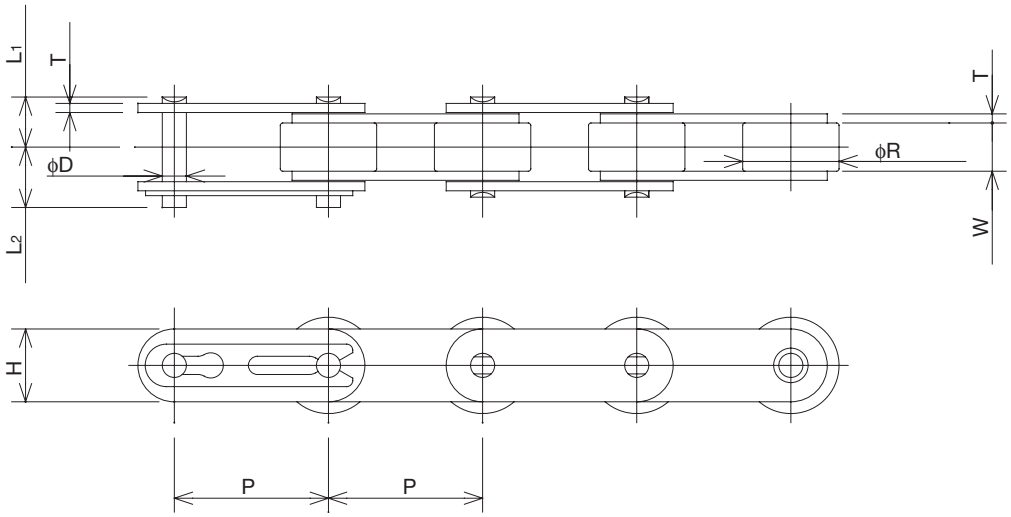
Chain Number	Chain Number	Attachment Dimensions					Guide Roller	
		C	X	N	Y	d	D_F	ℓ
C2040CU-GR	C2042CU-GR	0.687	0.874	0.374	0.519	0.156	0.625	0.307
C2050CU-GR	C2052CU-GR	0.832	1.082	0.500	0.637	0.200	0.750	0.370
C2060HCU-GR	C2062HCU-GR	1.062	1.376	0.625	0.874	0.234	0.875	0.496
C2080HCU-GR	C2082HCU-GR	1.312	1.689	0.751	1.079	0.312	1.125	0.622

Plastic Roller Attachment Chain

Plastic Roller Double Pitch chains are available in both carbon steel and "SS" 304 grade stainless steel. The roller is made from a poly-acetal resin which provides smooth quiet operation, resists corrosion, and is ideal for a wide variety of conveyor applications. Attachments are available. Do not exceed the “maximum roller loads” given in the tables below when the chain is directly carrying weight. Rated working loads (allowable chain loads) are reduced due to the pressure between the sprocket and the plastic roller.



Oversize Roller Type

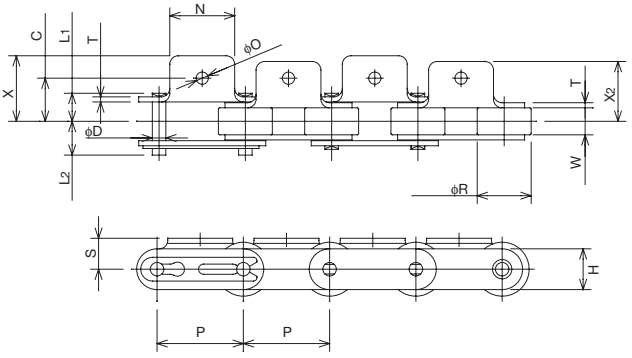


All dimensions in inches unless otherwise stated.

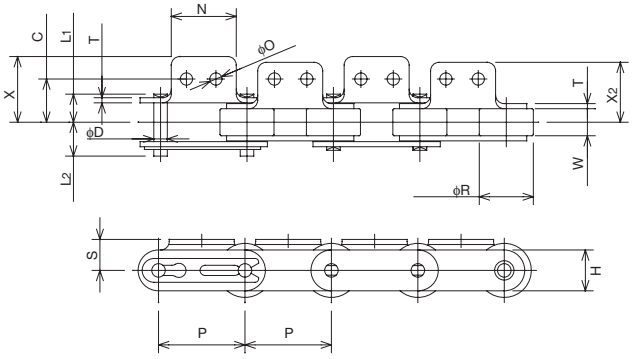
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Maximum Allowable Roller Load (lbs./roller)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2				
Carbon Steel													
C2042D	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	100	44	0.33
C2052D	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	154	66	0.57
C2062HD	1.500	0.875	0.500	0.126	0.677	0.235	1.224	0.573	0.652	9,040	231	110	0.98
C2082HD	2.000	1.125	0.625	0.157	0.906	0.313	1.543	0.720	0.823	15,400	397	200	1.77
C2102HD	2.500	1.563	0.750	0.189	1.125	0.376	1.823	0.858	0.965	24,300	573	286	2.44
Stainless Steel													
C2042SSD	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392	-	100	44	0.33
C2052SSD	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472	-	154	66	0.57
C2062HSSD	1.500	0.875	0.500	0.126	0.677	0.235	1.224	0.573	0.652	-	231	110	0.98
C2082HSSD	2.000	1.125	0.625	0.157	0.906	0.313	1.543	0.720	0.823	-	397	200	1.77
C2102HSSD	2.500	1.563	0.750	0.189	1.125	0.376	1.823	0.858	0.965	-	573	286	2.44

Plastic Roller Attachment Chain

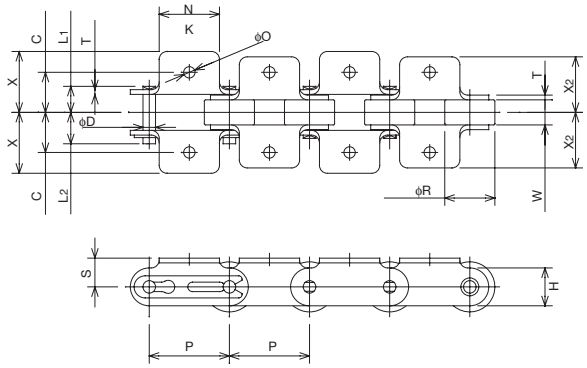
A-1 Attachment



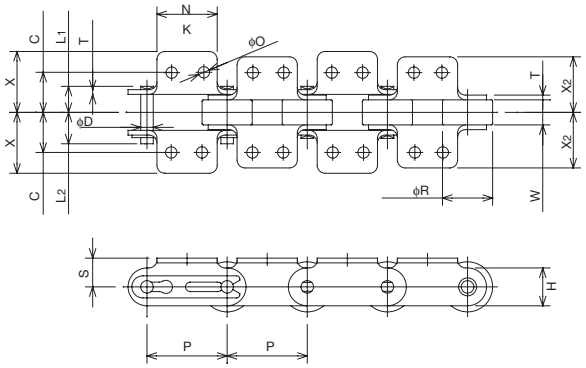
A-2 Attachment



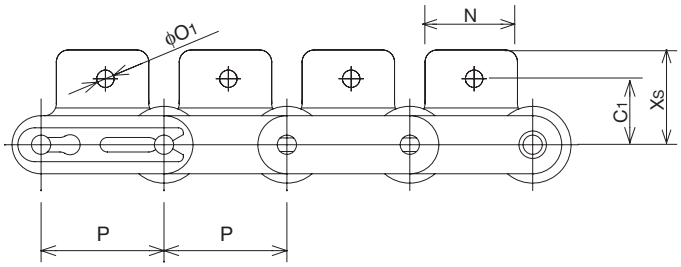
K-1 Attachment



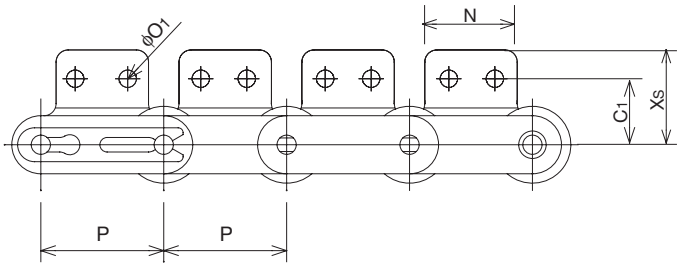
K-2 Attachment



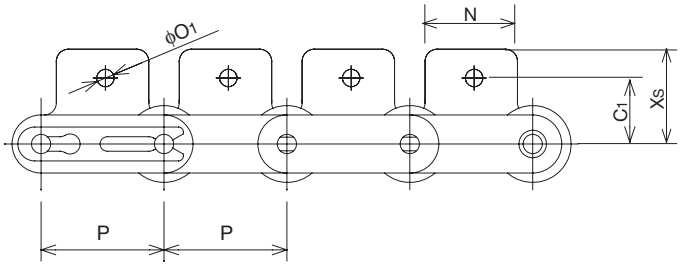
SA-1 Attachment



SA-2 Attachment



SK-1 Attachment



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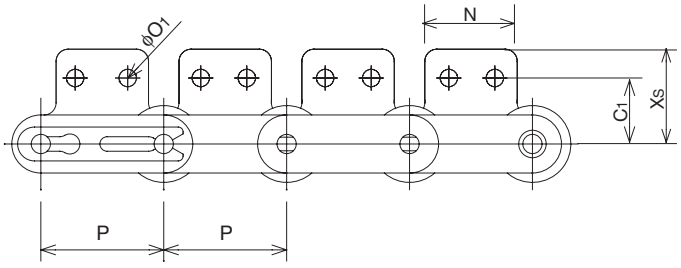
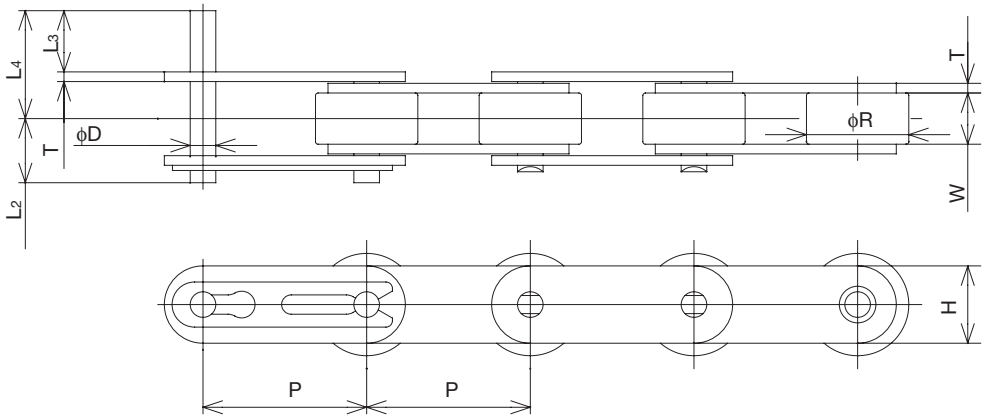
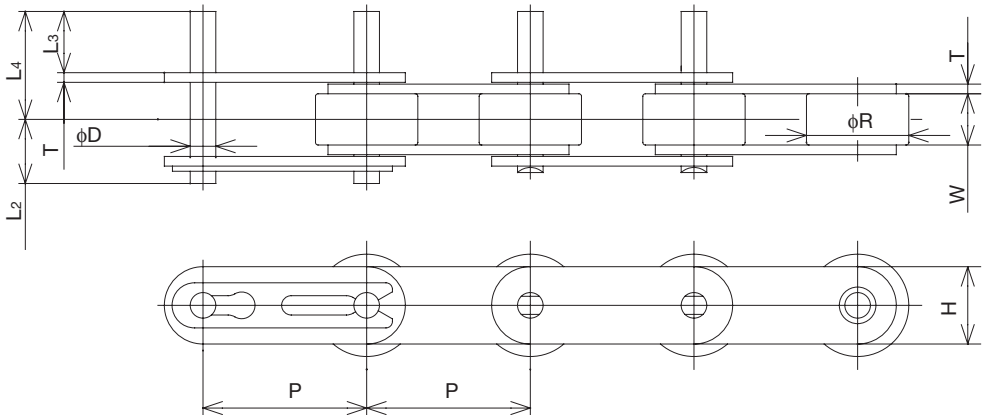


Plastic Roller Attachment Chain

D-1 Attachment



D-3 Attachment



All dimensions in inches unless otherwise stated.

Chain Number	A-1, A-2, K-1 and K-2 Attachments								
								Wt. per Attachment (lbs.)	
	X	X_2	C	S	K	N	O	A Attachment	K Attachment
C2042D	0.760	0.693	0.500	0.358	0.374	0.752	0.142	0.007	0.013
C2052D	0.953	0.866	0.626	0.437	0.469	0.937	0.205	0.013	0.026
C2062HD	1.240	1.110	0.844	0.579	0.563	1.126	0.205	0.037	0.075
C2082HD	1.602	1.441	1.094	0.752	0.752	1.500	0.268	0.071	0.141
C2102HD	1.950	1.650	1.312	0.922	0.937	1.875	0.323	0.132	0.265

Chain Number	SA-1, SA-2, SK-1 and SK-2 Attachments									
									Wt. per Attachment (lbs.)	
	X_S	C_1	C_2	K	N	O	O_1	T	SA Attachment	SK Attachment
C2042D	0.780	0.437	0.535	0.374	0.752	0.142	0.205	0.060	0.007	0.013
C2052D	0.969	0.563	0.626	0.469	0.937	0.205	0.268	0.080	0.013	0.026
C2062HD	1.205	0.689	0.752	0.563	1.126	0.205	0.343	0.125	0.037	0.075
C2082HD	1.594	0.874	1.000	0.752	1.500	0.268	0.406	0.156	0.071	0.141
C2102HD	1.984	1.125	1.250	0.938	1.875	0.323	0.516	0.187	0.132	0.265

Chain Number	D-1 and D-3 Attachments				
				Wt. per Attachment (lbs.)	
	D	L_3	L_4	D-1 Attachment	D-3 Attachment
C2042D	0.156	0.374	0.663	0.002	0.004
C2052D	0.200	0.469	0.833	0.004	0.008
C2062HD	0.234	0.563	1.083	0.007	0.014
C2082HD	0.312	0.752	1.401	0.015	0.030
C2102HD	0.375	0.937	1.687	0.026	0.052

Note: Spring type connecting links will be provided for C2042D, C2052D and C2062HD. Attachments are also available for stainless steel chain.

Plastic Sleeve Chain

Plastic Sleeve Chain is used for general conveying purposes with small loads and in applications that require maintenance-free or low noise operation. In Plastic Sleeve Chains, the pins and bushings are separated by a sleeve of self-lubricating engineered plastic.

Features of Plastic Sleeve Chains include the following:

• Maintenance Free

Self lubricating plastic sleeve is used in place of lubricating oil.

• Longer Wear Life

Wear between the pin and bushing is reduced due to the presence of the plastic sleeve. This reduces elongation of the chain thereby extending wear life.

• Same Dimensions as ANSI Double Pitch Chains

The dimensions are the same as ANSI Standard double pitch chain (including attachments); and so it can be installed using existing sprockets.

• Low Noise

Use of plastic sleeves makes less noise when the chain engages with the sprockets (about 7 – 10 dB less than stainless steel chain).

• Lighter

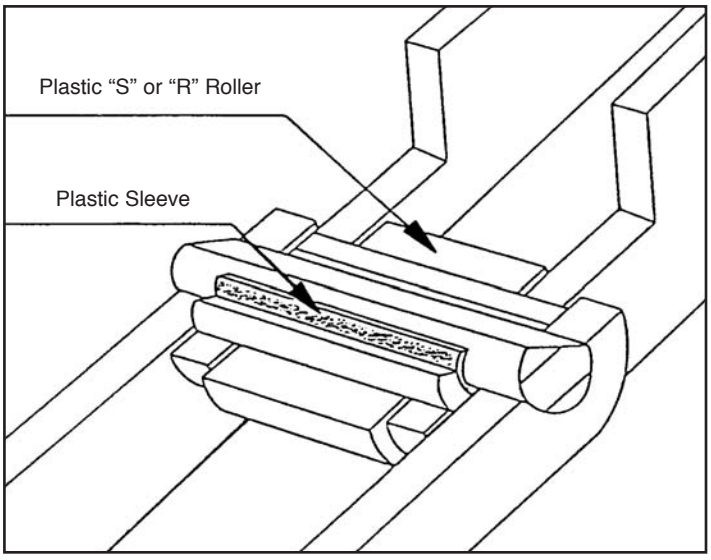
Use of plastic rollers results in significant weight reduction compared to all stainless steel chain. ("S" roller type: 15% lighter, "R" roller type: 40% lighter).

• Cleaner Environment

The contact between the plastic parts and the metal parts does not generate any metal dust – resulting in a cleaner work environment and equipment.

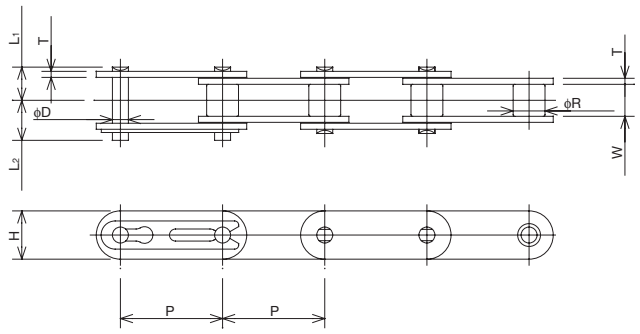
• Low Energy Consumption

The plastic rollers have a low coefficient of rolling friction which means reduced running resistance and higher energy savings.

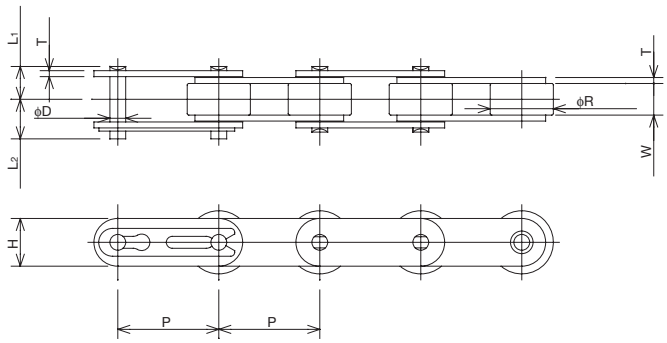


Plastic Sleeve Chain

Standard Roller Type



Oversize Roller Type



Carbon Steel-Double Pitch

Plastic Sleeve Chain

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Maximum Allowable Load (lbs.)	Maximum Allowable Roller Load (lbs./roller)	Approximate Weight (lbs./ft.)	Coefficient of Rolling Friction
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2				
Standard Roller Type													
CS2040D	1.000	0.312	0.313	0.059	0.472	0.156	0.717	0.325	0.392	50	4	.33	0.12
CS2050D	1.250	0.400	0.375	0.079	0.591	0.200	0.878	0.406	0.472	75	7	.57	0.12
CS2060HD	1.500	0.469	0.500	0.126	0.677	0.235	1.224	0.573	0.652	120	11	.98	0.12
Oversize Roller Type													
CS2042D	1.000	0.625	0.313	0.059	0.472	0.156	0.717	0.325	0.392	100	44	.33	0.08
CS2052D	1.250	0.750	0.375	0.079	0.591	0.200	0.878	0.406	0.472	154	66	.57	0.08
CS2062HD	1.500	0.875	0.500	0.126	0.677	0.235	1.224	0.573	0.652	231	110	.98	0.08

Note: Standard attachments are also available for plastic sleeve chain.

Stainless Steel-Double Pitch

Plastic Sleeve Chain

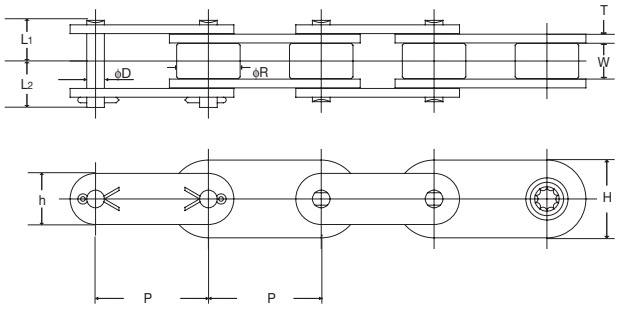
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Maximum Allowable Load (lbs.)	Maximum Allowable Roller Load (lbs./roller)	Approximate Weight (lbs./ft.)	Coefficient of Rolling Friction
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2				
Standard Roller Type													
CS2040DSS	1.000	0.312	0.313	0.059	0.472	0.156	0.717	0.325	0.392	50	4	.33	0.12
CS2050DSS	1.250	0.400	0.375	0.079	0.591	0.200	0.878	0.406	0.472	75	7	.57	0.12
CS2060HDSS	1.500	0.469	0.500	0.126	0.677	0.235	1.224	0.573	0.652	120	11	.98	0.12
Oversize Roller Type													
CS2042DSS	1.000	0.625	0.313	0.059	0.472	0.156	0.717	0.325	0.392	100	44	.33	0.08
CS2052DSS	1.250	0.750	0.375	0.079	0.591	0.200	0.878	0.406	0.472	154	66	.57	0.08
CS2062HDSS	1.500	0.875	0.500	0.126	0.677	0.235	1.224	0.573	0.652	231	110	.98	0.08

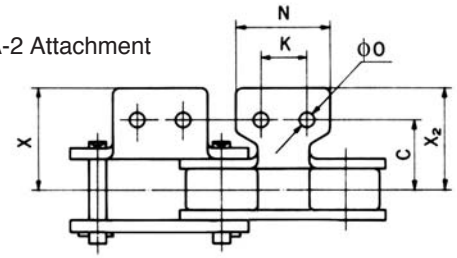
Note: Standard attachments are also available for plastic sleeve chain.

Bearing Bush Chain

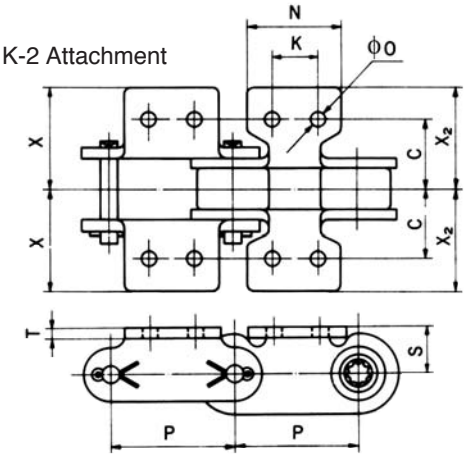
Bearing Bush Chain is used in automatic assembling, packaging, filling, and parts installation for a variety of industries, including electric, electronic, semiconductor, automobile, and food as well as in other precision machinery. It includes the following features:
High accuracy and no elongation. Interchangeability with other double pitch/ large pitch chains. Long wear life without lubrication. Usually chains are designed with gaps between the pins and bushings for proper operation. With Bearing Bush Chain, needle bearings are installed between the pins and bushings. These add rolling elements between these components and eliminate the sliding friction. Immediately after installation, the chain stretches a little (less than 0.03%) to fit the contacting surface of chain parts. After that, it doesn't stretch. Major dimensions of the Bearing Bush Chain and attachments are the same as our ANSI standard double pitch conveyor chains. Tsubaki Bearing Bush Chain works perfectly with standard over-sized roller sprockets. Changeover from standard roller chains to Tsubaki Bearing Bush Chains can be accomplished with minimal redesign of equipment.



A-2 Attachment



K-2 Attachment



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Maximum Allowable Load (lbs.)	Maximum Allowable Roller Load (lbs./roller)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2			
Oversize Roller Type													
CN2042	1.000	0.625	0.313	0.059	0.689	0.473	0.156	0.717	0.325	0.392	176	33	0.66
CN2052	1.250	0.750	0.375	0.079	0.827	0.591	0.200	0.878	0.406	0.472	287	44	1.16
CN2062H	1.500	0.875	0.500	0.126	1.024	0.677	0.235	1.224	0.573	0.652	396	66	1.72
CN2082H	2.000	1.125	0.625	0.156	1.378	0.906	0.313	1.543	0.720	0.823	660	121	2.60

All dimensions in inches unless otherwise stated.

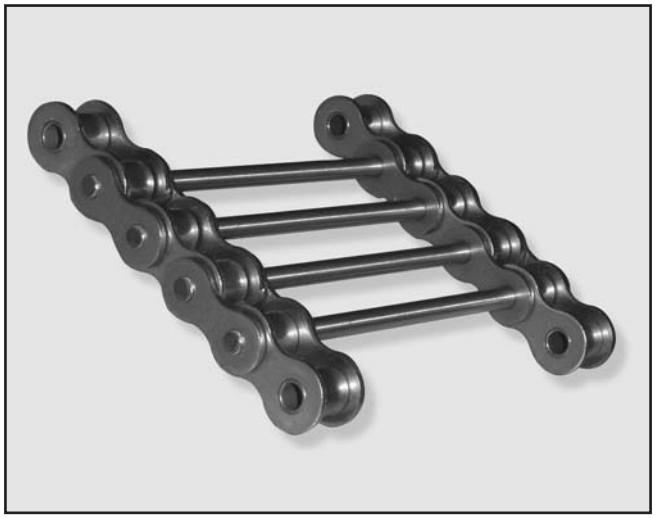
Chain Number	A-2 and K-2 Attachments								
								Additional Wt. per Attach. (lbs.)	
	S	C	X	N	K	X_2	O	A-2 Attachment	K-2 Attachment
CN2042	0.358	0.500	0.760	0.752	0.374	0.693	0.142	0.007	0.013
CN2052	0.437	0.626	0.953	0.937	0.469	0.866	0.205	0.013	0.027
CN2062H	0.579	0.844	1.240	1.126	0.563	1.110	0.205	0.037	0.075
CN2082H	0.752	1.094	1.602	1.500	0.752	1.441	0.268	0.070	0.141

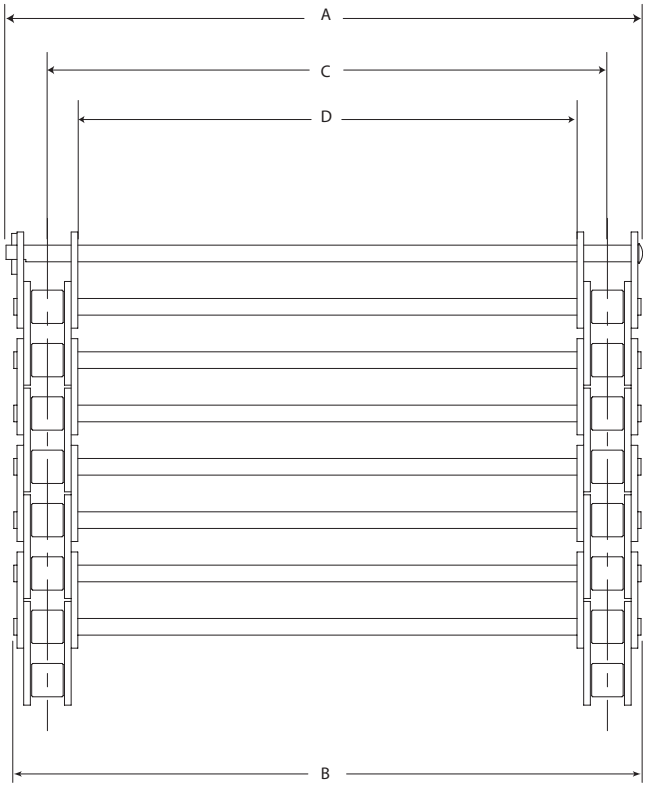
Notes:

1. Spring type connecting links will be provided for CN2042 - CN2062H
2. Offset links are not available.
3. Stainless steel material also available (stainless steel type 304).
4. Link plates can be nickel plated.

Crossrod Conveyor Chain

Crossrod conveyor chain consists of two parallel strands of standard RS40 or RS50 chains joined by crossrods on every link. The connecting pins have milled flats and fit into a D-shaped hole in the link plate. This prevents pin rotation and also extends the life. Chains are furnished in 5 foot sections and run on standard ANSI sprockets. Removable two pitch link sections are available for repair.





All dimensions in inches unless otherwise stated.

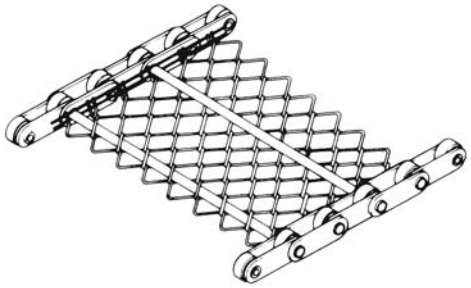
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin		Attachment Dimensions					Approx. Weight (lbs./ft.)
				Thickness T	Height H	Height h	Dia. D	Length L_2	Nominal Width	Pin Head to End Width A	Overall Rivited Width B	Roller ConLink to ConLink Width C	Plate to Plate Width D	
RS40 Chain														
P329-12	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	12.0	12.510	12.440	11.812	11.250	2.00
P329-15	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	15.0	15.510	15.440	14.812	14.250	2.60
P329-18	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	18.0	18.510	18.440	17.812	17.250	3.10
P329-21	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	21.0	21.510	21.440	20.812	20.250	3.40
P329-24	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	24.0	24.510	24.440	23.812	23.250	3.80
P329-30	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	30.0	30.510	30.440	29.812	29.250	4.70
RS50 Chain														
P800-12	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.469	12.0	12.670	12.600	11.812	11.100	2.20
P800-15	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.469	15.0	15.670	15.600	14.812	14.100	2.80
P800-18	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.469	18.0	18.670	18.600	17.812	17.100	3.30
P800-21	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.469	21.0	21.670	21.600	20.812	20.100	3.60
P800-24	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.469	24.0	24.670	24.600	23.812	23.100	4.10
P800-30	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.469	30.0	30.670	30.600	29.812	29.100	4.90

Notes: Chains are available in either carbon steel or stainless steel.
Crossrods may be ordered in spring steel or stainless steel.
One connecting pin is supplied with each chain section.
Additional connecting pins may be ordered separately.
Specify chain number and material combination desired.
All sprockets should be ordered in pairs with keyways in line to evenly distribute loads to both chains.

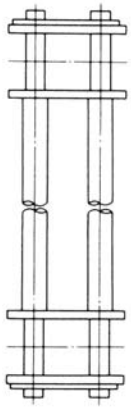
RS Single Pitch

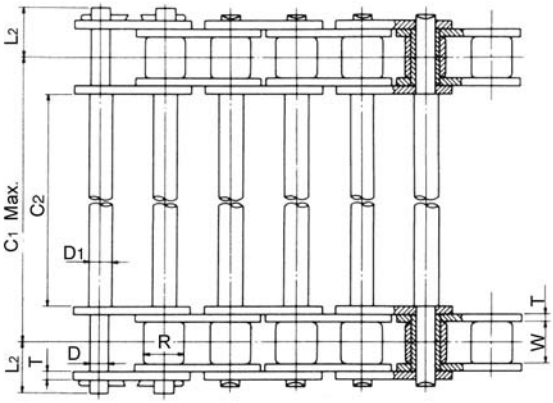
Stay Pin Chain

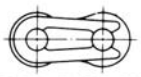
This chain is suitable for conveying on the pins. A net can be easily installed.



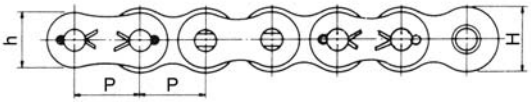
RS Type







RS40-RS60 CL



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin		Attachment Dimensions		
				Thickness T	Height H	Height h	Dia. D	Length L_2	D_1	C_1	C_2
RS35ST	0.375	* 0.200	0.188	0.050	0.354	0.307	0.141	0.270	0.197	Customer specified	
RS40ST	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	0.229	Customer specified	
RS50ST	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.469	0.250	Customer specified	
RS60ST	0.750	0.469	0.500	0.094	0.713	0.614	0.234	0.581	0.326	Customer specified	
RS80ST	1.000	0.625	0.625	0.126	0.949	0.819	0.312	0.758	0.389	Customer specified	
RS100ST	1.250	0.750	0.750	0.157	1.185	1.024	0.375	0.900	0.451	Customer specified	
RS120ST	1.500	0.875	1.000	0.189	1.425	1.228	0.437	1.138	0.515	Customer specified	
RS140ST	1.750	1.000	1.000	0.220	1.661	1.433	0.500	1.248	0.578	Customer specified	
RS160ST	2.000	1.125	1.250	0.251	1.897	1.637	0.562	1.450	0.704	Customer specified	

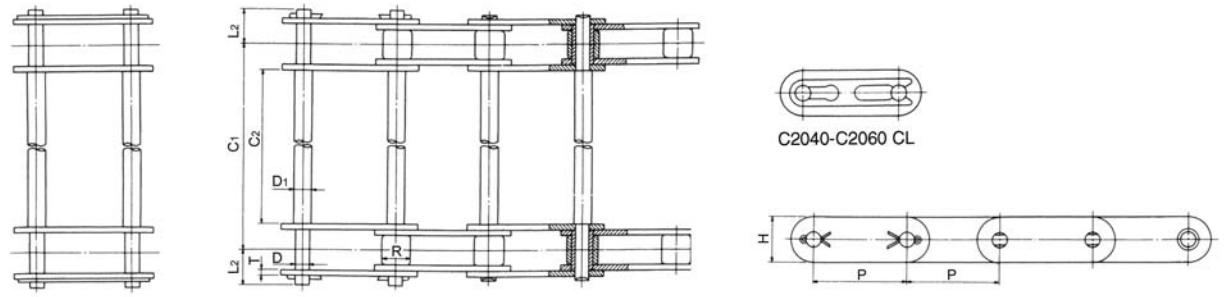
Note: Spring clip type or cottered type pins are produced according to the length of the stay pin.
Note: Please make the total width (C1+2L2) under 400 mm (15.75 inches). If pins are hardened at chain portion only
Note: (unhardened at stay pin portion) the chain can be produced for widths more than 400 mm (15.75 inches).
Sizes 35-60: Spring clip connecting link.
Sizes 80-160: Cotter pin connecting link.
*Rollerless (bushing only).

Stay Pin Chain

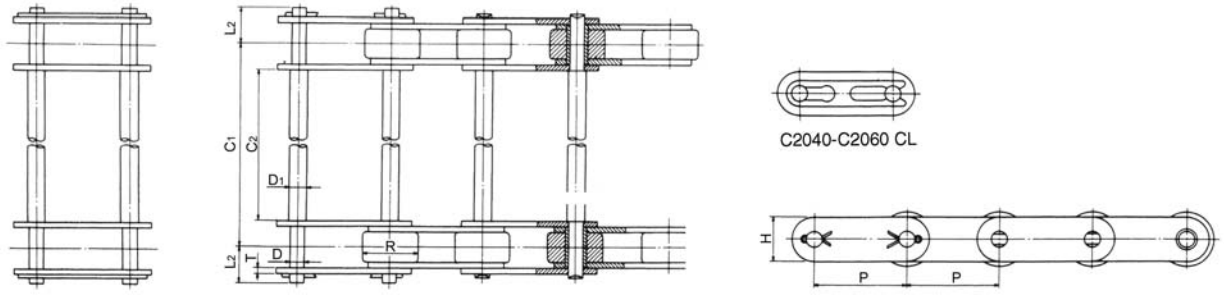
Double Pitch

Stay Pin Chain

Standard Roller Type



Oversize Roller Type



All dimensions in inches unless otherwise stated.

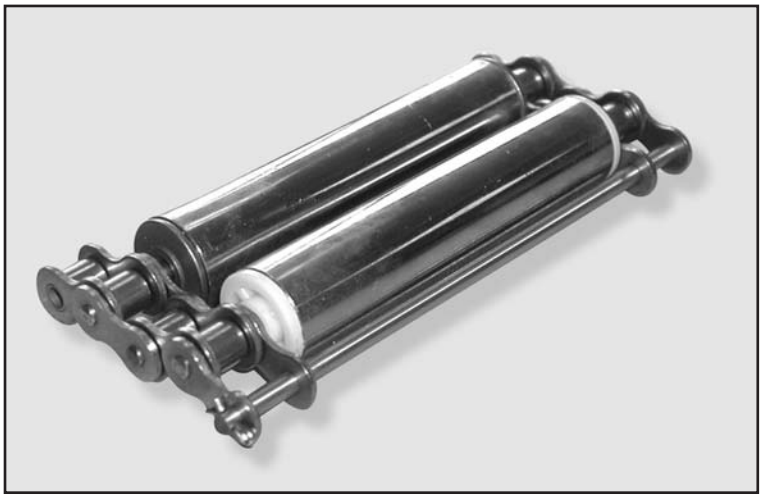
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				
				Thickness T	Height H	Dia. D	Dia. D_1	Length L_2	C_1	C_2
Standard Roller Type										
C2040ST	1.000	0.312	0.313	0.060	0.472	0.156	0.230	0.392	Customer Specified	
C2050ST	1.250	0.400	0.375	0.080	0.591	0.200	0.250	0.472	Customer Specified	
C2060HST	1.500	0.469	0.500	0.125	0.677	0.235	0.326	0.652	Customer Specified	
C2080HST	2.000	0.625	0.625	0.156	0.906	0.313	0.389	0.823	Customer Specified	
C2100HST	2.500	0.750	0.750	0.188	1.125	0.375	0.451	0.980	Customer Specified	
C2120HST	3.000	0.875	1.000	0.220	1.354	0.437	0.515	1.202	Customer Specified	
C2160HST	4.000	1.125	1.250	0.281	1.897	0.562	0.704	1.513	Customer Specified	
Oversize Roller Type										
C2042ST	1.000	0.625	0.313	0.060	0.472	0.156	0.230	0.392	Customer Specified	
C2052ST	1.250	0.750	0.375	0.080	0.591	0.200	0.250	0.472	Customer Specified	
C2062HST	1.500	0.875	0.500	0.125	0.677	0.235	0.326	0.652	Customer Specified	
C2082HST	2.000	1.125	0.625	0.156	0.906	0.313	0.389	0.823	Customer Specified	
C2102HST	2.500	1.563	0.750	0.188	1.125	0.375	0.451	0.980	Customer Specified	
C2122HST	3.000	1.750	1.000	0.220	1.354	0.437	0.515	1.202	Customer Specified	
C2162HST	4.000	2.250	1.250	0.281	1.897	0.562	0.704	1.513	Customer Specified	

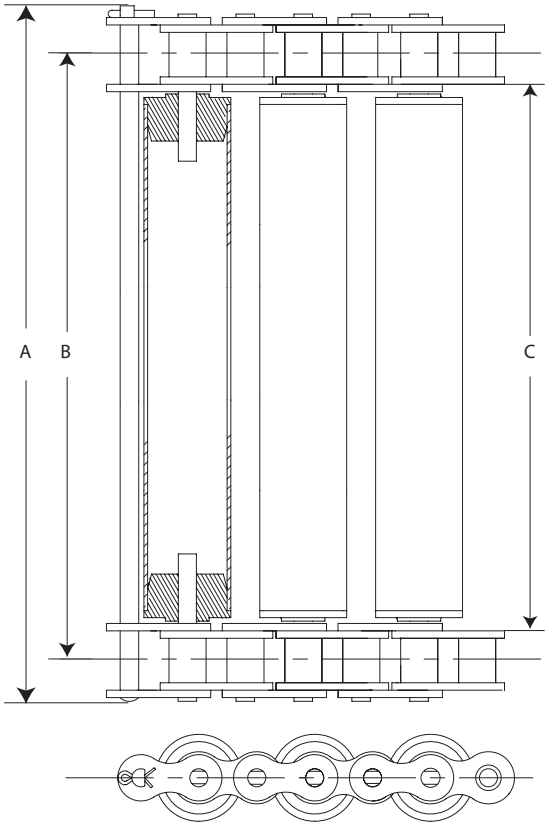
Note: Spring clip type or cottered type pins are produced according to the length of stay pin.
Please make the total width (C1+2L2) under 400 mm (15.75 inches). If pins are hardened at chain portion only (unhardened at stay pin portion) the chain can be produced for widths more than 400 mm (15.75 inches).
Sizes 2040-2060: spring clip connecting link.
Sizes 2080-2160: cotter clip connecting link.

Live Tubular Roller Chain

Live tubular roller chain consists of two parallel strands of RS40 chain with 3/4" diameter live tubular rollers on 1" spacing. The chains can be placed on the end or at any intermediate point of a line where variations in speed or stoppage of conveyed goods may occur. Placed next to slicing or wrapping machines, they act as accumulators.

Each chain in assembled with connecting pins acting as tie bars every 12". The pins have milled flats and fit into a D-shaped hole in the link plate to prevent pin rotation and to give longer chain life. Chains are furnished in 10 foot sections. The tubular rollers rotate on either oil-impregnated metal or plastic bearings. Removable two-pitch connecting links are available.





All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin		Attachment Dimensions				Approx. Weight (lbs./ft.)
				Thickness T	Height H	Height h	Dia. D	Length L_2	Nominal Width	Pin Head to End Width A	Roller ConLink ConLink to Width B	Plate to Plate Width C	
RS40 Chain													
TP329-12	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	12.0	12.510	11.812	11.250	4.30
TP329-15	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	15.0	15.510	14.812	14.250	5.30
TP329-18	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	18.0	18.510	17.812	17.250	6.20
TP329-21	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	21.0	21.510	20.812	20.250	7.20
TP329-24	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	24.0	24.510	23.812	23.250	7.60
TP329-30	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.392	30.0	30.510	29.812	29.250	9.10

Notes: Chains, connecting links and rollers are available in either carbon steel, plated or stainless steel.
Specify bearing type - metal or plastic - when ordering.
Chains and connecting links must be ordered separately.
One connecting pin is supplied with each chain section or connecting link.
Additional connecting pins may be ordered separately.
Specify chain number and material/bearing combination desired.

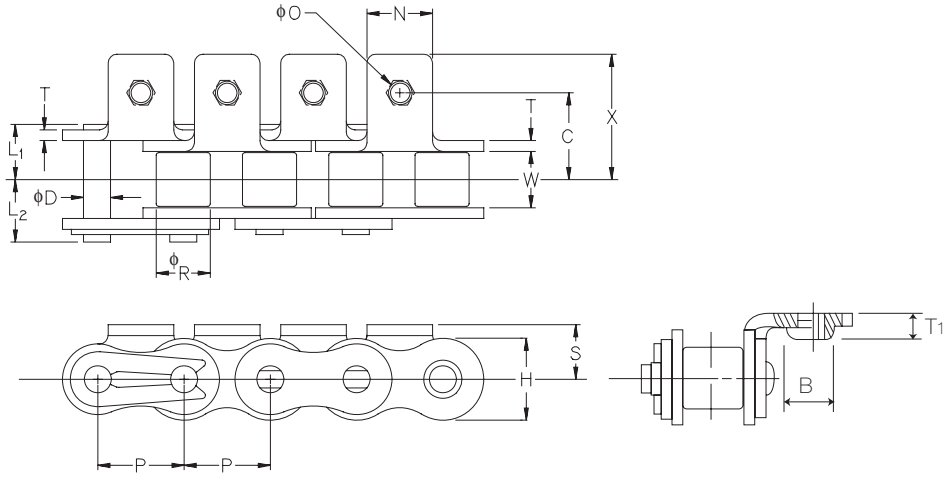
Press Nut Attachment Chain

RS Single Pitch

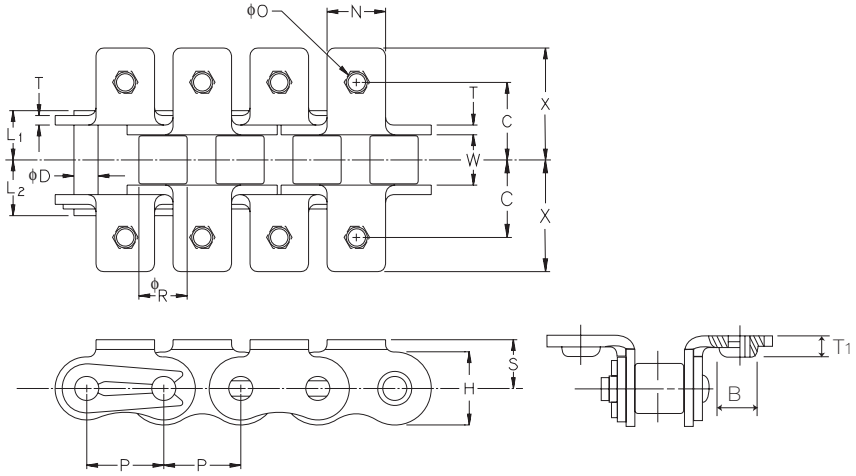
Press Nut Attachment Chain

This chain has an attachment with nut. Both are heat treated to ensure sufficient strength.

A-1 with press nut attachment



K-1 with press nut attachment



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin			
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
RS40NM	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392
RS50NM	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.874	0.406	0.469
RS60NM	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581

All dimensions in inches unless otherwise stated.

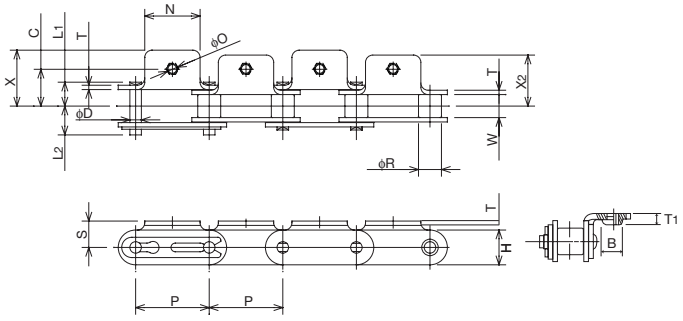
Chain Number	Attachment Dimensions						
	C	N	O	B	S	X	T_1
RS40NM	0.500	0.374	M3	0.217	0.314	0.700	0.142
RS50NM	0.625	0.500	M4	0.276	0.405	0.921	0.169
RS60NM	0.750	0.625	M5	0.315	0.468	1.110	0.217

Press Nut Attachment Chain

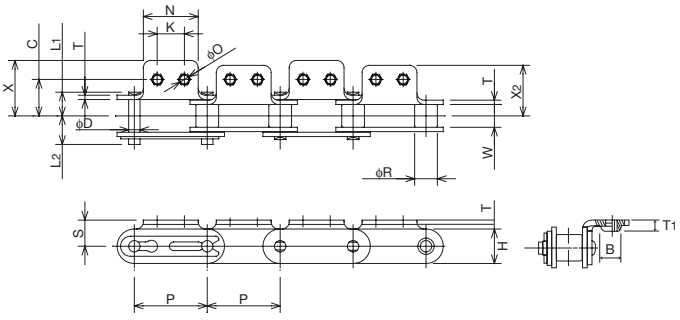
Double Pitch

Press Nut Attachment Chain

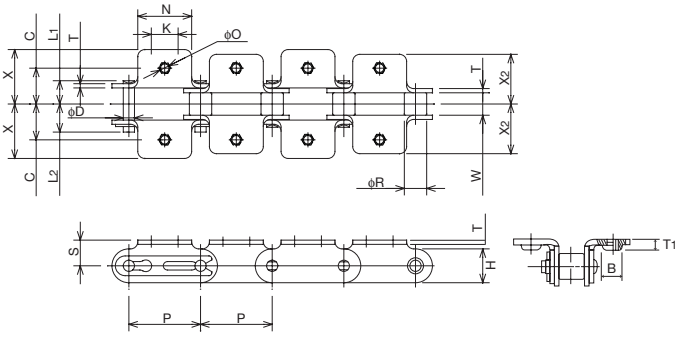
A-1 Attachment



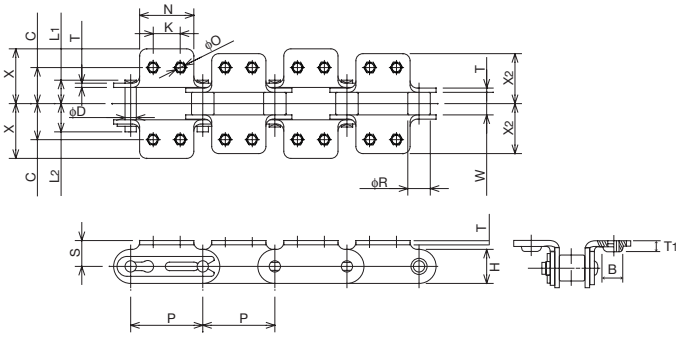
A-2 Attachment



K-1 Attachment



K-2 Attachment



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin			
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
Standard Roller Type									
C2040NM	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392
C2050NM	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472
C2060HNM	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652
Oversize Roller Type									
C2042NM	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392
C2052NM	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472
C2062HNM	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.573	0.652

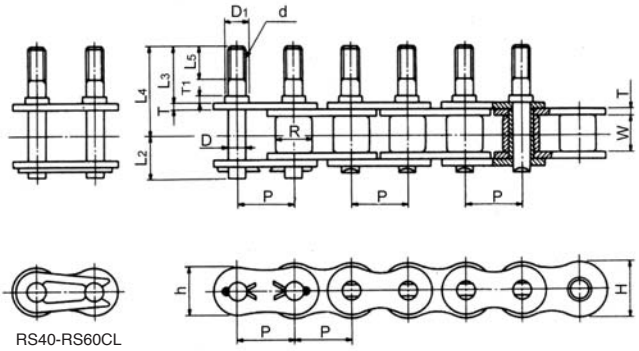
All dimensions in inches unless otherwise stated.

Chain Number	Chain Number	Attachment Dimensions								
		C	K	N	O	B	S	X	X_2	T_1
C2040NM	C2042NM	0.500	0.374	0.751	M3	0.217	0.358	0.759	0.692	0.142
C2050NM	C2052NM	0.625	0.468	0.937	M4	0.276	0.437	0.952	0.866	0.169
C2060HNM	C2062HNM	0.844	0.562	1.125	M5	0.315	0.578	1.240	1.110	0.248

Extended Pin Chain

RS Single Pitch

Extended Pin with Screw



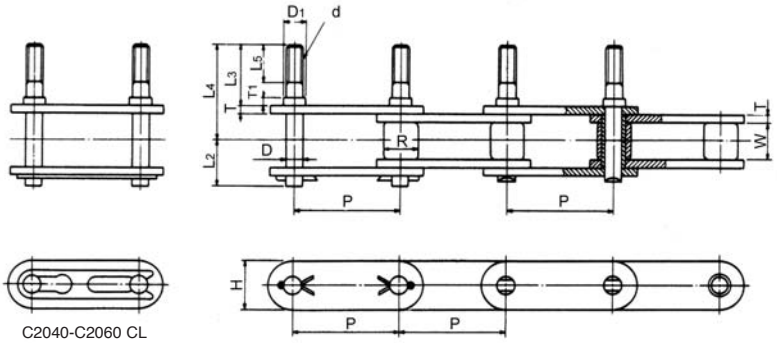
RS40-RS60CL

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				
				Thickness T	Height H	Height h	Dia. D	Dia. D_1	Screw Size d	Thickness T_1	Length L_2
RS40EN	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.196	M4	0.059	0.392
RS50EN	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.250	M5	0.078	0.469
RS60EN	0.750	0.469	0.500	0.094	0.713	0.614	0.235	0.328	M6	0.094	0.581
RS80EN	1.000	0.625	0.625	0.126	0.949	0.819	0.313	0.393	M8	0.125	0.758
RS100EN	1.250	0.750	0.750	0.157	1.185	1.024	0.376	0.456	M10	0.157	0.900
RS120EN	1.500	0.875	1.000	0.189	1.425	1.228	0.437	0.519	M12	0.188	1.138

Double Pitch

Extended Pin with Screw



C2040-C2060 CL

All dimensions in inches unless otherwise stated.

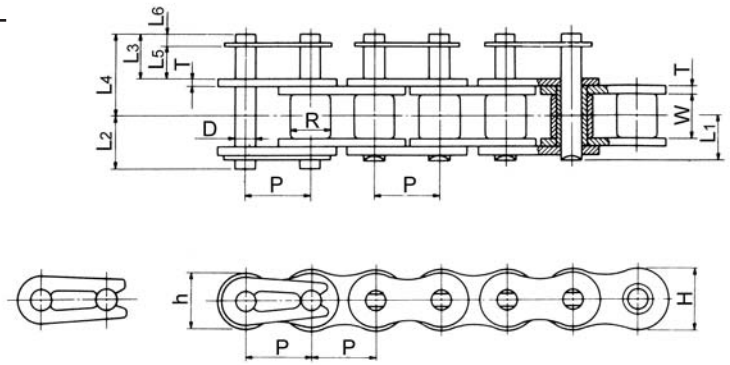
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				
				Thickness T	Height H	Dia. D	Dia. D_1	Screw Size d	Thickness T_1	Length L_2
Standard Roller Type										
C2040EN	1.000	0.312	0.313	0.060	0.472	0.156	0.196	M4	0.059	0.392
C2050EN	1.250	0.400	0.375	0.080	0.591	0.200	0.250	M5	0.078	0.472
C2060HEN	1.500	0.469	0.500	0.125	0.677	0.235	0.328	M6	0.094	0.652
C2080HEN	2.000	0.625	0.625	0.156	0.906	0.313	0.393	M8	0.125	0.823
C2100HEN	2.500	0.750	0.750	0.188	1.125	0.375	0.456	M10	0.157	0.965
Oversize Roller Type										
C2042EN	1.000	0.625	0.313	0.060	0.472	0.156	0.196	M4	0.059	0.392
C2052EN	1.250	0.750	0.375	0.080	0.591	0.200	0.250	M5	0.078	0.472
C2062HEN	1.500	0.875	0.500	0.125	0.677	0.235	0.328	M6	0.094	0.652
C2082HEN	2.000	1.125	0.625	0.156	0.906	0.313	0.393	M8	0.125	0.823
C2102HEN	2.500	1.563	0.750	0.188	1.125	0.375	0.456	M10	0.157	0.965

Extended Pin Chain with Clip

RS Single Pitch

Extended Pin with Clip

It is possible to install an attachment with a clip.



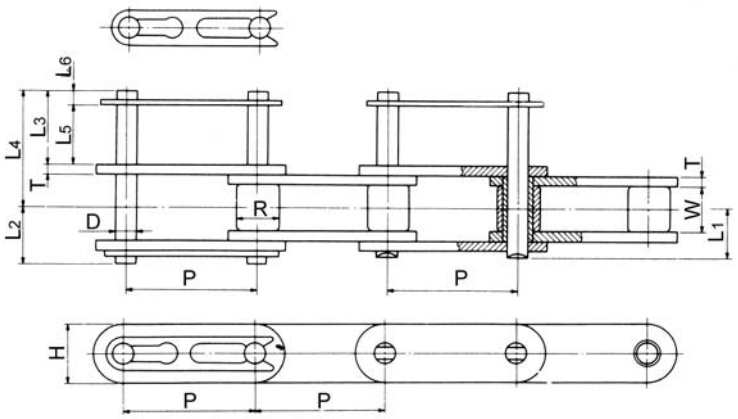
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin			
				Thickness T	Height H	Height h	Dia. D	Length L_1	Length L_2	Length L_6
RS40EC	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.325	0.392	0.110
RS50EC	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.406	0.469	0.118
RS60EC	0.750	0.469	0.500	0.094	0.713	0.614	0.235	0.506	0.581	0.133

Double Pitch

Extended Pin with Clip

It is possible to install an attachment with a clip.



All dimensions in inches unless otherwise stated.

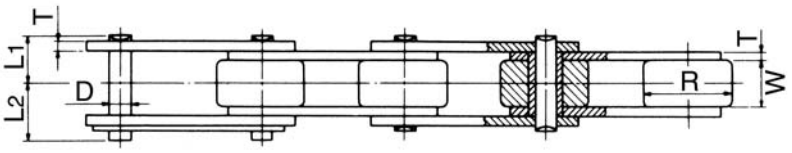
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Length L_6
Standard Roller Type										
C2040EC	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	0.110
C2050EC	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	0.118
C2060HEC	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	0.133
Oversize Roller Type										
C2042EC	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392	0.110
C2052EC	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472	0.118
C2062HEC	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.573	0.652	0.133

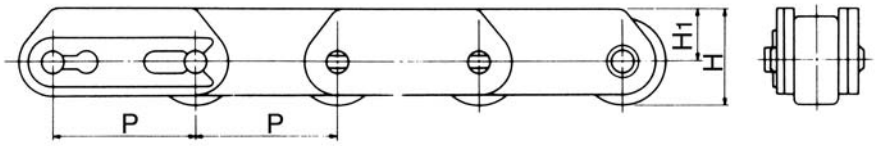
Deep Link and RF Type Chains

Double Pitch

Deep Link Chain

This chain is based on the same dimensions as standard RF double pitch chain, but with H_1 higher than the top of the roller.





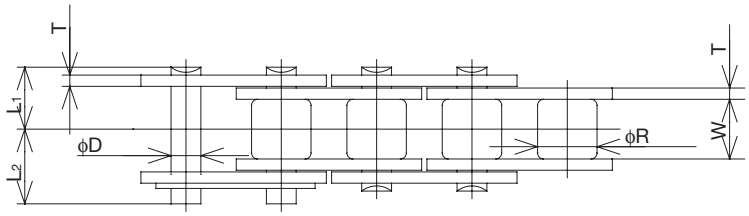
All dimensions in inches unless otherwise stated.

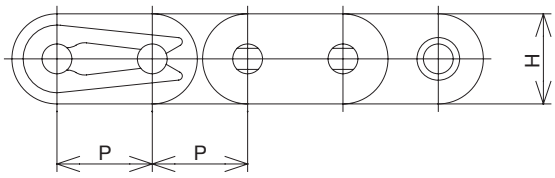
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)
				Thickness T	Height H	Height H_1	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2		
Oversize Roller Type												
C2042RFD	1.000	0.625	0.313	0.060	0.704	0.393	0.156	0.717	0.325	0.392	3,750	590
C2052RFD	1.250	0.750	0.375	0.080	0.846	0.472	0.200	0.878	0.406	0.472	6,170	970
C2062HRFD	1.500	0.875	0.500	0.125	0.988	0.551	0.235	1.224	0.573	0.652	9,040	1,410
C2080HRFD	2.000	1.125	0.625	0.157	1.267	0.708	0.312	1.542	0.720	0.822	15,400	2,400

RF Single Pitch

RF Type Chain

This chain has standard (small) rollers with flat shape link plates. Chain should be used with even number of pitches.





All dimensions in inches unless otherwise stated.

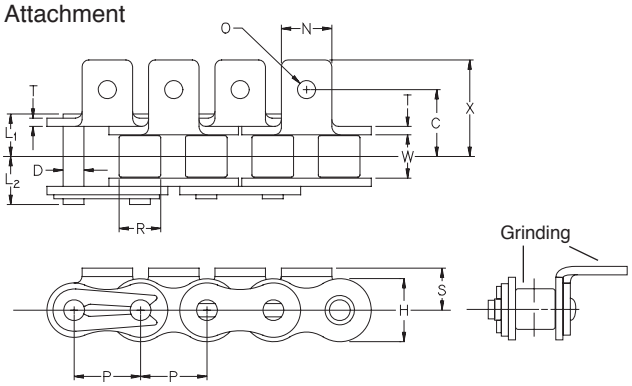
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2		
RF06B	0.375	0.250	0.225	0.050	0.322	0.129	0.551	0.255	0.296	2,000	-
RF40	0.500	0.313	0.313	0.059	0.472	0.156	0.715	0.324	0.391	3,750	590
RF50	0.625	0.400	0.375	0.078	0.590	0.200	0.877	0.405	0.472	6,170	970
RF60	0.750	0.469	0.500	0.094	0.712	0.234	1.085	0.505	0.580	9,040	1,410
RF80	1.000	0.625	0.625	0.125	0.948	0.312	1.396	0.639	0.757	15,400	2,400
RF100	1.250	0.750	0.750	0.157	1.126	0.375	1.676	0.777	0.899	24,300	3,830
RF120	1.500	0.875	1.000	0.188	1.354	0.437	2.117	0.98	1.137	34,000	5,800

RS Single Pitch

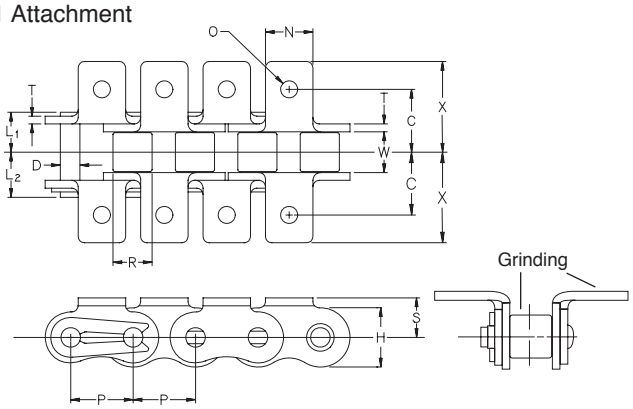
Ground Attachment Chain

The upper surface of the link plate has been ground to provide a smooth conveying surface and to protect the conveyed material from damage. For attachment chain, the upper surface of the attachment and the outer surface of the roller are ground.

A-1 Attachment



K-1 Attachment



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin			
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
RS40PG	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.716	0.324	0.392
RS50PG	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.874	0.405	0.469
RS60PG	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.086	0.505	0.581
RS80PG	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.397	0.639	0.758
RS100PG	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.777	0.900
RS120PG	1.500	0.875	1.000	0.189	1.425	1.228	0.437	2.118	0.980	1.138
RS140PG	1.750	0.991	1.000	0.220	1.661	1.433	0.500	2.307	1.059	1.248
RS160PG	2.000	1.116	1.250	0.251	1.897	1.637	0.562	2.703	1.253	1.450

All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions				
	C	N	O	S	X
RS40PG	0.500	0.374	0.141	0.307	0.700
RS50PG	0.625	0.500	0.204	0.397	0.921
RS60PG	0.750	0.625	0.204	0.456	1.110
RS80PG	1.000	0.751	0.267	0.614	1.440
RS100PG	1.250	1.000	0.342	0.763	1.767
RS120PG	1.500	1.125	0.405	0.889	2.210
RS140PG	1.751	1.374	0.468	1.110	2.540
RS160PG	2.000	1.500	0.562	1.236	2.900

Note: Spring clips provided on sizes 40-60. Cotter pins provided on sizes 80-160.

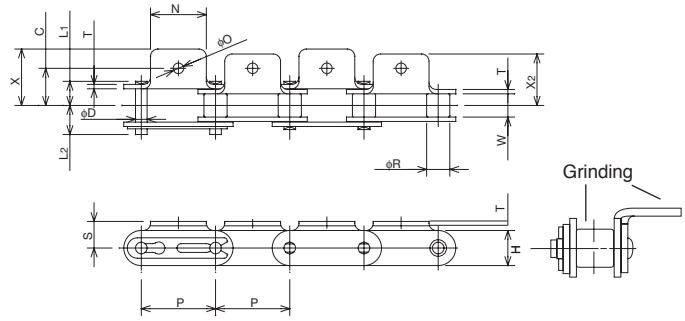
Ground Attachment Chain

Double Pitch

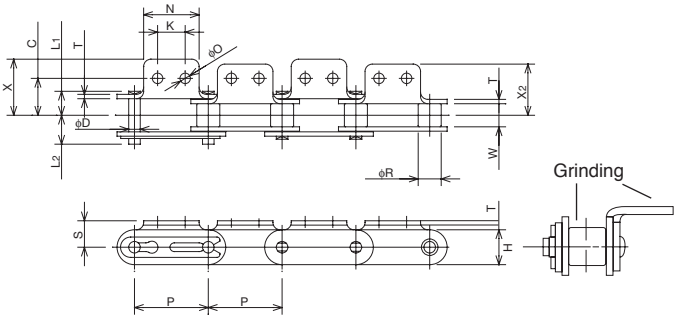
Ground Attachment Chain

The upper surface of the link plate has been ground to provide a smooth conveying surface and to protect the conveyed material from damage. For attachment chain, the upper surface of the attachment and the outer surface of the roller are ground.

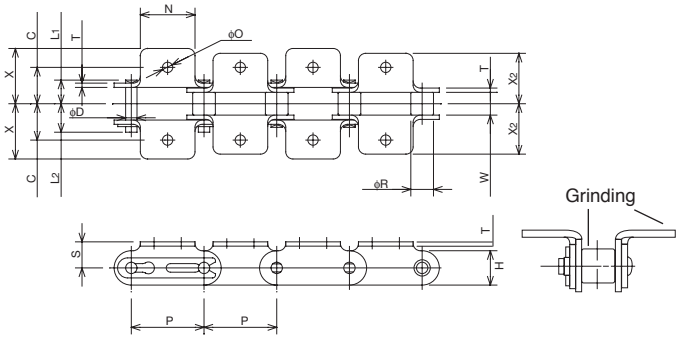
A-1 Attachment



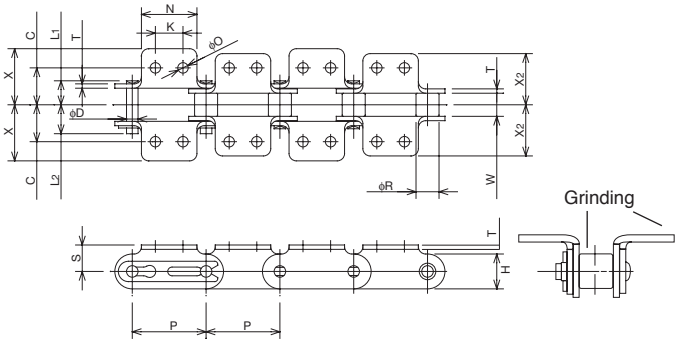
A-2 Attachment



K-1 Attachment



K-2 Attachment



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin			
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
Standard Roller Type									
C2040PG	1.000	0.312	0.313	0.060	0.472	0.156	0.716	0.324	0.392
C2050PG	1.250	0.400	0.375	0.080	0.591	0.200	0.877	0.405	0.472
C2060HPG	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.572	0.652
C2080HPG	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823
Oversize Roller Type									
C2042PG	1.000	0.625	0.313	0.060	0.472	0.156	0.716	0.324	0.392
C2052PG	1.250	0.750	0.375	0.080	0.591	0.200	0.877	0.405	0.472
C2062HPG	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.572	0.652
C2082HPG	2.000	1.125	0.625	0.156	0.906	0.313	1.543	0.720	0.823

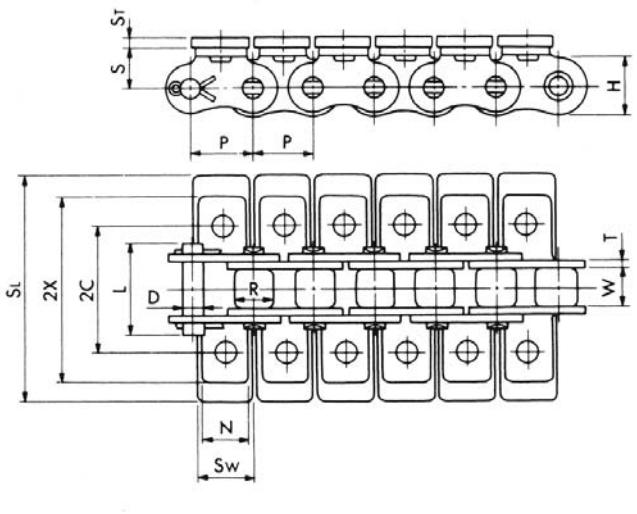
Chain Number	Chain Number	Attachment Dimensions						
		C	K	N	O	S	X	X_2
C2040PG	C2042PG	0.500	0.374	0.751	0.142	0.350	0.759	0.692
C2050PG	C2052PG	0.625	0.468	0.937	0.205	0.429	0.952	0.866
C2060HPG	C2062HPG	0.844	0.562	1.125	0.205	0.566	1.240	1.110
C2080HPG	C2082HPG	1.094	0.751	1.500	0.268	0.740	1.602	1.440

Note: Sizes C2040-C2060 have springclip type connecting link. Size C2080 has cotter pin type connecting link.

RS Single Pitch Riveted Top Plate

Riveted Slat Chain

This single pitch chain with a short internally set slat is suitable for smooth conveying of small items.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin		Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)
				Thickness T	Height H	Dia. D	Length L		
RS40SLT	0.500	0.313	0.313	0.059	0.472	0.156	0.760	3,700	600
RS50SLT	0.625	0.400	0.375	0.079	0.591	0.200	0.937	6,100	970
RS60SLT	0.750	0.469	0.500	0.094	0.713	0.235	1.201	9,100	1,400
RS80SLT	1.000	0.625	0.625	0.126	0.949	0.313	1.516	15,400	2,400

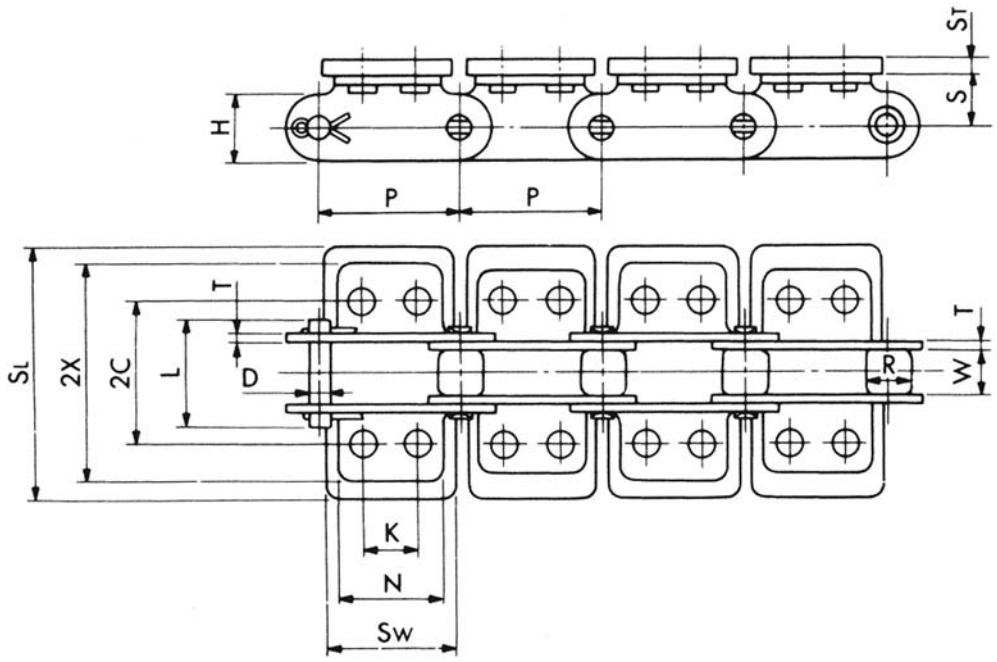
All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions						
	2C	2X	N	S	S_T	S_L	S_W
RS40SLT	1.000	1.402	0.374	0.315	0.126	2.000	0.472
RS50SLT	1.252	1.843	0.500	0.406	0.126	2.500	0.591
RS60SLT	1.500	2.220	0.626	0.469	0.157	3.000	0.709
RS80SLT	2.000	2.882	0.752	0.626	0.189	4.000	0.945

Riveted Top Plate-Double Pitch

Riveted Slat Chain

Slats are installed on tough RF double pitch chains. Excellent for conveying relatively heavy items.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin		Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length L			
Standard Roller Type										
C2040SLT	1.000	0.312	0.313	0.059	0.472	0.156	0.760	3,750	590	1.36
C2050SLT	1.250	0.400	0.375	0.078	0.590	0.200	0.937	6,170	970	1.70
C2060HSLT	1.500	0.469	0.500	0.125	0.677	0.234	1.335	9,040	1,410	3.32
C2080HSLT	2.000	0.625	0.625	0.157	0.905	0.312	1.646	15,400	2,400	4.57
Oversize Roller Type										
C2042SLT	1.000	0.625	0.313	0.059	0.472	0.156	0.760	3,750	590	1.61
C2052SLT	1.250	0.750	0.375	0.078	0.590	0.200	0.937	6,170	970	2.02
C2062HSLT	1.500	0.875	0.500	0.125	0.677	0.234	1.335	9,040	1,410	3.80
C2082HSLT	2.000	1.125	0.750	0.157	0.905	0.312	1.646	15,400	2,400	5.35

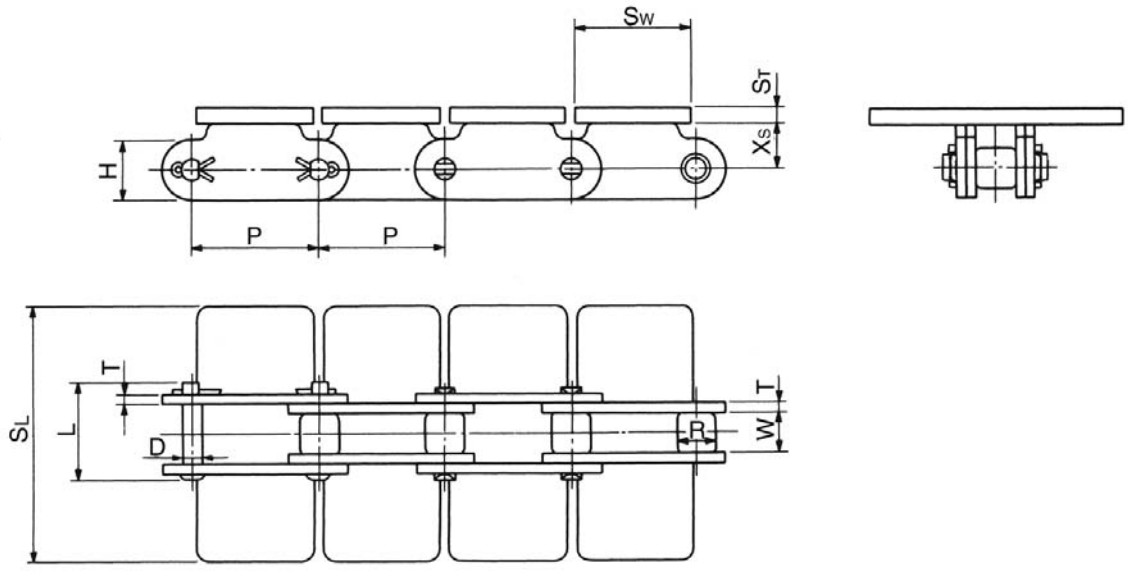
All dimensions in inches unless otherwise stated.

Chain Number	Chain Number	Attachment Dimensions							
		2C	2X	K	N	S	S_T	S_L	S_W
C2040SLT	C2042SLT	1.000	1.520	0.374	0.752	0.358	0.126	2.000	0.945
C2050SLT	C2052SLT	1.252	1.906	0.469	0.937	0.437	0.157	2.500	1.181
C2060HSLT	C2062HSLT	1.689	2.480	0.563	1.126	0.579	0.189	3.000	1.417
C2080HSLT	C2082HSLT	2.189	3.205	0.752	1.500	0.752	0.220	4.000	1.890

Double Pitch

Welded Top Plate Chain

Slats are installed on double pitch chains. Excellent for conveying relatively heavy items.



All dimensions in inches unless otherwise stated.

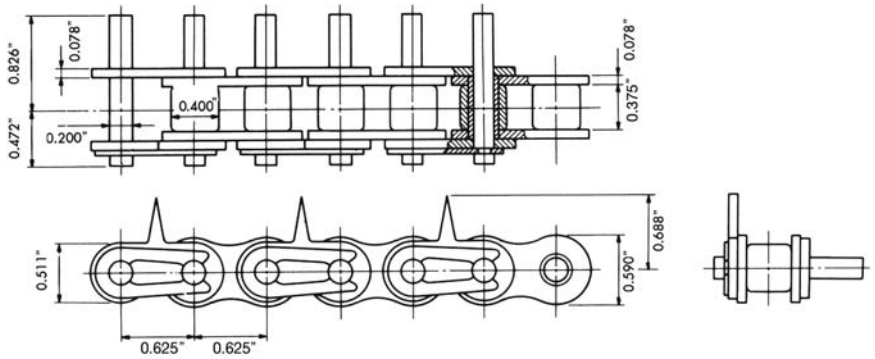
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin		Attachment Dimensions				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)
				Thickness T	Height H	Dia. D	Length L	S_T	S_L	S_W	X_S		
Standard Roller Type													
C2060HSLW	1.500	0.469	0.500	0.125	0.677	0.235	1.240	0.125	3.000	1.417	0.579	9,040	1,410
C2080HSLW	2.000	0.625	0.625	0.157	0.905	0.313	1.543	0.177	4.000	1.890	0.752	15,400	2,400
Oversize Roller Type													
C2062HSLW	1.500	0.875	0.500	0.125	0.677	0.235	1.240	0.125	3.000	1.417	0.579	9,040	1,410
C2082HSLW	2.000	1.125	0.625	0.157	0.905	0.313	1.543	0.177	4.000	1.890	0.752	15,400	2,400

Specialty Attachment Chain

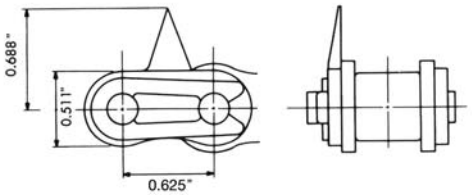
Tsubaki offers a full line of industry specific specialty chains. This section illustrates many that are available for fast delivery. Other specialty chains are available on a made-to-order basis.

Chain type: FS (sticker attachment)
Application: Conveying thin materials such as camera film and plastic wrap.

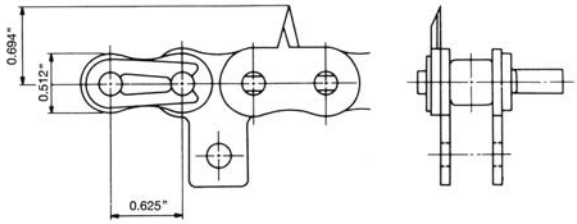
Type I



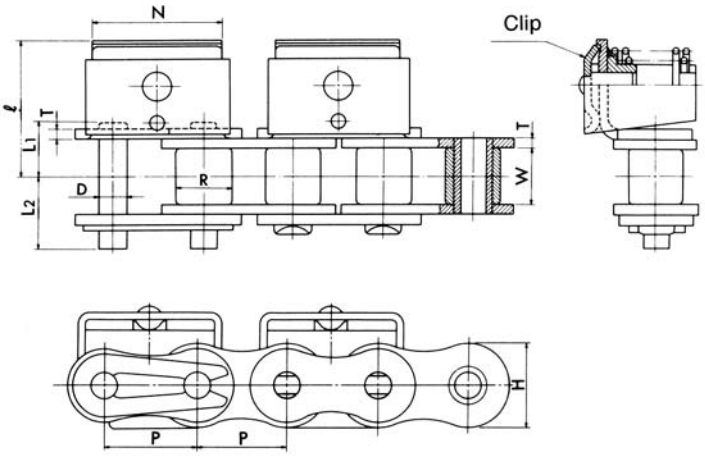
Type II



Type III



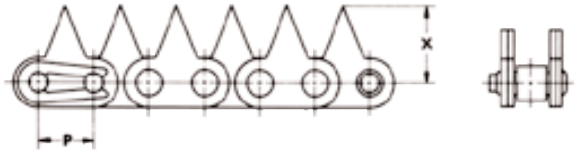
Chain type: KU (clip attachment)
Application: Conveying thin materials such as camera film and plastic wrap.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin			Attachment	
				Thickness T	Height H	Dia. D	Length L_1	Length L_2	ℓ	N
RS50KU	0.625	0.400	0.375	0.078	0.590	0.200	0.472	0.590	1.051	0.708
RS08BKU	0.500	0.335	0.305	0.059	0.464	0.175	0.335	0.395	0.793	0.708

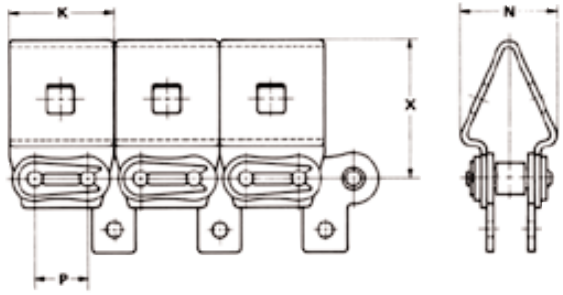
Specialty Attachment Chain



Application: Used in poultry processing.

All dimensions in inches unless otherwise stated.

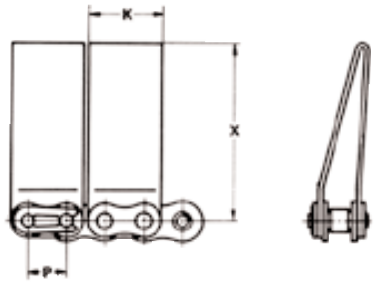
TSUBAKI Description	Pitch P	X	Wt. lbs./ft.
40 SS STICKER (304)	.500	.685	.5



Application: Used in book bindery.

All dimensions in inches unless otherwise stated.

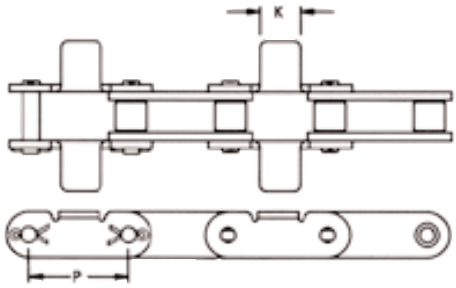
TSUBAKI Description	Pitch P	X	K	N	Wt. lbs./ft.
40 BINDERY	.500	1.354	.988	.858	1.2



Application: Used in publishing.

All dimensions in inches unless otherwise stated.

TSUBAKI Description	Pitch P	X	K	Wt. lbs./ft.
40 SS TENT - 1”	.500	.813	.900	.8
40 SS TENT - 2.5”	.500	2.250	.900	.9



All dimensions in inches unless otherwise stated.

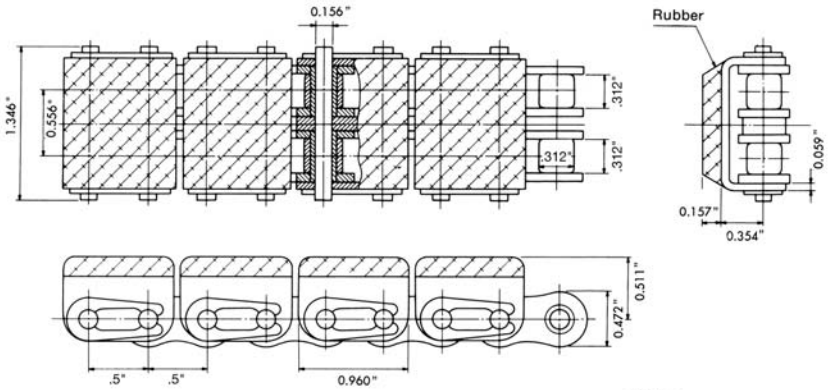
TSUBAKI Description	Pitch P	K	Wt. lbs./ft.
C2050CU RIV with special K-O	1.250	.500	.7

Rubber Top Chain

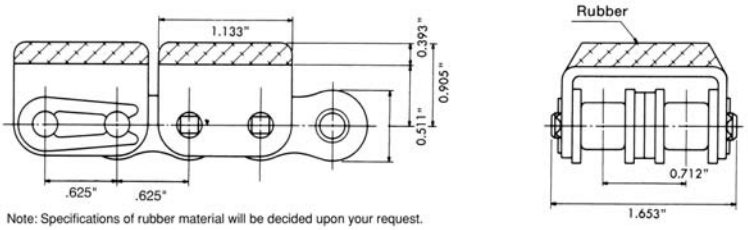
Specialty Attachment Chain

The attachment has an upper layer of rubber for smooth conveying and protection of breakable material from damage.

RS40-2



RS50-2



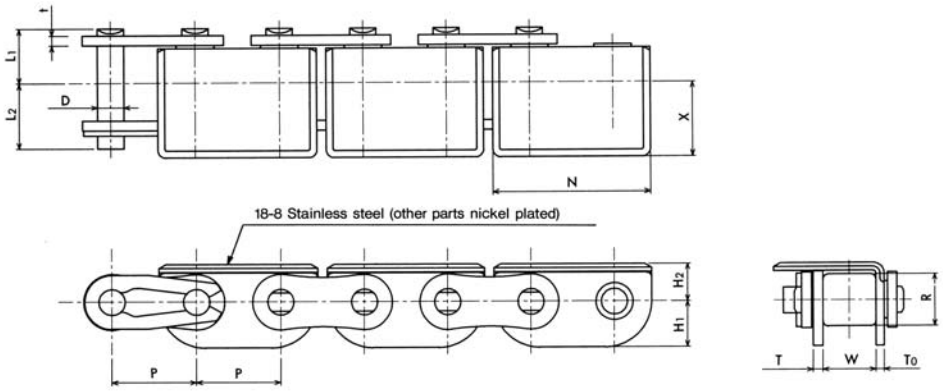
Note: Specifications of rubber material will be decided upon your request.

Chain Number
RS40-2RSG
RS50-2RSG

Bent Attachment

Specialty Attachment Chain

The top plates of the internally bent attachments are chamfered to protect the conveyed objects from damage.



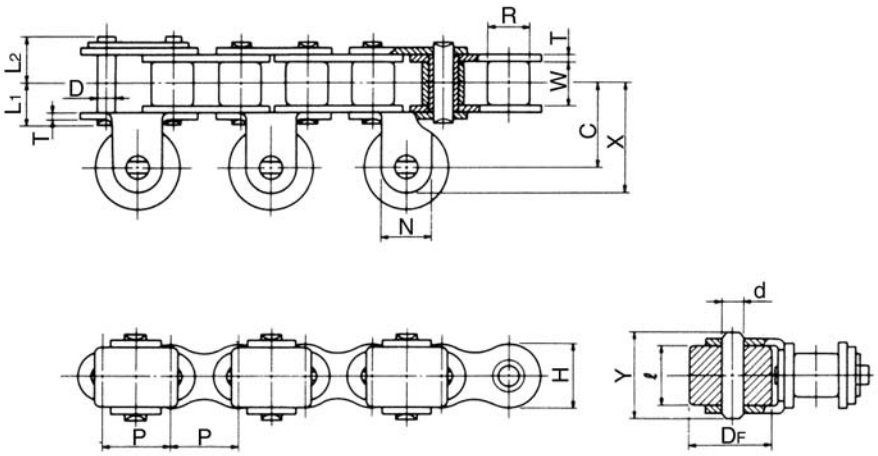
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate							Pin			
				Thickness T	Thickness t	Thickness To	Height H_1	Height H_2	N	X	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
RS40UM	0.500	0.312	0.313	0.059	0.059	0.047	0.276	0.224	0.961	0.441	0.156	0.730	0.325	0.405
RS50UM	0.625	0.400	0.375	0.079	0.079	0.069	0.335	0.280	1.200	0.516	0.200	0.864	0.392	0.472

RS Single Pitch Guide Roller

Specialty Attachment Chain

Guide roller prevents snaking and can be used as a running roller.



All dimensions in inches unless otherwise stated.

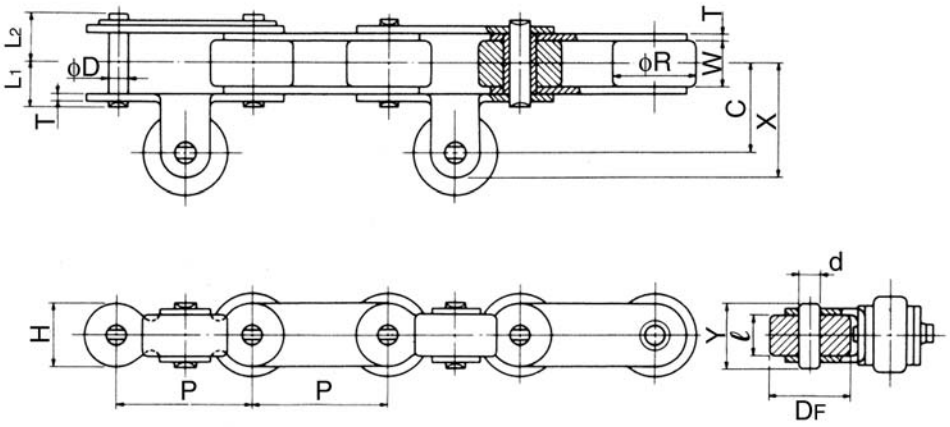
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin			
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
RS40GR	0.500	0.312	0.313	0.059	0.472	0.156	0.717	0.325	0.392
RS50GR	0.625	0.400	0.375	0.079	0.591	0.200	0.878	0.406	0.472
RS60GR	0.750	0.469	0.500	0.094	0.713	0.235	1.087	0.506	0.581
RS80GR	1.000	0.625	0.625	0.125	0.948	0.312	1.396	0.639	0.757
RS100GR	1.250	0.750	0.750	0.157	1.185	0.375	1.676	0.777	0.899

All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions					Guide Roller	
	C	X	N	Y	d	Diameter D_F	Length ℓ
RS40GR	0.687	0.874	0.374	0.649	0.156	0.625	0.435
RS50GR	0.832	1.082	0.500	0.811	0.200	0.750	0.541
RS60GR	1.000	1.312	0.625	1.011	0.234	0.875	0.694
RS80GR	1.250	1.625	0.751	1.279	0.312	1.125	0.885
RS100GR	1.625	2.125	1.000	1.555	0.376	1.562	1.078

Guide Roller-Double Pitch

Specialty Attachment Chain



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin			
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
Standard Roller Type									
C2040GR	1.000	0.312	0.313	0.060	0.472	0.156	0.716	0.324	0.392
C2050GR	1.250	0.400	0.375	0.080	0.591	0.200	0.877	0.405	0.472
C2060HGR	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.572	0.652
C2080HGR	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823
C2100HGR	2.500	0.750	0.750	0.188	1.125	0.375	1.822	0.858	0.964
Oversize Roller Type									
C2042GR	1.000	0.625	0.313	0.060	0.472	0.156	0.716	0.324	0.392
C2052GR	1.250	0.750	0.375	0.080	0.591	0.200	0.877	0.405	0.472
C2062HGR	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.572	0.652
C2082HGR	2.000	1.125	0.625	0.156	0.906	0.313	1.543	0.720	0.823
C2102HGR	2.500	1.563	0.750	0.188	1.125	0.375	1.822	0.858	0.964

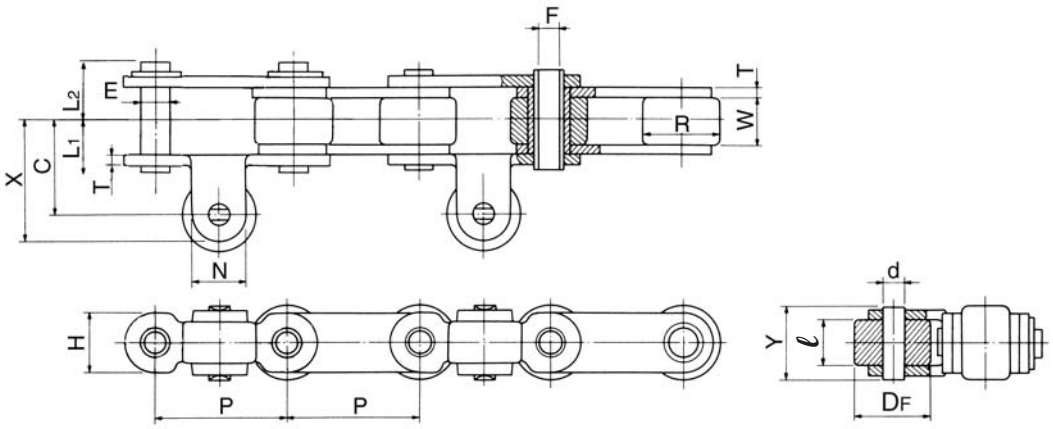
All dimensions in inches unless otherwise stated.

Chain Number	Chain Number	Attachment Dimensions					Guide Roller	
		C	X	N	Y	d	Diameter D_F	Length ℓ
C2040GR	C2042GR	0.687	0.874	0.374	0.519	0.156	0.625	0.307
C2050GR	C2052GR	0.832	1.082	0.500	0.637	0.200	0.750	0.370
C2060HGR	C2062HGR	1.062	1.375	0.625	0.874	0.234	0.875	0.496
C2080HGR	C2082HGR	1.312	1.688	0.751	1.078	0.312	1.125	0.622
C2100HGR	C2102GR	1.687	2.187	1.000	1.287	0.375	1.562	0.748

Hollow Pin Guide Roller-Double Pitch

Specialty Attachment Chain

Snaking is prevented by using guide rollers and the hollow pins allow connection of many types of attachments (This is not curved chain)



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Outer Dia. E	Inner Dia. F (min.)	Bushing		
				Thickness T	Height H			Length $L_1 + L_2$	Length L_1	Length L_2
Oversize Roller Type										
C2042HP-GR	1.000	0.625	0.312	0.059	0.472	0.224	0.157	0.689	0.315	0.374
C2052HP-GR	1.250	0.750	0.375	0.079	0.591	0.284	0.202	0.854	0.396	0.459
C2062HP-GR	1.500	0.875	0.500	0.094	0.677	0.330	0.236	1.055	0.494	0.561
C2082HP-GR	2.000	1.125	0.625	0.126	0.905	0.448	0.316	1.341	0.640	0.701

All dimensions in inches unless otherwise stated.

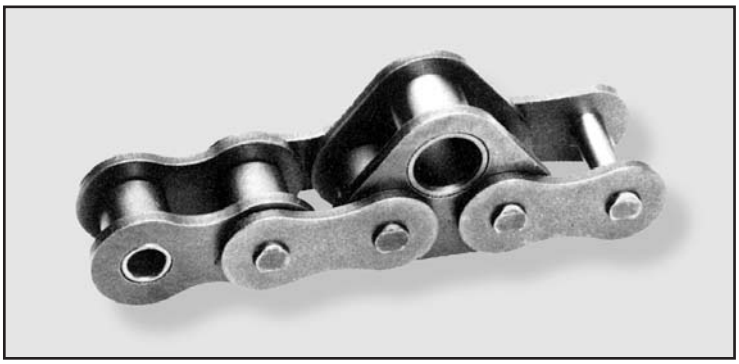
Chain Number	Attachment Dimensions					Guide Roller	
	C	X	N	Y	d	D_F	ℓ
C2042HP-GR	0.687	0.874	0.374	0.519	0.156	0.625	0.307
C2052HP-GR	0.832	1.082	0.500	0.637	0.200	0.750	0.370
C2062HP-GR	1.062	1.331	0.625	0.811	0.234	0.875	0.496
C2082HP-GR	1.312	1.642	0.751	1.011	0.312	1.125	0.622

Specialty Attachment Chain

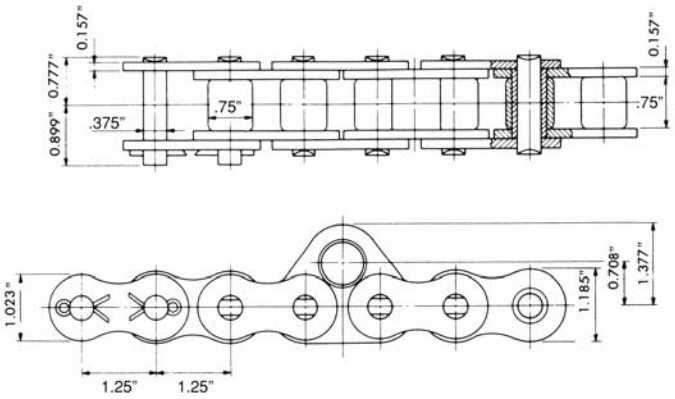
Attachment with Bushing

Specialty Attachment Chain

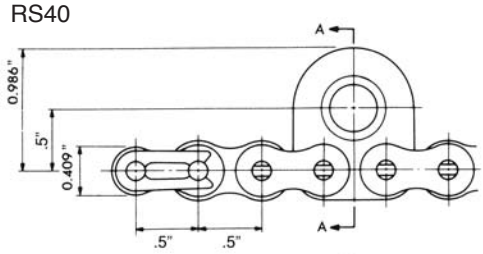
The press fitted bushing in this special attachment is ideal for bearings.

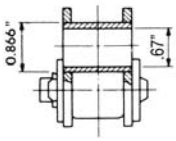


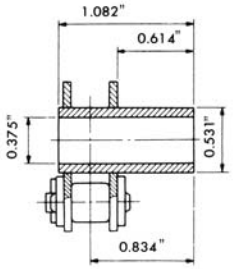
RS100



RS40

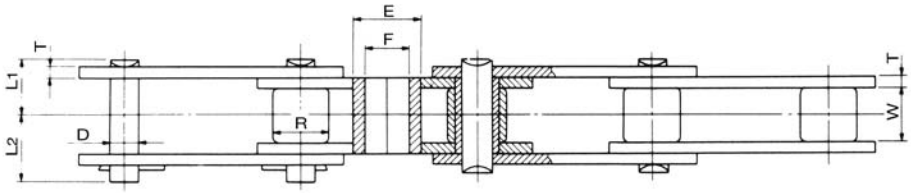


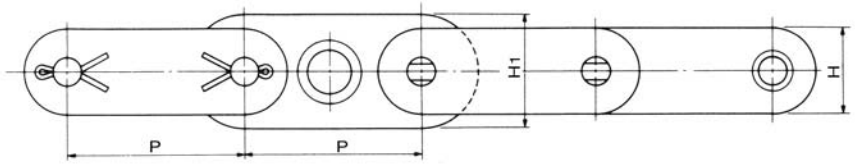




A—A

Double Pitch





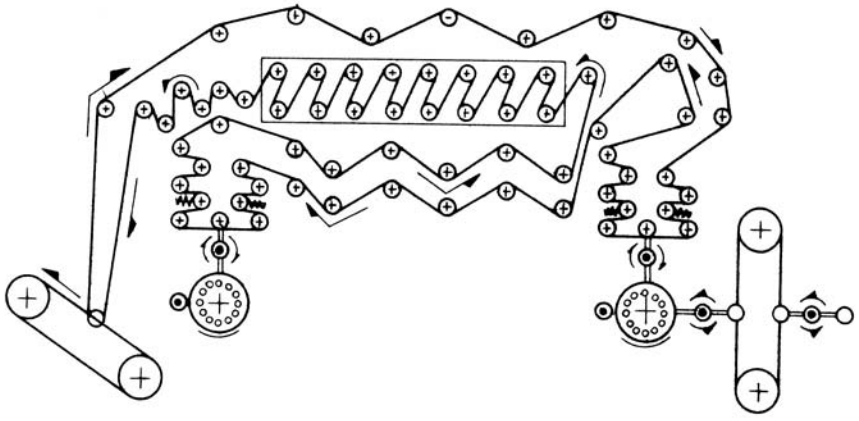
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Bushing	
				Thickness T	Height H	Height H_1	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Dia. F (Min.)	Dia. E
Standard Roller Type												
C2100HAB	2.500	0.750	0.750	0.188	1.125	1.125	0.375	1.822	0.858	0.964	0.413	0.566
C2120HAB	3.000	0.875	1.000	0.220	1.354	1.811	0.437	2.263	1.061	1.202	1.015	1.338
C2140HAB	3.500	1.000	1.000	0.220	1.645	2.283	0.500	2.307	1.059	1.248	1.015	1.338

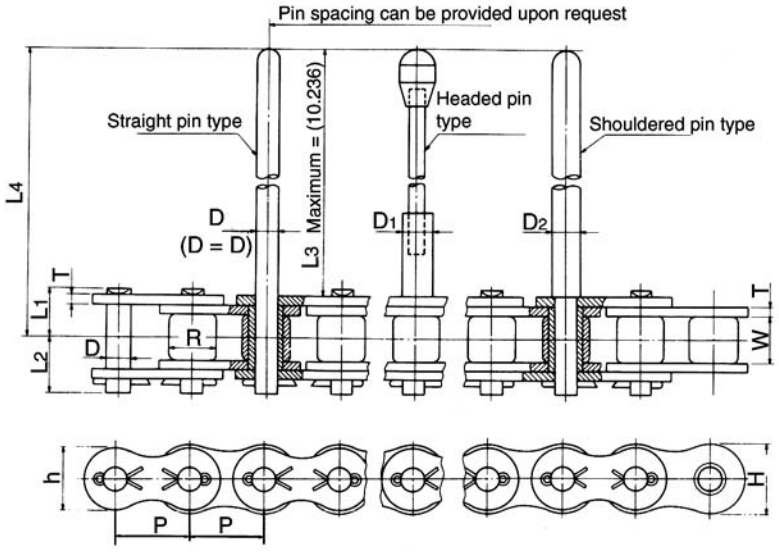
Extended Pin (Can Conveying)

Specialty Attachment Chain

This chain with special extended pins is used in the drying of two-piece construction cans or tubes, which are pre-painted or finish painted.



Forming → Pre-painting → Print-Painting → Dryer



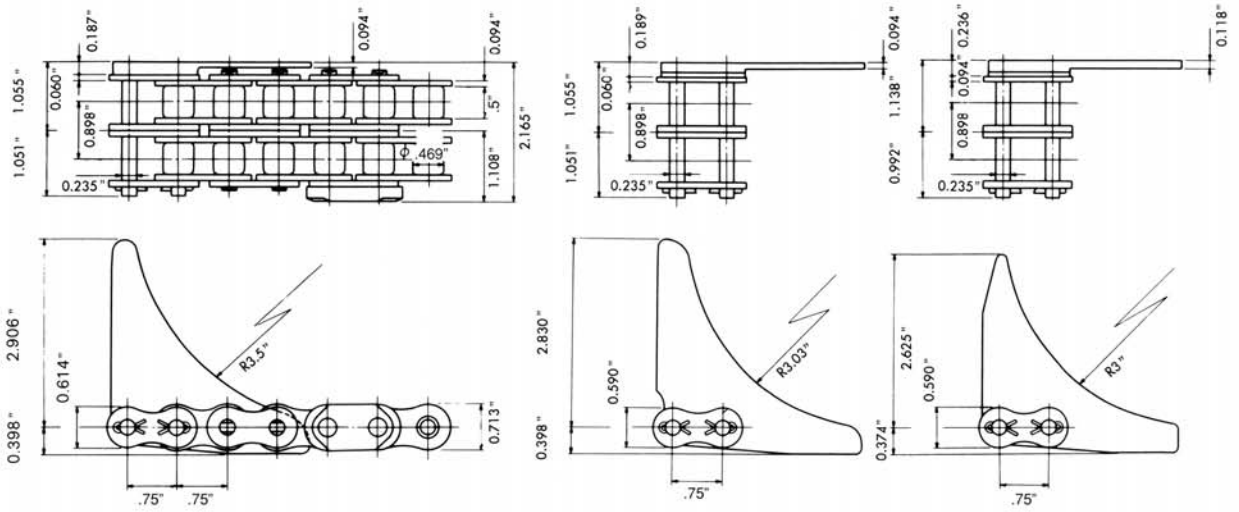
All dimensions in inches unless otherwise stated.

Chain Number	Type	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin						
					Thickness T	Height H	Height h	Dia. D	Dia. D_1	Length $L_1 + L_2$	Length L_1	Length L_2	Length L_3	Length L_4
RS50ON	With Straight Pin	0.625	0.400	0.375	0.078	0.590	0.511	0.200	0.200	0.873	0.405	0.468	Customer Specified	
RS60ON	With Straight Pin	0.750	0.469	0.500	0.094	0.712	0.614	0.234	0.234	1.085	0.505	0.580	Customer Specified	
RS50ON	With Shouldered Pin	0.625	0.400	0.375	0.078	0.590	0.511	0.200	0.234 or 0.250	0.873	0.405	0.468	Customer Specified	
RS60ON	With Shouldered Pin	0.750	0.469	0.500	0.094	0.712	0.614	0.234	0.250	1.085	0.505	0.580	Customer Specified	
RS50ON	With Headed Pin	0.625	0.400	0.375	0.078	0.590	0.511	0.200	0.318	0.873	0.405	0.468	Customer Specified	
RS60ON	With Headed Pin	0.750	0.469	0.500	0.094	0.712	0.614	0.234	0.318	1.085	0.505	0.580	Customer Specified	

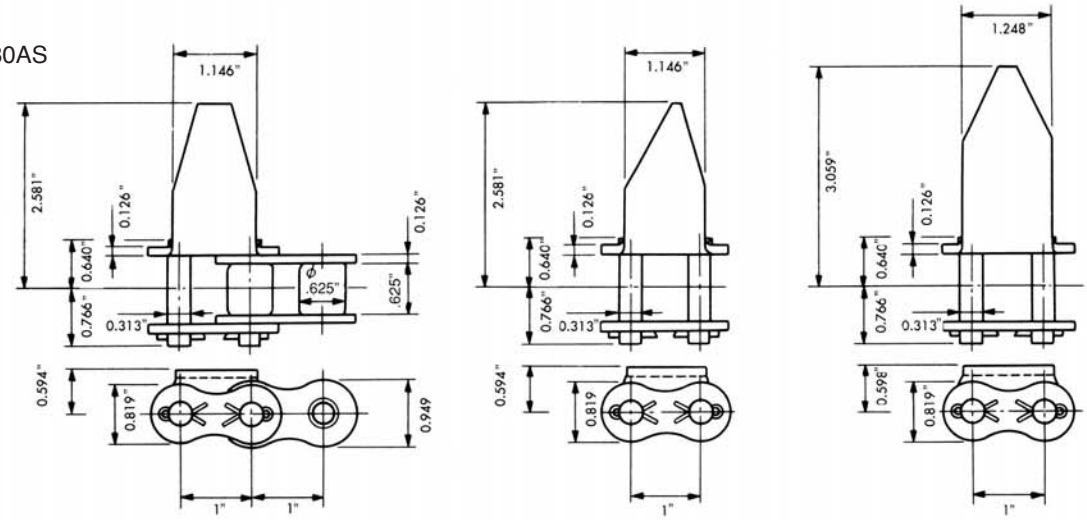
Type KF (Can Feeder Chains)

Specialty Attachment Chain

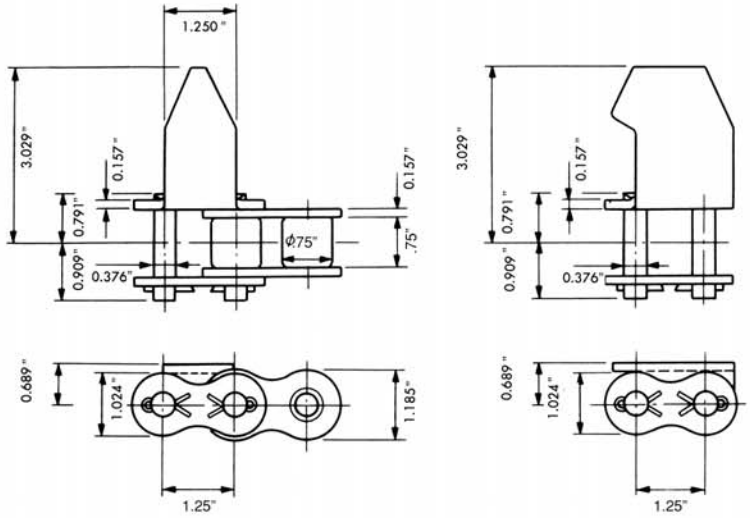
Chain No. RS60-2 AS



Chain No. RS80AS

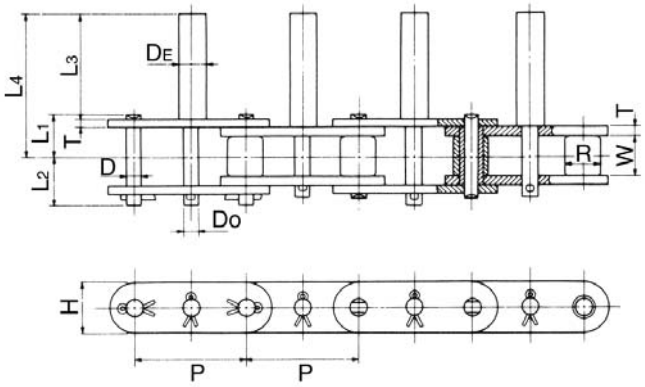


Chain No. RS100AS



D-5 Type

Specialty Attachment Chain



All dimensions in inches unless otherwise stated.

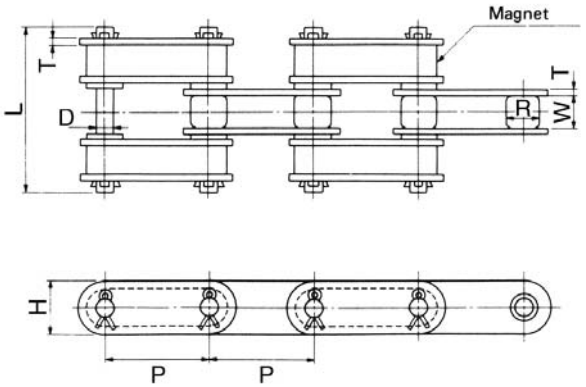
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin							
				Thickness T	Height H	Dia. D	Dia. D_O	Dia. D_E	Length L_1+L_2	Length L_1	Length L_2	Length L_3	Length L_4
Standard Roller Type													
C2040D5	1.000	0.312	0.313	0.059	0.472	0.156	0.161	0.204	0.703	0.324	0.379	Customer Specified	
C2050D5	1.250	0.400	0.375	0.078	0.590	0.200	0.200	0.250	0.873	0.405	0.468	Customer Specified	
C2060D5	1.500	0.469	0.500	0.125	0.677	0.234	0.240	0.328	1.239	0.572	0.667	Customer Specified	
C2080D5	2.000	0.625	0.625	0.157	0.905	0.312	0.318	0.393	1.542	0.720	0.822	Customer Specified	
C2100D5	2.500	0.750	0.750	0.188	1.125	0.375	0.397	0.456	1.822	0.858	0.964	Customer Specified	

Note: Please specify your required dimensions for L3 and L4 ,when ordering.
Minimum effective number of sprocket teeth is 11.5 (actual number of teeth should be 30 and over)
in the case of RS standard sprockets.

Magnetic

Specialty Attachment Chain

This chain with a magnetic attachment can be used to convey items on a slope.



All dimensions in inches unless otherwise stated.

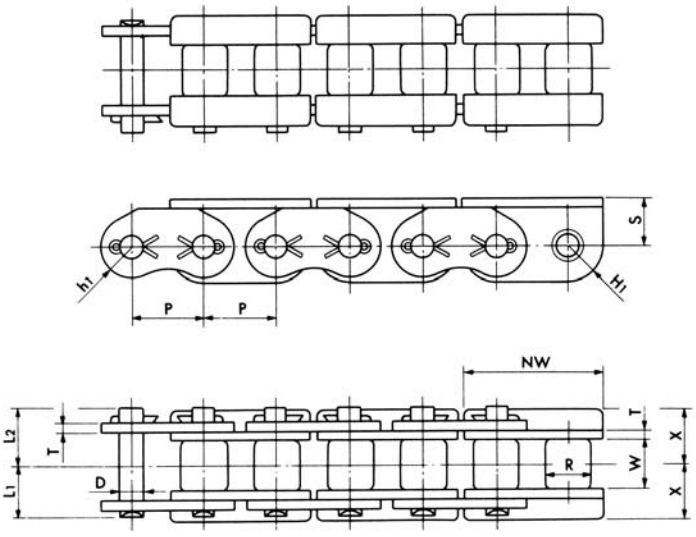
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin		Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length L		
Standard Roller Type									
C2040MG	1.000	0.312	0.313	0.059	0.472	0.156	1.791	100	0.93
C2060MG	1.500	0.469	0.500	0.125	0.677	0.234	2.524	230	1.87

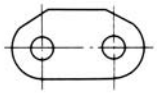
Specialty Attachment Chain

No Bend Type

Specialty Attachment Chain

This chain only bends in one direction.





TheRS80 pin link plates are shown in the diagram on the left.

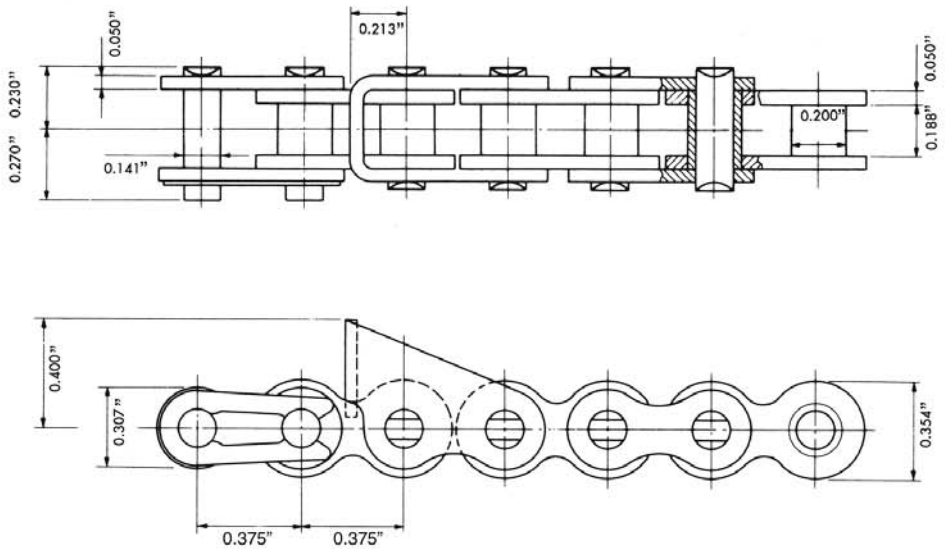
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Attach. Dimensions		
				Thickness T	Height h_1	Height H_1	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	NW	S	X
RS60NB	0.750	0.469	0.500	0.094	0.307	0.356	0.235	1.105	0.505	0.600	1.465	0.500	0.577
RS80NB	1.000	0.625	0.625	0.126	0.409	0.461	0.313	1.397	0.639	0.758	1.969	0.654	0.809
RS100NB	1.250	0.750	0.750	0.157	0.512	0.593	0.376	1.677	0.777	0.900	2.437	0.787	0.856

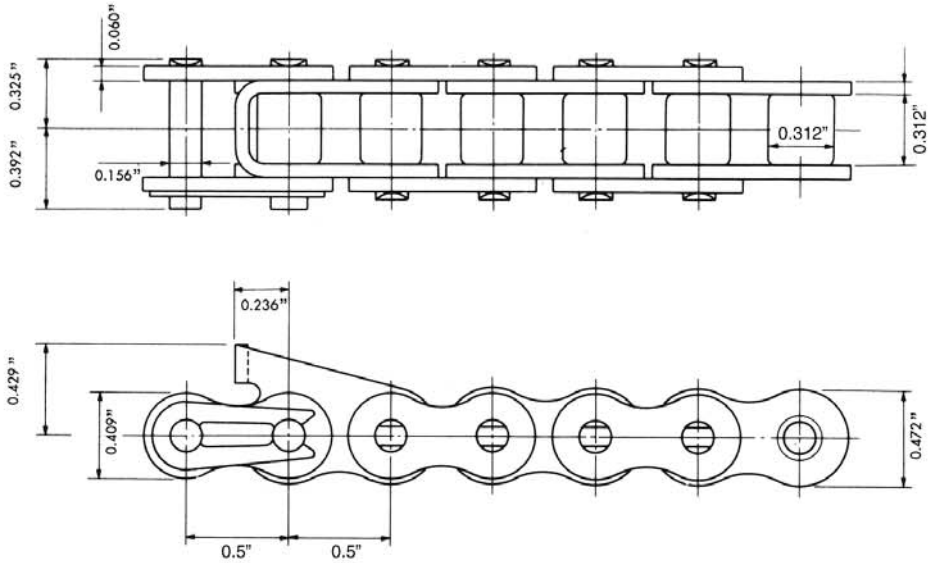
Dog Type

Specialty Attachment Chain

RS35



RS40



Industry Specific Custom Attachments

Packaging

1. Packaging equipment

6. Packaging equipment

2. Packaging process

7. Paper packaging

3. Conveying bottles

8. Conveying cartons

4. Conveying cartons

9. Vacuum packaging

5. Packaging equipment

10. Packaging equipment

Note: The attachments shown above are examples of Tsubaki's non-standard custom-made attachments. For more information, please contact Tsubaki Technical Support.

Industry Specific Custom Attachments

Electronics

11. Slat conveyor electric industry

16. Copy machinery

12. Conveying electronic parts

17. Conveying electric parts

13. Conveying capacitors

18. Electric printed circuit boards

14. Conveying capacitors

19. Printed circuit boards

15. Conveying small parts, such as miniature motors

Food Processing

20. Cane harvester

21. Confectionery machinery

22. Corn harvester machinery

23. Dairy products processing

24. Bread cooler

Note: The attachments shown above are examples of Tsubaki's non-standard custom-made attachments. For more information, please contact Tsubaki Technical Support.

Industry Specific Custom Attachments

Food Processing
Continued

25. Vegetable processing

26. Ice cream bar processing

Meat Processing

27. Processing in poultry industry

28. Slat conveyors in the food industry

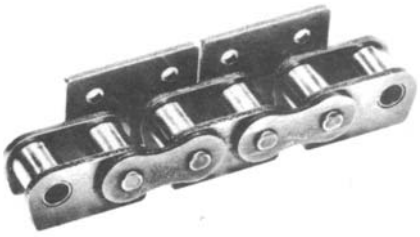
29. Poultry processing

30. Poultry processing

General Conveying

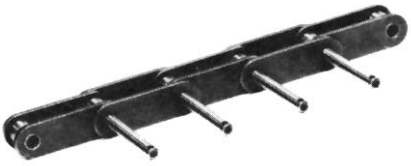
31. Special roller chain for coupling

34. Cross rod conveyor



32. Can processing

35. Sanitary products processing



33. Roller conveyor

36. Bar conveyor

Note: The attachments shown above are examples of Tsubaki's non-standard custom-made attachments. For more information, please contact Tsubaki Technical Support.

General Conveying
Continued

37. Book binding

38. Printing

39. Book binding

40. Printing

41. Water sewage systems

42. Flow conveyor

43. Hauling

44. Thermoforming

45. Conveying bottles

46. Oven chain

47. Oven chain

48. Pin oven chain

49. Smokehouse product processing

Note: The attachments shown above are examples of Tsubaki's non-standard custom-made attachments. For more information, please contact Tsubaki Technical Support.

Industry Specific Custom Attachments

General Conveying
Continued

50. Mail bag vertical conveyor

53. Ice scraper

51. Free Flow conveyor

54. Conveying tin plates

52. Glass forming

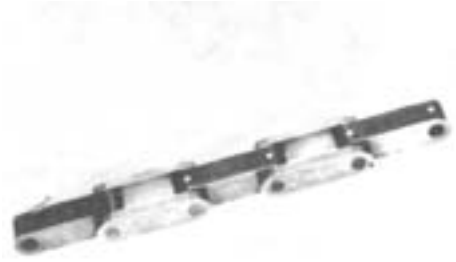
55. Bottle conveyor

Sawmill/Wood Processing

56. Wood-making machinery

57. Hardboard processing

58. Plywood machinery



59. Plywood machinery

Note: The attachments shown above are examples of Tsubaki's non-standard custom-made attachments. For more information, please contact Tsubaki Technical Support.

Free Flow Chain

A free flow conveyor system allows you to stop conveyed objects (with a stopper), while the chain runs continuously underneath. After the stopper is released, conveying resumes (Figure 1). It is possible to get free flow function even with ANSI/BS standard RS roller chains by placing conveyed objects directly on the chains. However, during accumulation, the chain will slide underneath the conveyed object. This may leave marks on the bottom of conveyed objects, and may eventually lead to excessive chain wear. Free flow chains were developed to eliminate the possibility of damaging conveyed objects during the accumulating mode. These chains are equipped with rollers that support conveyed objects. When accumulating, freely rotating rollers are in contact with the bottom side of goods conveyed, which ensures smooth and damage-free operation. The types of/relationships between the various kinds of free flow chains are illustrated in the diagrams below.

Figure 1
Free Flow Conveyor System

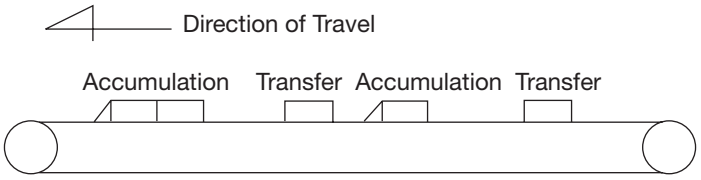
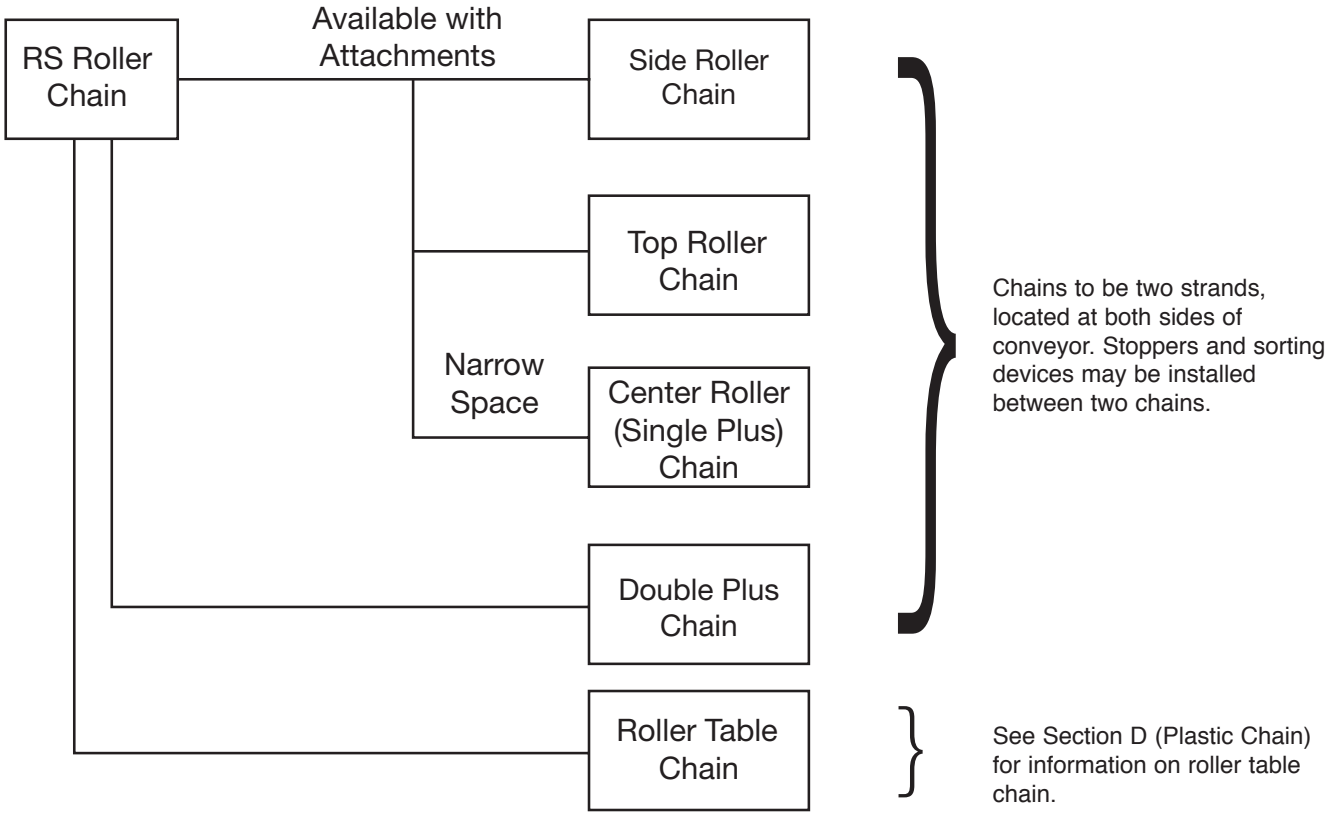
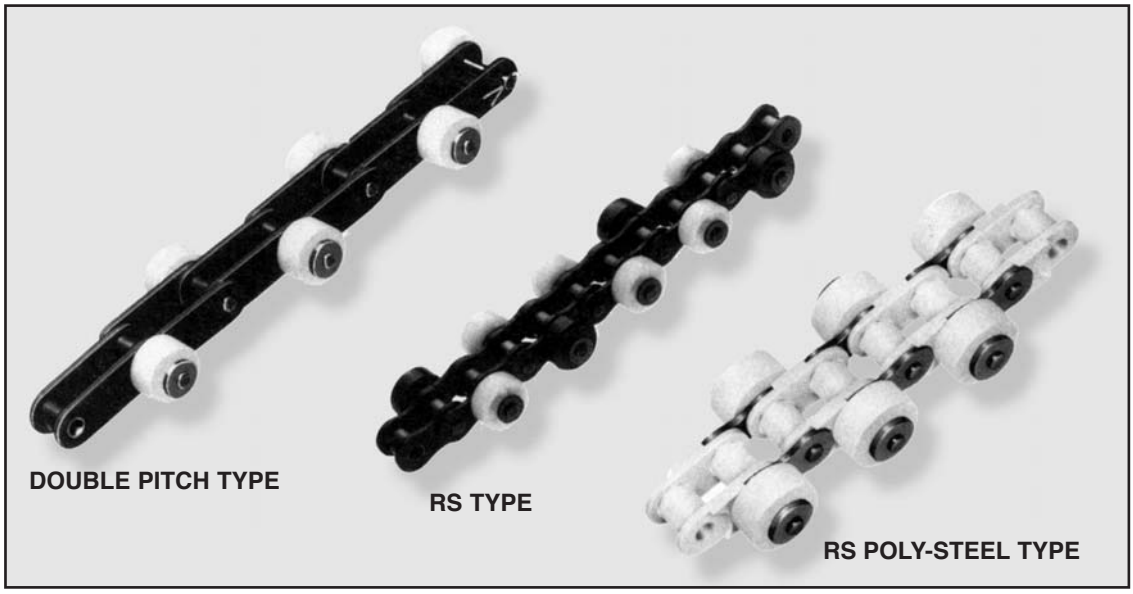


Figure 2
Types of Free Flow Chains



Side Roller Free Flow Chain



Outboard Roller Chain with Side Rollers (Side Roller Chain) is used for free flow conveyance. Usually two strands are used on the equipment. Side Roller Chain is based on standard roller chain with side rollers installed on extended pins. There are three types of base chain:
(1) Double pitch roller chain with standard rollers (straight side plates, small rollers).
(2) Double pitch roller chain with oversize rollers (straight side plates, oversized rollers).
(3) RS-type (figure-eight side plates, small rollers; oversized rollers are not available).

The construction of our Side Roller Chain makes for a highly compact conveyor system. This is further enhanced by the chain's capacity to flex backward, requiring minimum space on the return side of the operation. Since a large number of rollers can be installed, a conveyor can easily be made where small objects are placed directly on the chain. Quick starting is also possible by installing high friction brake rollers.

You can select various combinations of base chain materials and side rollers. Available base chains are: carbon steel, lube-free Lambda or poly-steel. Plastic or steel side rollers may be attached to the base chain. Small sprockets can be used with the RS-type to minimize conveyor height. Because the side roller diameter is larger than the chain pitch for the RS-type, side rollers cannot be installed on every pitch on the same side of the chain. Side rollers can be installed in alternating positions - staggered or horrizontal. Staggered rollers tend to allow pallets to run smoother. In double pitch type, the diameter and width of the side roller are different for Standard and Oversize rollers. When the stopper in a free flow conveyor is released, pallets accelerate to the chain speed. This acceleration is determined by the coefficient of friction between the side roller and the pin. The smaller the coefficient of friction, the longer it takes for the pallets to reach the speed of the chain. Faster acceleration can be accomplished by installing brake rollers. In plastic side roller products from Tsubaki, the coefficients of friction of chain are: with brake, 0.10; without brake, about 0.06.

Side Roller Chain has the following characteristics compared to Double Plus Chain:
1. Greater allowable load (using carbon steel base chain for each).
2. More economical. C2050 Side Roller Chain costs about half as much, and sprockets cost about two-thirds that of the equivalent size of Double Plus Chain.
3. More noise. Comparing systems with the same pallet speed and sprockets with the same number of teeth, Side Roller Chain emits about 10 to 15 dB more noise than Double Plus Chain.
4. Because the body of Side Roller Chain is exposed over the guide rail, this chain does not have the same safety features as Double Plus.
5. Snap covers are not available for Side Roller Chain; and so it is difficult to prevent small objects from falling in between chain components.
6. Complete kits for Side Roller Chain, including the guide rails and other components, are not available. Therefore, you have to create your own system.

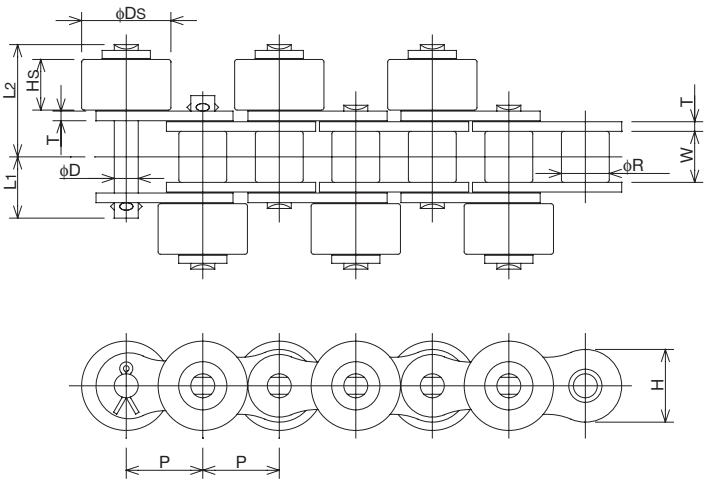
Standard sprockets may be used. In some cases, side rollers may interfere with the sprocket hub. Additional machining of the hub might be required.

Side Roller
Free Flow Chain

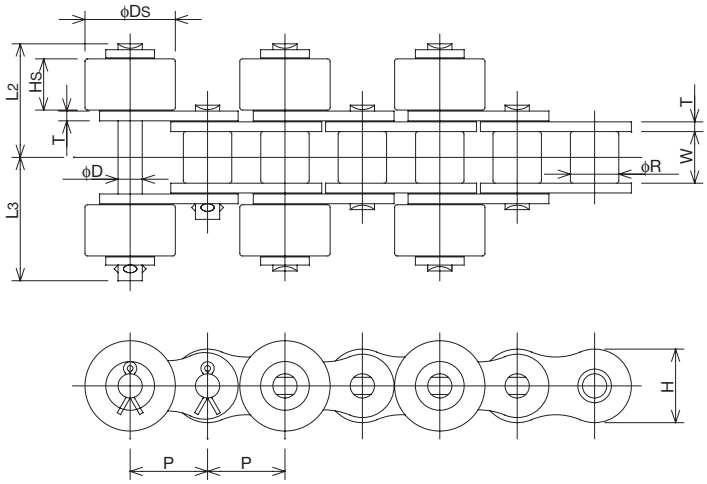
RS Single Pitch Carbon-Steel/Lambda-Plastic or Steel Roller

Side Roller Chain

Staggered Type Installation



Horizontal (crosswise) Type Installation



All dimensions in inches unless otherwise stated.

Plastic Side Roller		Steel Side Roller		Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate	
Carbon Steel Chain Number	Lambda Chain Number	Carbon Steel Chain Number	Lambda Chain Number				Thickness T	Height H
RS40SR-P	RSC40LAMBDA-SR-P	RS40SR	RSC40LAMBDA-SR	0.500	0.312	0.313	0.059	0.472
RS50SR-P	RSC50LAMBDA-SR-P	RS50SR	RSC50LAMBDA-SR	0.625	0.400	0.375	0.079	0.591
RS60SR-P	RSC60LAMBDA-SR-P	RS60SR	RSC60LAMBDA-SR	0.750	0.469	0.500	0.094	0.713
RS80SR-P	-	RS80SR	-	1.000	0.625	0.625	0.126	0.949
RS100SR-P	-	RS100SR	-	1.250	0.750	0.750	0.157	1.185

All dimensions in inches unless otherwise stated.

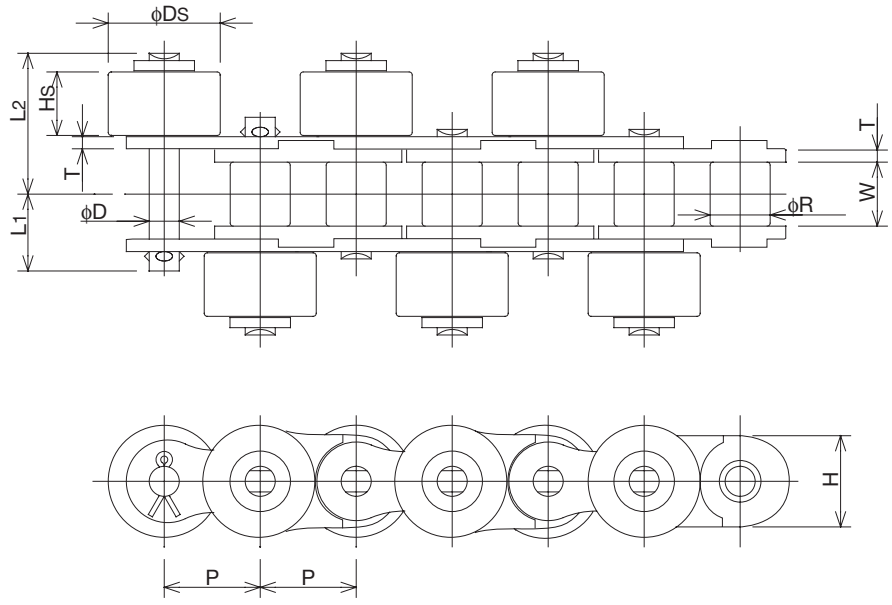
Chain Size	Pin				Side Roller		Weight (lbs/ft.)	
	Dia. D	Length L_1	Length L_2	Length L_3	Dia. D_S	Height H_S	Plastic Roller	Steel Roller
RS40SR	0.156	0.380	0.705	0.760	0.625	0.307	0.63	1.12
RS50SR	0.200	0.469	0.850	0.913	0.750	0.370	0.95	1.62
RS60SR	0.235	0.600	1.100	1.195	0.875	0.496	1.41	2.43
RS80SR	0.312	0.758	1.380	1.494	1.125	0.622	2.39	3.97
RS100SR	0.375	0.900	1.675	1.797	1.563	0.748	3.73	6.71

Please specify roller material type when ordering.

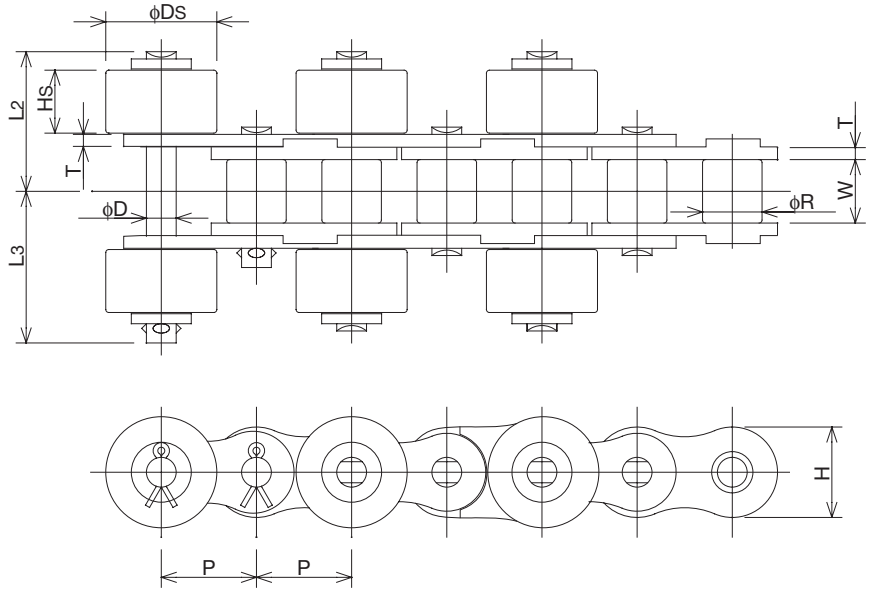
RF Single Pitch Poly-Steel Base Chain-Plastic Roller

Side Roller Chain

Staggered Type Installation



Horizontal (crosswise) Type Installation



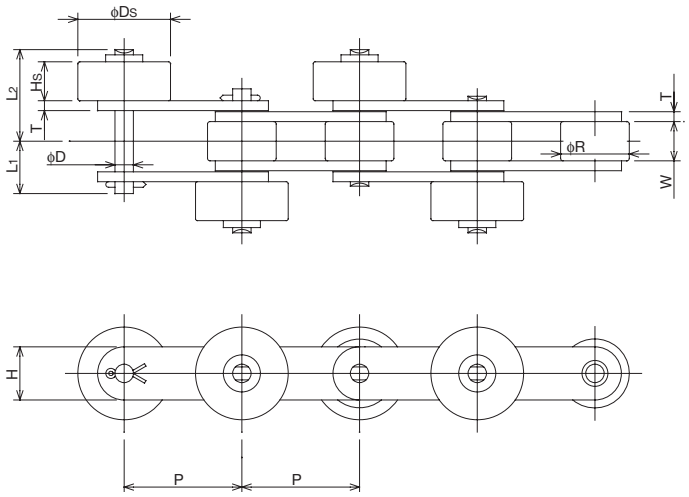
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Outboard Roller		Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length L_1	Length L_2	Length L_3	Dia. D_s	Height H_s	
RF40PCSR-P	0.500	0.312	0.313	0.059	0.472	0.156	0.380	0.705	0.760	0.625	0.307	0.46
RF50PCSR-P	0.625	0.400	0.375	0.079	0.591	0.200	0.469	0.850	0.913	0.750	0.370	0.65
RF60PCSR-P	0.750	0.469	0.500	0.094	0.713	0.235	0.600	1.100	1.195	0.875	0.496	0.94

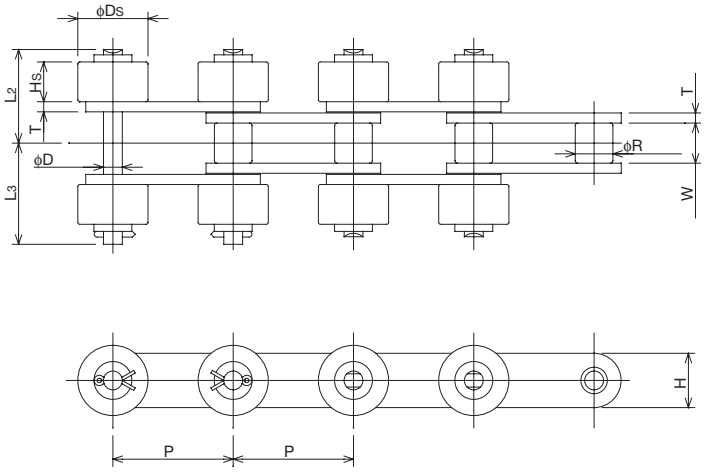
Double Pitch Carbon Steel/Lambda-Plastic or Steel Roller

Side Roller Chain

Staggered Type Installation



Horizontal Type Installation



All dimensions in inches unless otherwise stated.

Plastic Side Roller			Steel Side Roller		Pitch P	Roller Dia. R	Width Betwen Inner Link Plates W	Link Plate	
Carbon Steel Chain Number	Lambda Chain Number	(Plastic bottom Roller) Carbon Steel Chain Number	Carbon Steel Chain Number	Lambda Chain Number				Thickness T	Height H
Standard Roller Type									
C2040SR-P	C2040LAMBDA-SR-P	C2040P-SR-P	C2040SR	C2040LAMBDA-SR	1.000	0.312	0.313	0.060	0.472
C2050SR-P	C2050LAMBDA-SR-P	C2050P-SR-P	C2050SR	C2050LAMBDA-SR	1.250	0.400	0.375	0.080	0.591
C2060HSR-P	C2060HLAMBDA-SR-P	C2060HP-SR-P	C2060HSR	C2060HLAMBDA-SR	1.500	0.469	0.500	0.125	0.677
C2080HSR-P	-	C2080HP-SR-P	C2080HSR	–	2.000	0.625	0.625	0.156	0.906
C2100HSR-P	-	C2100HP-SR-P	C2100HSR	–	2.500	0.750	0.750	0.188	1.125
Oversize Roller Type									
C2042SR-P	C2042LAMBDA-SR-P	C2042P-SR-P	C2042SR	C2042LAMBDA-SR	1.000	0.625	0.313	0.060	0.472
C2052SR-P	C2052LAMBDA-SR-P	C2052P-SR-P	C2052SR	C2052LAMBDA-SR	1.250	0.750	0.375	0.080	0.591
C2062HSR-P	C2062HLAMBDA-SR-P	C2062HP-SR-P	C2062HSR	C2062HLAMBDA-SR	1.500	0.875	0.500	0.125	0.677

All dimensions in inches unless otherwise stated.

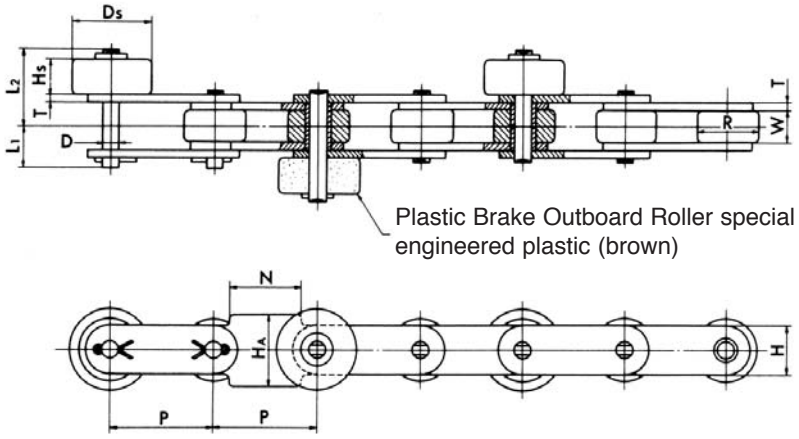
	Pin				Side Roller		Weight (lbs/ft.)		
Chain Size	Dia. D	Length L_1	Length L_2	Length L_3	Dia. D_S	Height H_S	Plastic Side Roller	Steel Side Roller	Plastic Side Roller
Standard Roller Type									
C2040SR	0.156	0.380	0.705	0.760	0.625	0.307	0.44	0.68	-
C2050SR	0.200	0.469	0.850	0.917	0.750	0.370	0.69	1.03	-
C2060HSR	0.235	0.667	1.167	1.262	0.875	0.496	1.21	1.72	-
C2080HSR	0.313	0.825	1.443	1.561	1.125	0.622	2.09	2.88	-
C2100HSR	0.375	0.965	1.740	1.862	1.563	0.748	3.20	4.69	-
Oversize Roller Type									
C2042SR	0.156	0.380	0.909	0.965	0.906	0.512	0.83	-	* 0.60
C2052SR	0.200	0.469	0.996	1.063	1.063	0.512	1.14	-	* 0.82
C2062HSR	0.235	0.667	1.167	1.262	1.181	0.496	1.77	-	* 1.29

* denotes that this chain has plastic base rollers and also plastic side rollers.
Please specify roller material type when ordering.

Side Roller Free Flow Chain

Side Guide Attachment-Double Pitch-Plastic or Steel Roller

Side Roller Chain



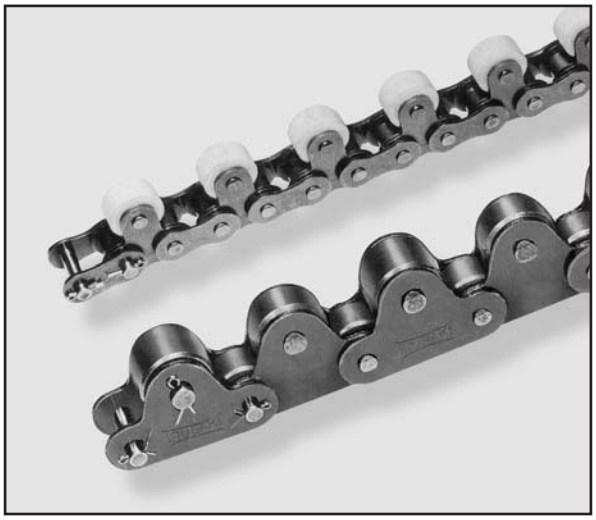
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin			
				Thickness T	Height H	Dia. D	Length L_1+L_2	Length L_1	Length L_2
Oversize Roller Type									
C2042SG	1.000	0.625	0.313	0.060	0.472	0.156	1.289	0.380	0.909
C2052SG	1.250	0.750	0.375	0.080	0.591	0.200	1.464	0.468	0.996
C2062HSG	1.500	0.875	0.500	0.125	0.677	0.235	1.850	0.667	1.183

Chain Number	Side Roller		N	H_A	Weight (lbs./ft.)	
	Diameter D_S	Height H_S			Plastic Side Roller	Steel Side Roller
C2042SG	0.905	0.511	0.649	0.748	0.70	1.15
C2052SG	1.062	0.511	0.787	0.944	1.01	1.49
C2062HSG	1.181	0.496	1.000	1.062	1.61	2.18

Note: Guide attachment spacing should be at every 4th pitch or more.
Please specify roller material type when ordering.

Top Roller
Free Flow Chain



Outboard Roller Chain with Top Rollers (Top Roller Chain) is often used on accumulating free flow conveyors.
Top Roller Chain is based on the standard chain with extended side plates (SK-1 attachments). Top rollers are installed on the pins that connect SK-1 extended plates. Top Roller chains are available with steel or engineered plastic top rollers on every link or every 2nd link. Pallets with conveyed objects are loaded on the top rollers.

There are three types of base chain:
(1) Double pitch roller chain with standard rollers (straight side plates, small rollers).
(2) Double pitch roller chain with oversize rollers (straight side plates, oversized rollers).
(3) RS-type (figure-eight side plates, small rollers; oversized rollers are not available).
You can select various combinations of base chain materials and top rollers. Base chains can be carbon steel, carbon steel (with plastic bottom rollers) or lube-free Lambda. Plastic or steel top rollers may be attached.

The features of Top Roller Chain include the following:
1) High maximum allowable load.
2) Economical cost.
3) Lower stability than Side Roller Chain, because Top Roller Chain is narrower.
4) Snap covers are not available for Top Roller Chain; and so it is difficult to prevent small objects from falling in between chain components.
5) Noise levels during operation are higher than that of Double Plus Chain. (Noise is about equal to Side Roller Chain.)
6) Top Roller Chain installation kits, including the guide rails and other components, are not available.

Standard sprockets can be used with RS (single pitch) chain and with Double Pitch chain with Standard size rollers. Other types of Top Roller Chain (eg. Double Pitch chain with Oversize rollers) require special sprockets.

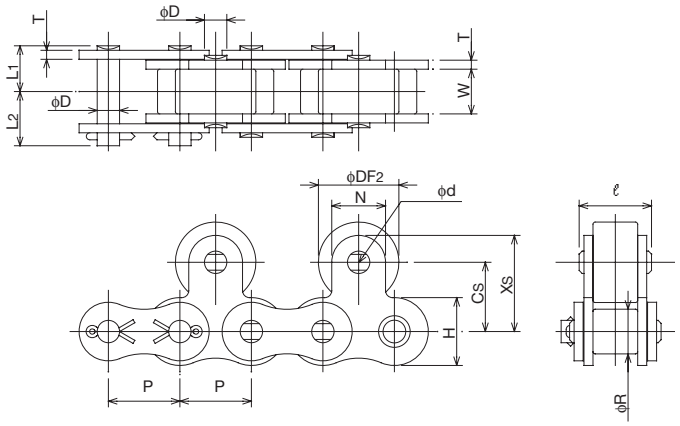
Two other types of Top Roller Chains (also included in this catalogue) provide greater stability than standard Top Roller Chains:
- Double Strand (RS or Double Pitch) Top Roller Chain.
- TG-form with SK attachments that point downward.

Top Roller
Free Flow Chain

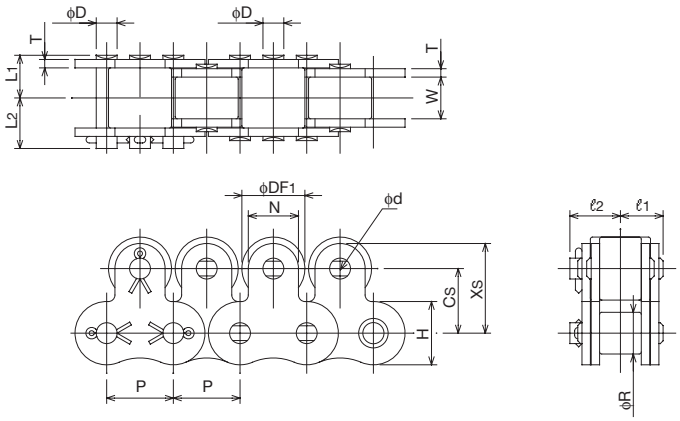
RS Single Pitch-Plastic or Steel Roller

Top Roller Chain

Top rollers spaced at every second pitch.



Top rollers spaced at every pitch.



All dimensions in inches unless otherwise stated.

Plastic Top Roller		Steel Top Roller		Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin			
Carbon Steel Chain Number	Lambda Chain Number	Carbon Steel Chain Number	Lambda Chain Number				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
RS40TR-P	RSC40LAMBDA-TR-P	RS40TR	RSC40LAMBDA-TR	0.500	0.312	0.313	0.059	0.472	0.156	0.717	0.325	0.392
RS50TR-P	RSC50LAMBDA-TR-P	RS50TR	RSC50LAMBDA-TR	0.625	0.400	0.375	0.079	0.591	0.200	0.878	0.406	0.472
RS60TR-P	RSC60LAMBDA-TR-P	RS60TR	RSC60LAMBDA-TR	0.750	0.469	0.500	0.094	0.713	0.235	1.087	0.506	0.581
RS80TR-P	RSC80LAMBDA-TR-P	RS80TR	CRS80LAMBDA-TR	1.000	0.625	0.625	0.125	0.948	0.312	1.396	0.639	0.757
RS100TR-P	RSC100LAMBDA-TR-P	RS100TR	RSC100LAMBDA-TR	1.250	0.750	0.750	0.157	1.185	0.375	1.676	0.777	0.899

All dimensions in inches unless otherwise stated.

Chain Size	Attachment Dimensions								
	D_{F1}	D_{F2}	C_S	N	X_S	ℓ	$ℓ_1$	$ℓ_2$	d
RS40TR	0.433	0.625	0.500	0.374	0.687	0.519	0.325	0.380	0.156
RS50TR	0.591	0.750	0.625	0.500	0.875	0.637	4.343	0.469	0.200
RS60TR	0.709	0.875	0.720	0.625	1.033	0.811	0.506	0.600	0.234
RS80TR	0.945	1.125	0.968	0.751	1.344	1.011	0.640	0.758	0.312
RS100TR	1.181	1.562	1.251	1.000	1.751	1.220	0.778	0.900	0.376

Approximate Weight (lbs./ft.)

Chain Size	Plastic Top Roller		Steel Top Roller	
	Every Pitch	Every 2nd Pitch	Every Pitch	Every 2nd Pitch
RS40TR	1.23	0.94	0.62	0.57
RS50TR	1.60	1.46	1.05	0.92
RS60TR	2.41	2.13	1.54	1.36
RS80TR	4.08	3.53	2.61	2.30
RS100TR	6.23	5.93	4.06	3.62

Please specify roller material type and roller spacing when ordering.

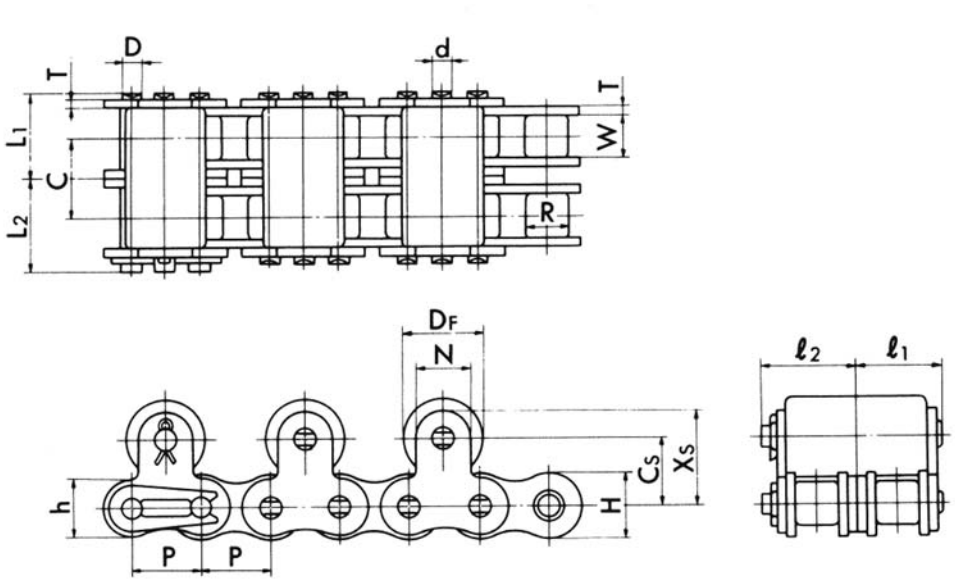
Top Roller
Free Flow Chain

TSUBAKI

RS Single Pitch-Double Strand-Steel Roller

Top Roller Chain

Supporting material with top roller. Also suitable as a continuous movement chain for conveying and storing with stopping ability.



All dimensions in inches unless otherwise stated.

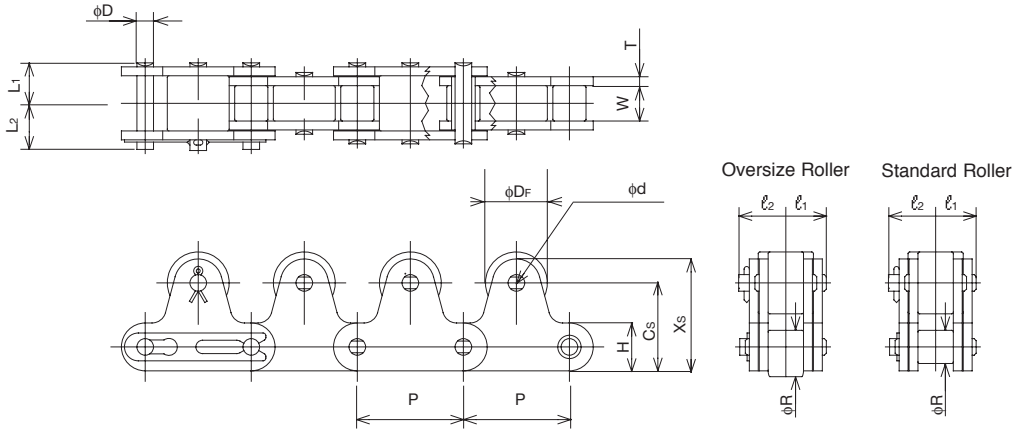
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	
RS40-2TR	0.500	0.312	0.313	0.059	0.472	0.409	0.156	1.283	0.608	0.675	0.567
RS50-2TR	0.625	0.400	0.375	0.079	0.591	0.512	0.200	1.594	0.762	0.833	0.713
RS60-2TR	0.750	0.469	0.500	0.094	0.713	0.614	0.235	2.008	0.955	1.053	0.898
RS80-2TR	1.000	0.625	0.625	0.126	0.949	0.819	0.313	2.551	1.217	1.335	1.154
RS100-2TR	1.250	0.750	0.750	0.157	1.185	1.024	0.376	3.091	1.484	1.606	1.409

Chain Number	Attachment Dimensions						
	D_F	C_S	N	X_S	ℓ_1	ℓ_2	d
RS40-2TR	0.625	0.500	0.374	0.687	0.608	0.667	0.156
RS50-2TR	0.750	0.625	0.500	0.875	0.761	0.832	0.200
RS60-2TR	0.875	0.720	0.625	1.033	0.954	1.053	0.234
RS80-2TR	1.125	0.968	0.751	1.344	1.216	1.334	0.312
RS100-2TR	1.562	1.251	1.000	1.751	1.484	1.606	0.383

Top Roller Free Flow Chain

Double Pitch Carbon Steel/Lambda-Plastic or Steel Roller

Top Roller Chain



All dimensions in inches unless otherwise stated.

Plastic Top Roller			Steel Top Roller		Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate	
Carbon Steel Chain Number	Lambda Chain Number	(Plastic bottom Roller) Carbon Steel Chain Number	Carbon Steel Chain Number	Lambda Chain Number				Thickness T	Height H
Standard Roller Type									
C2040TR-P	C2040LAMBDA-TR-P	C2040P-TR-P	C2040TR	C2040LAMBDA-TR	1.000	0.312	0.313	0.060	0.472
C2050TR-P	C2050LAMBDA-TR-P	C2050P-TR-P	C2050TR	C2050LAMBDA-TR	1.250	0.400	0.375	0.080	0.591
C2060HTR-P	-	C2060HP-TR-P	C2060HTR	C2060HLAMBDA-TR	1.500	0.469	0.500	0.125	0.677
C2080HTR-P	-	C2080HP-TR-P	C2080HTR	–	2.000	0.625	0.625	0.156	0.906
C2100HTR-P	-	C2100HP-TR-P	C2100HTR	–	2.500	0.750	0.750	0.188	1.125
Oversize Roller Type									
C2042TR-P	C2042LAMBDA-TR-P	C2042P-TR-P	C2042TR	C2042LAMBDA-TR	1.000	0.625	0.313	0.060	0.472
C2052TR-P	C2052LAMBDA-TR-P	C2052P-TR-P	C2052TR	C2052LAMBDA-TR	1.250	0.750	0.375	0.080	0.591
C2062HTR-P	-	C2062HP-TR-P	C2062HTR	C2062HLAMBDA-TR	1.500	0.875	0.500	0.125	0.677
C2082HTR-P	-	C2082HP-TR-P	C2082HTR	–	2.000	1.125	0.625	0.156	0.906
C2102HTR-P	-	C2102HP-TR-P	C2102HTR	–	2.500	1.563	0.750	0.188	1.125

All dimensions in inches unless otherwise stated.

Plastic Top Roller			Steel Top Roller		Pin			
Carbon Steel Chain Number	Lambda Chain Number	(Plastic bottom Roller) Carbon Steel Chain Number	Carbon Steel Chain Number	Lambda Chain Number	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
Standard Roller Type								
C2040TR-P	C2040LAMBDA-TR-P	C2040P-TR-P	C2040TR	C2040LAMBDA-TR	0.156	0.717	0.325	0.392
C2050TR-P	C2050LAMBDA-TR-P	C2050P-TR-P	C2050TR	C2050LAMBDA-TR	0.200	0.878	0.406	0.472
C2060HTR-P	C2060HLAMBDA-TR-P	C2060HP-TR-P	C2060HTR	C2060HLAMBDA-TR	0.235	1.224	0.573	0.652
C2080HTR-P	-	C2080HP-TR-P	C2080HTR	-	0.313	1.543	0.720	0.823
C2100HTR-P	-	C2100HP-TR-P	C2100HTR	-	0.375	1.823	0.858	0.965
Oversize Roller Type								
C2042TR-P	C2042LAMBDA-TR-P	C2042P-TR-P	C2042TR	C2042LAMBDA-TR	0.156	0.717	0.325	0.392
C2052TR-P	C2052LAMBDA-TR-P	C2052P-TR-P	C2052TR	C2052LAMBDA-TR	0.200	0.878	0.406	0.472
C2062HTR-P	C2062HLAMBDA-TR-P	C2062HP-TR-P	C2062HTR	C2062HLAMBDA-TR	0.235	1.224	0.573	0.652
C2082HTR-P	-	C2082HP-TR-P	C2082HTR	-	0.313	1.543	0.720	0.823
C2102HTR-P	-	C2102HP-TR-P	C2102HTR	-	0.375	1.823	0.858	0.965

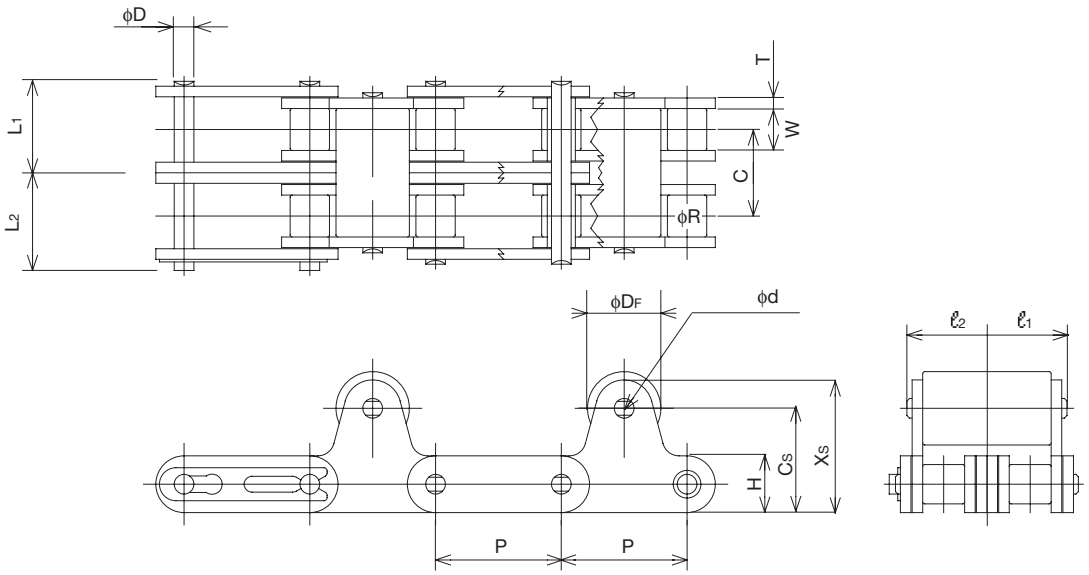
All dimensions in inches unless otherwise stated.

Chain Number	Attachment Dimensions						Steel Top Roller		Plastic Top Roller		
							Standard	Oversize	Standard	Oversize	Standard
	D_F	C_S	X_S	ℓ_1	ℓ_2	d	Weight (lbs/ft.)	Weight (lbs/ft.)	Weight (lbs/ft.)	Weight (lbs/ft.)	Weight (lbs/ft.)
C2040TR	0.625	0.590	0.826	0.324	0.380	0.156	0.89	1.13	0.61	0.85	* 0.62
C2050TR	0.750	0.748	1.043	0.406	0.469	0.200	1.37	1.68	0.96	1.27	* 0.96
C2060HTR	0.875	0.905	1.244	0.573	0.667	0.234	2.47	2.92	1.86	2.32	* 1.84
C2080HTR	1.125	1.141	1.594	0.728	0.839	0.446	3.79	4.53	2.87	3.62	* 3.03
C2100HTR	1.562	1.393	1.956	0.870	1.047	0.571	6.10	7.62	4.36	5.88	* 4.42

Note: * denotes the weight for carbon steel base chain with plastic top roller and plastic bottom roller. Please specify roller material type when ordering.

Double Pitch-Double Strand-Steel Roller

Top Roller Chain



Note: Top roller shown spaced every second pitch. Also available with top roller spaced every pitch.

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Betwen Inner Link Plates W	Link Plate		Pin			
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
Standard Roller Type									
C2040-2TR	1.000	0.312	0.313	0.060	0.472	0.156	1.283	0.608	0.675
C2050-2TR	1.250	0.400	0.375	0.080	0.591	0.200	1.593	0.761	0.832
C2060H-2TR	1.500	0.469	0.500	0.125	0.677	0.235	2.255	1.090	1.165
C2080H-2TR	2.000	0.625	0.625	0.156	0.906	0.313	2.830	1.362	1.468
C2100H-2TR	2.500	0.750	0.750	0.188	1.125	0.375	3.361	1.627	1.734
Oversize Roller Type									
C2042-2TR	1.000	0.625	0.313	0.060	0.472	0.156	1.283	0.608	0.675
C2052-2TR	1.250	0.750	0.375	0.080	0.591	0.200	1.593	0.761	0.832
C2062H-2TR	1.500	0.875	0.500	0.125	0.677	0.235	2.255	1.090	1.165
C2082H-2TR	2.000	1.125	0.625	0.156	0.906	0.313	2.830	1.362	1.468
C2102H-2TR	2.500	1.563	0.750	0.188	1.125	0.375	3.361	1.627	1.734

Chain Number	Chain Number	Attachment Dimensions					
		D_F	C_S	X_S	ℓ_1	ℓ_2	d
C2040-2TR	C2042-2TR	0.625	0.590	0.826	0.616	0.679	0.156
C2050-2TR	C2052-2TR	0.750	0.748	1.043	0.769	0.864	0.200
C2060H-2TR	C2062H-2TR	0.875	0.905	1.244	1.096	1.214	0.234
C2080H-2TR	C2082H-2TR	1.125	1.141	1.594	1.370	1.480	0.446
C2100H-2TR	C2102H-2TR	1.562	1.393	1.956	1.639	1.840	0.571

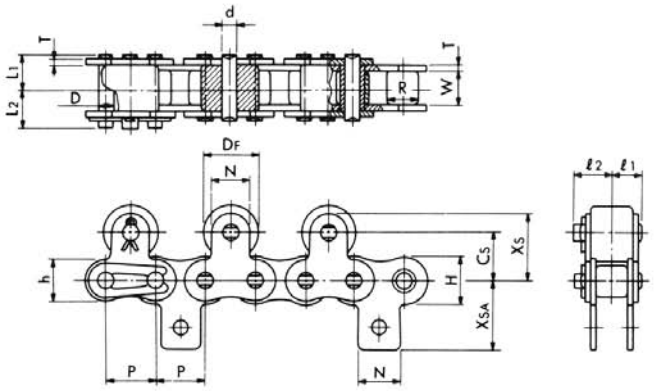
Top Roller Free Flow Chain

RS Single Pitch Top Guide Attachment-Plastic or Steel Roller

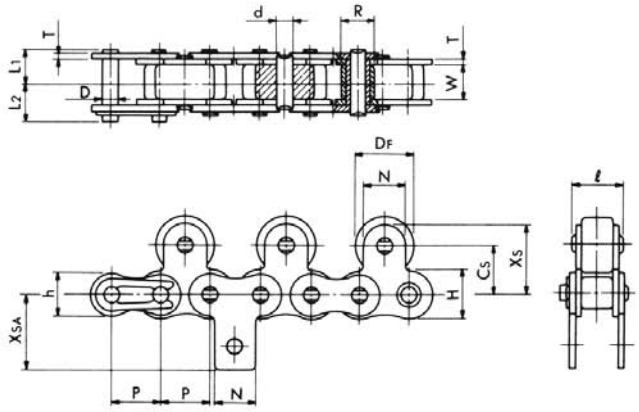
Top Roller Chain

This chain has a guide attachment to prevent falling or snaking of the chain.

Pin Link Type
- Guide Plate Attachment on Inner Link.
- Top Roller on the Outer Link.



Roller Link Type
- Guide Plate Attachment on Outer Link.
- Top Roller on the Inner Link.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin			
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2
RS40TG	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392
RS50TG	0.625	0.400	0.375	0.079	0.591	0.511	0.200	0.878	0.406	0.472
RS60TG	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581
RS80TG	1.000	0.625	0.625	0.125	0.948	0.818	0.312	1.396	0.639	0.757
RS100TG	1.250	0.750	0.750	0.157	1.185	1.023	0.375	1.676	0.777	0.899

All dimensions in inches unless otherwise stated.

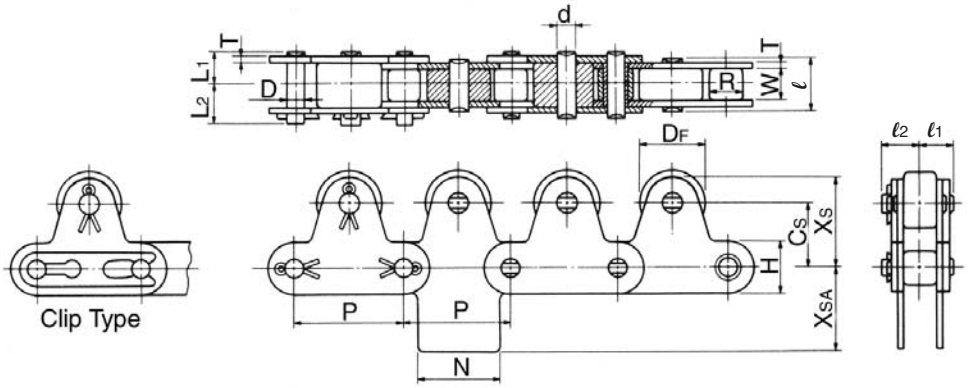
Chain Number	Attachment Dimensions								
	D_F	C_S	N	X_S	ℓ_1	ℓ_2	ℓ	d	X_{SA}
RS40TG	0.625	0.500	0.374	0.687	0.324	0.379	0.519	0.156	0.685
RS50TG	0.750	0.625	0.500	0.875	0.405	0.468	0.637	0.200	0.907
RS60TG	0.875	0.720	0.625	1.033	0.505	0.600	0.811	0.234	1.057
RS80TG	1.125	0.968	0.751	1.344	0.639	0.757	1.011	0.312	1.395
RS100TG	1.562	1.251	1.000	1.751	0.777	0.899	1.220	0.380	1.732

Note: Guide attachment spacing should be at every 4th pitch or more. Please specify roller material type and the spacing of the top roller when ordering.
Sizes 40-60: Spring clip connecting link.
Sizes 80-100: Cotter pin connecting link.

TSUBAKI

Top Guide Attachment-Double Pitch-Plastic or Steel Roller

Top Roller Chain



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin			
				Thickness T	Height H	Dia. D	Length L_1+L_2	Length L_1	Length L_2
Standard Roller Type									
C2040TG	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392
C2050TG	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472
C2060HTG	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.572	0.652
C2080HTG	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823
C2100HTG	2.500	0.750	0.750	0.188	1.125	0.375	1.823	0.858	0.965
Oversize Roller Type									
C2042TG	1.000	0.625	0.313	0.060	0.472	0.156	0.717	0.325	0.392
C2052TG	1.250	0.750	0.375	0.080	0.591	0.200	0.878	0.406	0.472
C2062HTG	1.500	0.875	0.500	0.125	0.677	0.235	1.224	0.572	0.652
C2082HTG	2.000	1.125	0.625	0.156	0.906	0.313	1.543	0.720	0.823
C2102HTG	2.500	1.563	0.750	0.188	1.125	0.375	1.823	0.858	0.965

All dimensions in inches unless otherwise stated.

Chain Number	Chain Number	Attachment Dimensions								
		D_F	C_S	X_S	ℓ_1	ℓ_2	ℓ	d	N	X_{SA}
C2040TG	C2042TG	0.625	0.591	0.827	0.336	0.395	0.519	0.156	0.751	0.500
C2050TG	C2052TG	0.750	0.748	1.043	0.413	0.507	0.653	0.200	0.937	0.625
C2060HTG	C2062HTG	0.875	0.906	1.244	0.581	0.698	0.890	0.235	1.125	0.751
C2080HTG	C2082HTG	1.125	1.141	1.594	0.714	0.839	1.120	0.446	1.500	1.000
C2100HTG	C2102HTG	1.562	1.393	1.956	0.870	1.070	1.342	0.571	1.874	1.251

Note: Guide attachment spacing should be at every 4th pitch or more. Please specify roller material type and the spacing of the top roller when ordering.
Sizes 2040-2060: Spring clip connecting link.
Sizes 2080-2100: Cotter pin connecting link.

Side/Top Roller Selection Procedure

I. Selection Procedure for Side Roller and Top Roller Chain

1) Confirmation of operating conditions for free flow conveyor

The following information is needed in order to select an appropriate chain for free flow conveyor:

① Material weight, dimension and quantity of the conveyed object (including pallet)

② Conveyor speed

③ Conveyor length (the length for accumulating and transferring portion respectively)

④ Lubrication requirements and environment

2) Tentative selection of chain size

$T = W_T \times f \times K$

W_T: Total weight of conveyed object except chain (lbs.)

f: Coefficient of friction $f = f_1 + f_2$ (See Tables 3 and 4)

K: Chain speed coefficient (See Table 5)

Note: In the case where two matched strands are to be operated, the chain's maximum allowable load (shown in Table 6) should be verified with T/2 to decide the chain type and size.

3) Confirmation of the maximum allowable roller load

The maximum allowable roller load for conveyed objects should not exceed the figures shown in Table 1. However, maximum allowable roller load for the base chain should be checked using Table 2.

Table 1 Maximum Allowable Roller Load for Conveyed Objects

Chain	Type of Roller for transfer	RS40 C2040	RS50 C2050	RS60 C2060	RS80 C2080	RS100 C2100
Side Roller Chain	Plastic out-board roller	11	15	30	55	66
	Steel out-board roller	33	44	66	121	176
Top Roller Chain (Single Strand)	Plastic top roller	11	15	30	55	66
	Steel top roller	33	44	66	121	176

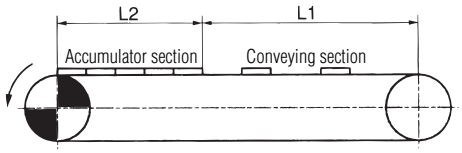
Table 2 Maximum Allowable Roller Load of Base Chain (lbs./roller)

Type of Roller on Base Chain		RS40 C2040	RS50 C2050	RS60 C2060	RS80 C2080	RS100 C2100
Steel Roller	"S" roller	33	44	66	121	176
	"R" roller	143	220	352	594	880
Plastic Roller	"S" roller	4	7	11	–	–
	"R" roller	44	66	110	198	286
Poly-Steel		4	9	13	–	–

Note: The above figure for Poly-Steel show the maximum allowable load per plastic inner link.

4) Calculation of maximum chain tension (T)

Calculate the maximum chain tension (T) with the following formula referring to Tables 3 and 4.



$$T = (W_1+M)L_1 \cdot f_1 + W_2 \cdot L_2 \cdot f_2 + (W_2+M)L_2 \cdot f_1 + 1.1M(L_1+L_2)f_1$$

T: Maximum chain tension (lbs.)

L_2: Length of accumulating portion (ft.)

W_2: Weight of conveyed objects in accumulating portion (lbs.ft.)

L_1: Length of conveying portion (ft.)

W_1: Weight of conveyed objects in conveying portion (lbs./ft)

f_1: Coefficient of friction between chain and rail when conveying

f_2: Coefficient of friction between chain and conveyed object when accumulating

M: Weight of chain and slat, etc. (lbs./ft.)

Hp: Required power (Hp)

V: Chain speed (ft./min.)

η: Transmission efficiency of drive unit

In general, free flow conveyor should have two matched strands of chain and in this case, the chain weight should be for two strands of chain. T, calculated with the above formula, is the maximum chain tension for two strands of chain.

Table 3: Coefficient of Friction between Chain and Rail when Conveying (f1)

Chain Type	Type of Roller on Base Chain		Dry	Lubricated
Side Roller Chain	Steel roller	"S" roller	0.21	0.14
		"R" roller	0.12	0.08
	Plastic roller	"S" roller	0.12	–
		"R" roller	0.08	–
Top Roller Chain	Poly -Steel		0.25	–
	Steel roller	"S" roller	0.21	0.14
		"R" roller	0.12	0.08

Note: These factors are for your reference only.

Table 4: Coefficient of Friction between Chain and Conveyed Object when Accumulating (f2)

Chain Type	Type of Roller on Base Chain	Dry	Lubricated
Side Roller Chain Chain	Plastic side roller	0.06	–
	Plastic brake side roller	0.10	–
	Steel side roller	0.09	0.06
Top Roller chain	Plastic top roller	0.06	–
	Steel top roller	0.09	0.06

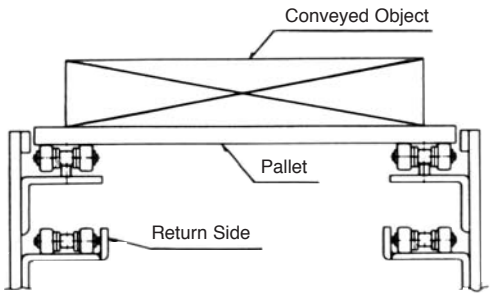
Note: These factors are for your reference only.

Table 5: Chain Speed Coefficient (K)

Chain Speed ft./min.	Chain Speed Coefficient (k)
0 ~ 50	1.0
50 ~ 100	1.2
100 ~ 160	1.4
160 ~ 230	1.6
230 ~ 300	2.2
300 ~ 360	2.8
360 ~ 400	3.2

Note: These factors are for your reference only.

Use of Chain Guide



Cross-Sectional View of Conveyor

Note: 1) When using plastic brake side roller chain, the rollers of the base chain on the return side should be supported by the rail in the same way as the conveying side.
2) When using Poly-Steel chain with side rollers, the guide should support the bottom surface of the links.

Table 6 Maximum Allowable Chain Load (lbs.)

Chain type	Type of Roller on Base Chain	RS40 C2040	RS50 C2050	RS60 C2060	RS80 C2080	RS100 C2100
Side Roller Chain	Steel roller	595	970	1,410	2,400	3,835
	Plastic roller	100	155	230	400	575
	Poly-Steel	100	155	200	–	–
Top Roller Chain (single strand)	Steel roller	595	970	1,410	2,400	3,835
	Plastic roller	100	155	230	400	575

Suggested chain speed is as follows:
Plastic Side Roller Chain: 230 ft./min. or less
Poly-Steel Chain: 230 ft./min. or less
When chain speed exceeds the above, consult Tsubaki Technical Support.

5) Determination of Chain Size

Multiply the maximum chain tension (T) by the chain speed coefficient (k) listed in Table 5 and verify with the following formula.

$T \times K \leq$ Maximum allowable chain tension

Note: Where there are two matched strands, the maximum chain tension should be T/2.

6) Calculation of required power (HP)

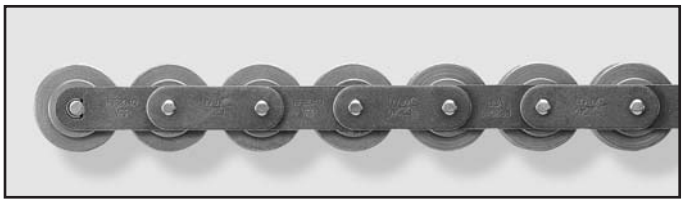
$$Hp = \frac{T \cdot V}{33{,}000\eta}$$

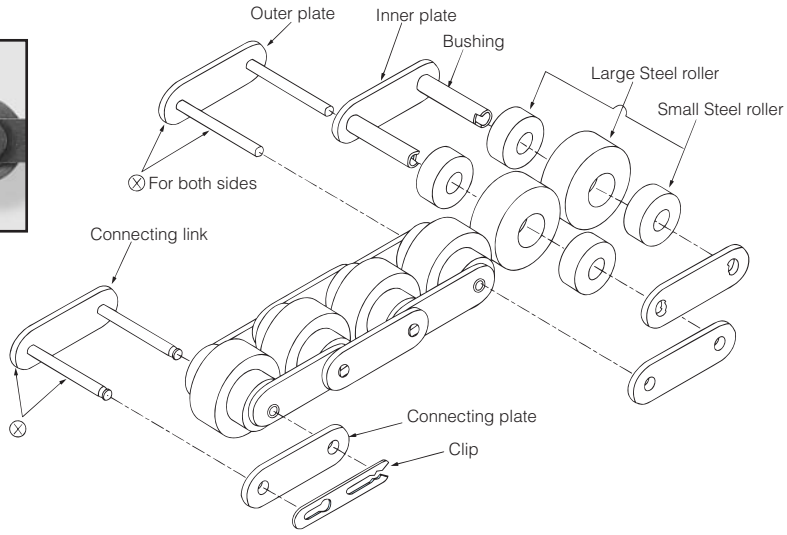
Ambient Temperature Range

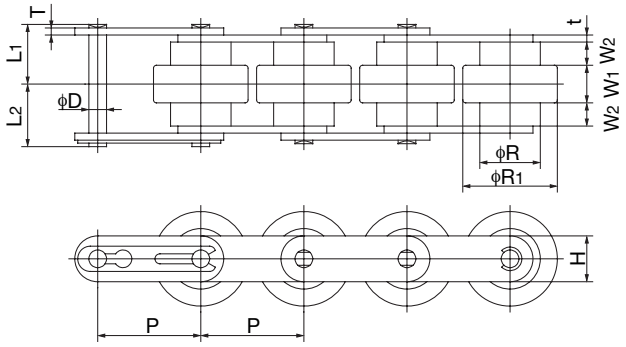
Suggested ambient temperature range is between 14°F to 176°F. If the chain will be operated outside of the above range, consult Tsubaki Technical Support.

Center Roller (Single Plus) Free Flow Chain

Tsubaki's Single Plus Center-Roller Chain is a free flow conveyor chain that is particularly suitable for high accumulation storage and stock conveyors. The conveyed material's speed and the chain speed are identical (1:1). (This is different than Double Plus Chain where the conveyed material's speed is 2.5 times faster than the chain speed). The roller shape differs from the Double-Plus Chain roller; the large and small rollers are independent. Compared with a top roller chain, the center of gravity is lower. The materials are placed on the rollers on each side which allows for stable conveying. The external dimensions of the chain are identical to Double Plus chain. The steel and aluminum frames for Double Plus Chain can be used.







Center Roller Chian Specifications

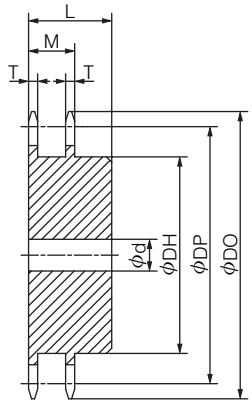
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Roller Dia. R_1	Width W_1	Width W_2	Link Plate Thickness t	Link Plate Thickness T	Link Plate Height H	Pin Dia. D	Pin Length $L_1 + L_2$	Pin Length L_1	Pin Length L_2	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
C2040CR	1.000	0.625	0.969	0.406	0.224	0.079	0.059	0.472	0.156	1.291	0.622	0.669	350	1.7
C2050CR	1.250	0.750	1.205	0.512	0.280	0.094	0.079	0.591	0.200	1.606	0.770	0.837	550	2.5
C2060HCR	1.500	0.875	1.441	0.610	0.335	0.126	0.126	0.677	0.235	2.004	0.965	1.039	835	3.8

Sprocket Specifications

All dimensions in inches unless otherwise stated.

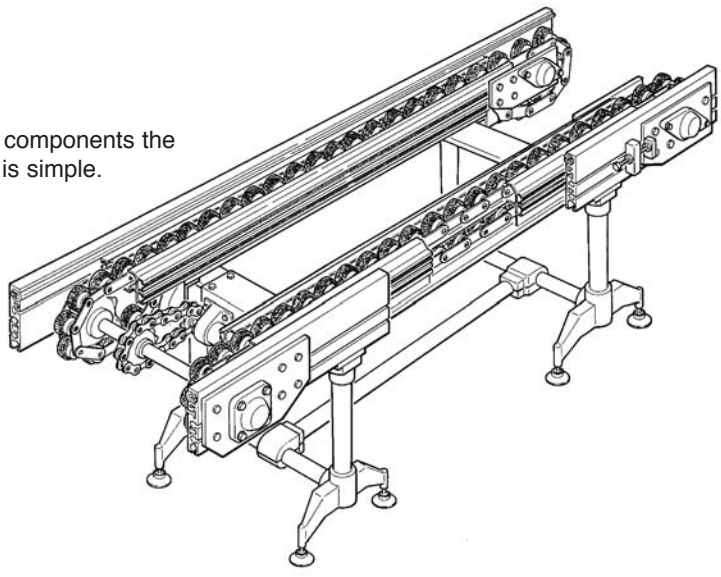
Sprocket Number	Type	No. Of Teeth	Roller Pitch Dia. D_P	Roller Outer Dia D_0	Tooth Thickness T	M	Stock Bore Dia. d	Hub Dia. D_H	Hub Length L	Approx. Weight (lbs.)
C2040VRP-10T	B	10	3.236	3.346	0.157	0.803	0.630	2.047	1.575	1.8
C2050VRP-10T	B	10	4.045	4.213	0.197	1.004	0.630	2.598	1.772	3.3
C2060HVRP-10T	B	10	4.854	5.039	0.236	1.201	0.748	3.189	1.969	5.5



Double Plus Free Flow Chain

Tsubaki's unique Standard and Large Size Double Plus free flow conveyor chain conveys objects 2.3 times (Large Size Double Plus Chain) to 2.5 times (Standard Double Plus Chain) faster than the actual chain speed. As a result, motor speeds up to 60% slower can be used, leading to improved reliability and substantial reductions in energy costs and chain noise (by up to 15dB compared to outboard plastic roller chains). Double Plus Chains employ a unique design which incorporates a large center roller, and a smaller outer roller, which supports the chain on a guide rail. When engaged, the large center roller (upon which the conveyed objects travel) rotate at the same rpm as the small rollers. However, since the diameter of the large roller is larger than the smaller roller, conveyed objects move along faster than the chain. The benefits of the unique design are that the chain speeds up to 60% slower can be used without effecting the object conveying speed. Motor drive speeds can be reduced which will lead to substantial power savings and to reduced noise levels some 15dB lower than those of plastic side roller chains. Added to these advantages are the excellent start-up and accelerations facilities provided by the large roller/small roller combination and the fact that Double Plus is safer than outboard roller chains because the chain runs in a guide rail.

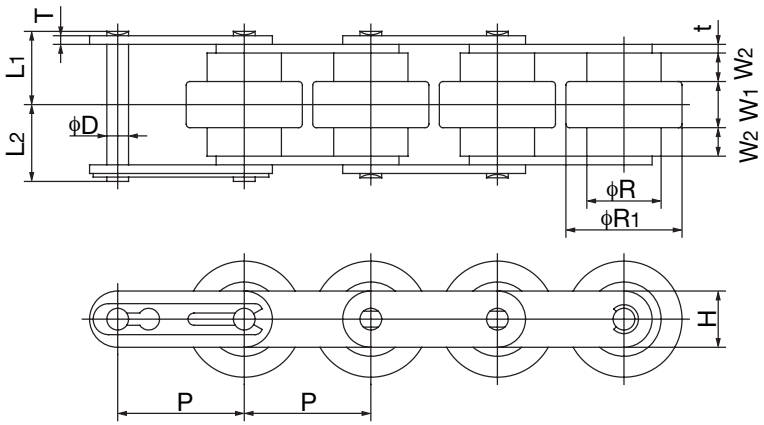
From the combination of various components the design of a Free Flow Conveyor is simple.



Double Plus Free Flow Chain

Standard Double Plus Chain Specifications

(refer to Availability Matrix on page B-117 for base chain/roller combinations)



All dimensions in inches unless otherwise stated.

Plastic Roller Chain Number	Steel Roller Chain Number	Pitch P	Roller Dia. R	Roller Dia. R_1	Width W_1	Width W_2	Link Plate Thickness t	Link Plate Thickness T	Link Plate Height H	Pin Diameter D	Pin Length $L_1 + L_2$	Pin Length L_1	Pin Length L_2	Approx. Wt. (lbs./ft.) Plastic Roller	Approx. Wt. (lbs./ft.) Steel Roller
C2030VRP	C2030VR	0.750	0.469	0.720	0.315	0.157	0.059	0.059	0.354	.141 (.118)	0.996	0.474	0.522	1.3	3.1
C2040VRP	C2040VR	1.000	0.625	0.969	0.406	0.224	0.079	0.059	0.472	0.156	1.291	0.622	0.669	2.2	5.5
C2050VRP	C2050VR	1.250	0.750	1.205	0.512	0.280	0.094	0.079	0.591	0.200	1.606	0.770	0.837	3.1	8.1
C2060HVRP	C2060HVR	1.500	0.875	1.441	0.610	0.335	0.126	0.126	0.677	0.235	2.004	0.965	1.039	4.4	12.3
C2080HVRP	-	2.000	1.125	1.890	0.787	0.591	0.157	0.157	0.906	0.313	2.906	1.409	1.496	8.6	-

Note: value in brackets is the pin diameter of RF2030VRP-Lambda

Maximum Allowable Load: Double Plus Chain With Plastic Roller

Plastic Roller Chain Number	Chain Specification	Max. Allow. Load (lbs.) Roller Type: A, UA, C	Max. Allow. Load (lbs.) Roller Type: U, UB, D
C2030VRP	Standard	125	60
C2030VRP	Lambda	125	60
C2030VRP	Hard Chrome Plating	125	60
C2030VRP	Stainless Steel	60	60
C2040VRP	Standard	200	100
C2040VRP	Lambda	200	100
C2040VRP	Hard Chrome Plating	200	100
C2040VRP	Stainless Steel	100	100
C2050VRP	Standard	310	155
C2050VRP	Lambda	310	155
C2050VRP	Hard Chrome Plating	310	155
C2050VRP	Stainless Steel	155	155
C2060HVRP	Standard	460	230
C2060HVRP	Lambda	460	230
C2060HVRP	Hard Chrome Plating	460	230
C2060HVRP	Stainless Steel	230	230
C2080HVRP	Standard	1190	595
C2080HVRP	Lambda	1190	595
C2080HVRP	Hard Chrome Plating	1190	595
C2080HVRP	Stainless Steel	595	595

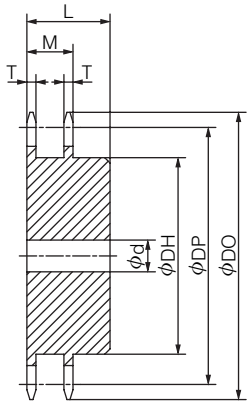
Maximum Allowable Load: Double Plus Chain With Steel Roller

Steel Roller Chain Number	Maximum Allowable Load (lbs.)
C2030VR	220
C2040VR	350
C2050VR	550
C2060HVR	835

Standard Double Plus/Single Plus Sprocket Specifications

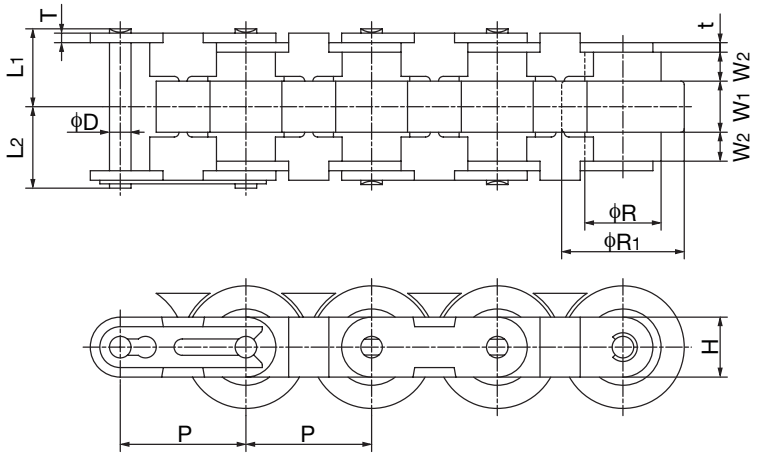
All dimensions in inches unless otherwise stated.

Sprocket Number	Type	No. Of Teeth	Roller Pitch Dia. D_P	Roller Outer Dia D_0	Tooth Thickness T	M	Stock Bore Dia. d	Hub Dia. D_H	Hub Length L	Approx. Weight (lbs.)
C2030VRP-10T	B	10	2.427	2.480	0.118	0.602	0.500	1.457	0.984	0.4
C2040VRP-10T	B	10	3.236	3.346	0.157	0.803	0.630	2.047	1.575	1.8
C2050VRP-10T	B	10	4.045	4.213	0.197	1.004	0.630	2.598	1.772	3.3
C2060HVRP-10T	B	10	4.854	5.039	0.236	1.201	0.748	3.189	1.969	5.5
C2080HVRP-10T	B	10	6.472	6.772	0.472	1.870	0.906	4.331	2.638	15.4



Standard Double Plus Chain With Snap Cover Specifications

(refer to Availability Matrix on page B-117 for base chain/roller combinations)



All dimensions in inches unless otherwise stated.

Plastic Roller With Snap Cover Chain Number	Steel Roller With Snap Cover Chain Number	Pitch P	Roller		Width		Link Plate			Pin				Approx. Wt. (lbs./ft.)	
			Dia. R	Dia. R_1	W_1	W_2	Thickness t	Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Plastic Roller	Steel Roller
C2030VRP-SC	C2030VR-SC	0.750	0.469	0.720	0.315	0.157	0.059	0.059	0.354	.141 (.118)	0.996	0.474	0.522	1.3	3.1
C2040VRP-SC	C2040VR-SC	1.000	0.625	0.969	0.406	0.224	0.079	0.059	0.472	0.156	1.291	0.622	0.669	2.2	5.5
C2050VRP-SC	C2050VR-SC	1.250	0.750	1.205	0.512	0.280	0.094	0.079	0.591	0.200	1.606	0.770	0.837	3.1	8.1
C2060HVRP-SC	C2060HVR-SC	1.500	0.875	1.441	0.610	0.335	0.126	0.126	0.677	0.235	2.004	0.965	1.039	4.4	12.3
C2080HVRP-SC	-	2.000	1.125	1.890	0.787	0.591	0.157	0.157	0.906	0.313	2.906	1.409	1.496	8.6	-

Note: value in brackets is the pin diameter of RF2030VRP-SC-Lambda

Maximum Allowable Load:
Double Plus Chain With Plastic Roller and Snap Cover

Plastic Roller With Snap Cover Chain Number	Steel Roller With Snap Cover Chain Number	Max. Allow. Load (lbs.)	
		Roller Type: A, UA, C	Roller Type: U, UB, D
C2030VRP-SC	Standard	125	60
C2030VRP-SC	Lambda	125	60
C2030VRP-SC	Hard Chrome Plating	125	60
C2030VRP-SC	Stainless Steel	60	60
C2040VRP-SC	Standard	200	100
C2040VRP-SC	Lambda	200	100
C2040VRP-SC	Hard Chrome Plating	200	100
C2040VRP-SC	Stainless Steel	100	100
C2050VRP-SC	Standard	310	155
C2050VRP-SC	Lambda	310	155
C2050VRP-SC	Hard Chrome Plating	310	155
C2050VRP-SC	Stainless Steel	155	155
C2060HVRP-SC	Standard	460	230
C2060HVRP-SC	Lambda	460	230
C2060HVRP-SC	Hard Chrome Plating	460	230
C2060HVRP-SC	Stainless Steel	230	230
C2080HVRP-SC	Standard	1190	595
C2080HVRP-SC	Lambda	1190	595
C2080HVRP-SC	Hard Chrome Plating	1190	595
C2080HVRP-SC	Stainless Steel	595	595

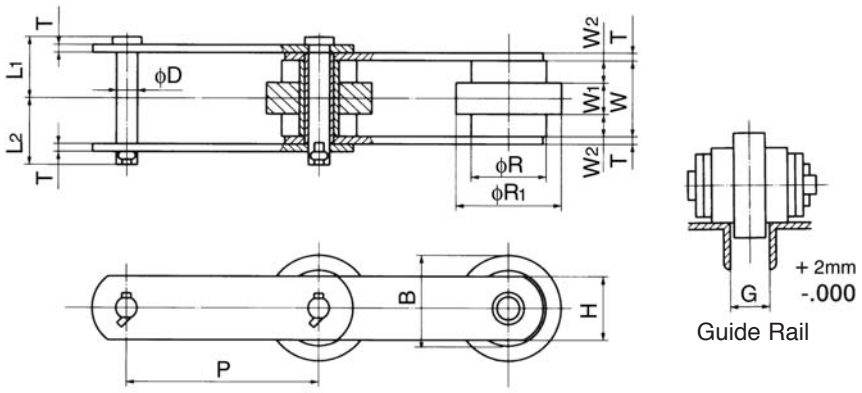
Maximum Allowable Load:
Double Plus Chain With Steel Roller and Snap Cover

Steel Roller With Snap Cover Chain Number	Maximum Allowable Load (lbs.)
C2030VR-SC	220
C2040VR-SC	350
C2050VR-SC	550
C2060HVR-SC	835

Double Plus Free Flow Chain

Large Size (Engineering Class) Double Plus Chain Specifications

(Base chain available in carbon steel only)



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Roller Dia. R_1	Width Between Inner Link Plates W	W_1	W_2	Link Plate Thickness T	Link Plate Height H	Pin Dia. D	Pin Length $L_1 + L_2$	Pin Length L_1	Pin Length L_2
RF3075VR	2.953	1.252	1.654	1.181	0.472	0.335	0.126	0.866	0.315	2.028	0.965	1.063
RF03100VR	3.937	1.252	1.654	1.181	0.472	0.335	0.126	0.866	0.315	2.028	0.965	1.063
RF05100VR	3.937	1.575	2.087	1.535	0.630	0.433	0.177	1.260	0.446	2.776	1.319	1.457
RF05150VR	5.906	1.575	2.087	1.535	0.630	0.433	0.177	1.260	0.446	2.776	1.319	1.457
RF10150VR	5.906	2.000	2.638	2.126	0.787	0.551	0.248	1.500	0.571	3.661	1.772	1.890
RF6205VR	6.000	2.252	2.972	2.441	0.866	0.630	0.311	1.752	0.626	4.272	2.087	2.185
RF12200VR	7.874	2.252	2.972	2.441	0.866	0.630	0.311	1.752	0.626	4.272	2.087	2.185
RF17200VR	7.874	2.559	3.386	2.717	0.984	0.709	0.374	2.000	0.752	5.000	2.382	2.618

All dimensions in inches unless otherwise stated.

Chain Number	B	G	Maximum Allowable Load (lbs.)	Maximum Allowable Roller Load (lbs/roller)	Approx. Weight (lbs./ft.)
RF3075VR	1.453	0.571	925	285	3.1
RF03100VR	1.453	0.571	925	285	2.7
RF05100VR	1.831	0.728	2,200	530	5.4
RF05150VR	1.831	0.728	2,200	530	4.0
RF10150VR	2.319	0.984	3,498	770	8.0
RF6205VR	2.610	1.102	5,950	1,100	12.1
RF12200VR	2.610	1.102	5,950	1,100	10.1
RF17200VR	2.972	1.220	7,700	1,365	13.4

Double Plus Free Flow Chain

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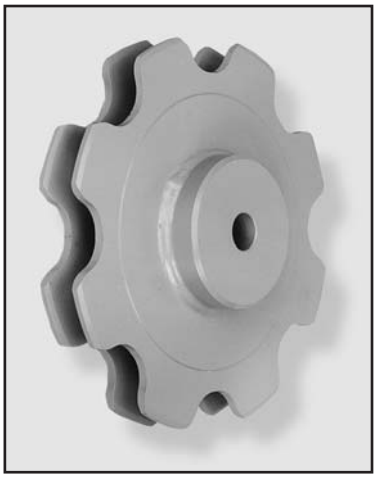
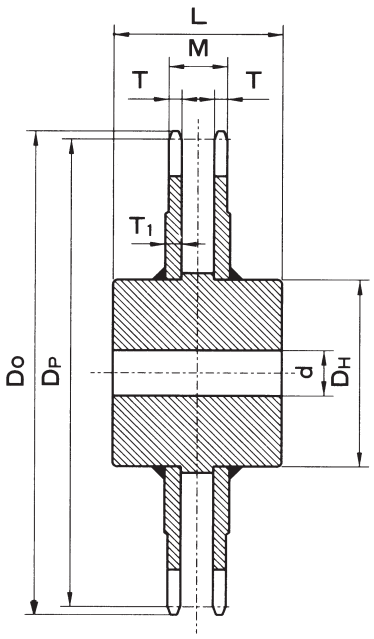
Large Size (Engineering Class) Double Plus Chain Sprocket Specifications





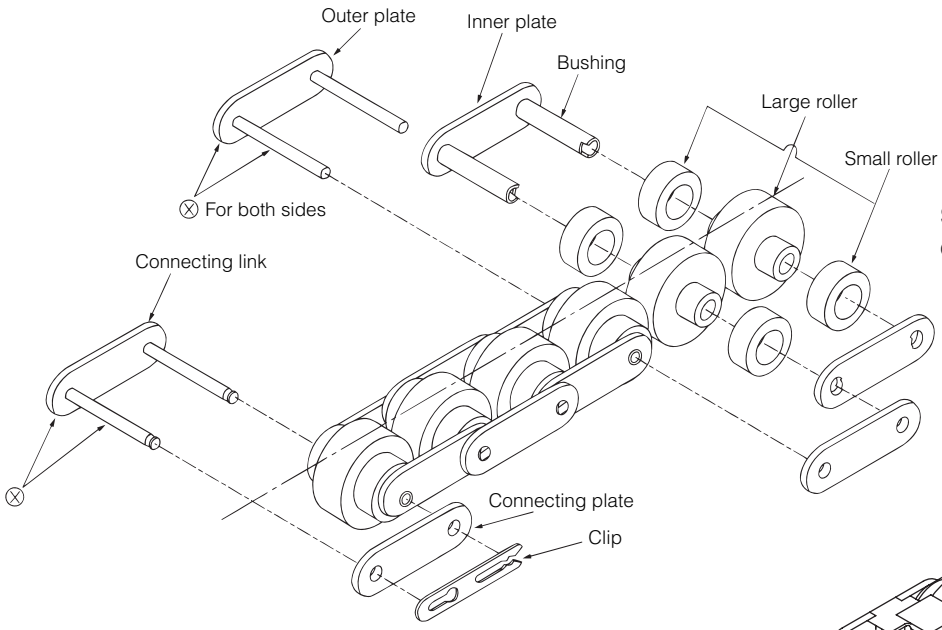
All dimensions in inches unless otherwise stated.

Sprocket Number	No. Of Teeth	Roller		Tooth Thickness T	Tooth Thickness T_1	M	Stock Bore Dia. d	Max. Bore	Hub Dia. D_h	Hub Length L	Approx. Weight (lbs.)
		Pitch Dia. D_P	Outer Dia D_0								
RF3075VR-6T	6	5.906	6.220	0.197	0.236	1.024	0.787	1.575	2.559	2.165	120
RF3075VR-8T	8	7.717	8.228	0.197	0.236	1.024	0.787	1.772	2.756	2.362	130
RF03100VR-6T	6	7.874	8.110	0.197	0.236	1.024	0.787	1.772	2.756	2.362	132
RF03100VR-8T	8	10.287	10.709	0.197	0.236	1.024	0.787	1.969	3.150	2.756	154
RF05100VR-6T	6	7.874	8.071	0.315	0.354	1.398	0.984	2.362	3.740	3.150	176
RF05100VR-8T	8	10.287	10.748	0.315	0.354	1.398	0.984	2.756	4.134	3.543	198
RF05150VR-6T	6	11.811	11.969	0.315	0.354	1.398	0.984	2.756	4.134	3.543	198
RF05150VR-8T	8	15.433	15.827	0.315	0.354	1.398	1.181	2.953	4.528	3.937	220
RF10150VR-6T	6	11.811	12.165	0.433	0.472	1.890	1.181	3.150	4.921	4.134	231
RF10150VR-8T	8	15.433	16.063	0.433	0.472	1.890	1.378	3.346	5.315	4.528	253
RF6205VR-6T	6	12.000	12.992	0.551	0.630	2.205	1.378	3.740	5.709	4.921	275
RF6205VR-8T	8	15.677	17.008	0.551	0.630	2.205	1.378	3.937	5.709	4.921	275
RF12200VR-6T	6	15.748	17.087	0.551	0.630	2.205	1.378	3.937	5.709	4.921	275
RF12200VR-8T	8	20.575	21.929	0.551	0.630	2.205	1.575	4.331	6.102	5.315	297
RF17200VR-6T	6	15.748	17.283	0.591	0.630	2.441	1.575	4.331	6.102	5.315	297
RF17200VR-8T	8	20.575	22.126	0.591	0.630	2.441	1.772	4.724	6.890	5.906	330

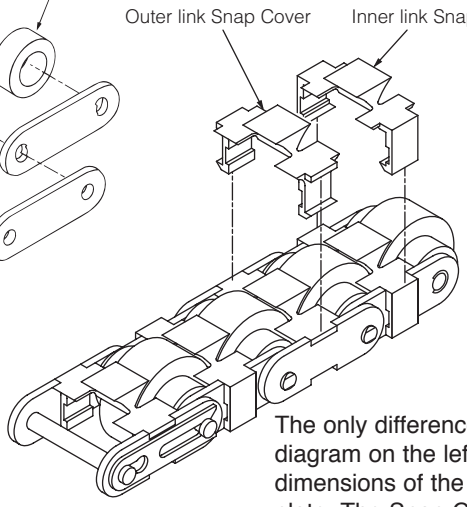
Double Plus Free Flow Chain

Construction of Double-Plus Chain

Standard Double-Plus Chain

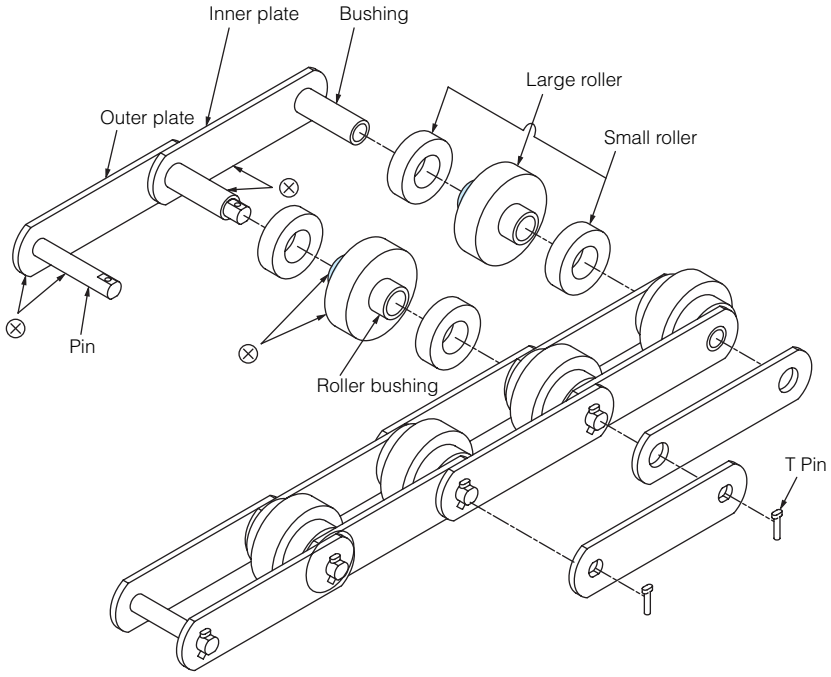


Standard Double-Plus Chain with Snap Cover



The only difference from the diagram on the left are the dimensions of the Snap Cover plate. The Snap Cover can be attached and detached.

Large Size (Engineering Class) Double-Plus Chain



Loose Fittings

When connecting the shaft (Pin and Bushing) and the hole, always fit them loosely. The diameter tolerance of the hole should always be the upper diameter tolerance level of the shaft.

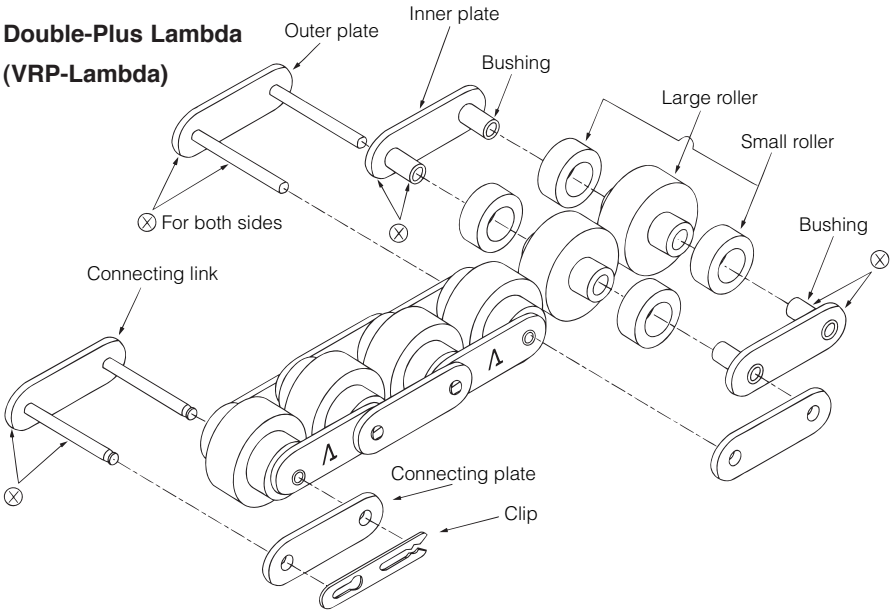
Tight Fittings

When connecting the shaft (Pin and Bushing) and the hole, always fit them tightly. The diameter tolerance of the hole should always be the lower diameter tolerance level of the shaft.

⊗ Tight fitting. Other parts are loose fitting.

Construction of Double-Plus Chain

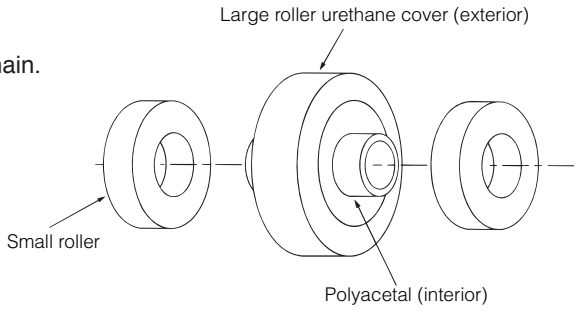
Double-Plus Lambda
(VRP-Lambda)



- Oil impregnated sintered bushings have been adopted.
- The bushing has been press-fitted into the left and right inner plates. (Bushing is divided)
- The pin is specially nickel-plated.

Urethane Roller (–UA, –UB)

C2030VRP-UA, -UB
Only the large roller differs from Double-Plus Chain.



Double Plus Free Flow Chain

Availability Matrix

Suitable selections based on use can be made through combinations (Shown below as **O**) of the chain body (4 types) and the rollers (7 types). Double-Plus Chain with Snap Cover has the same combinations.

Specification / Materials / Use \ Roller Type	Engineering Plastic Roller				Steel Roller	*Urethane Cover	
	VRP-A Standard	VRP-B High Friction	VRP-C Electro-conductive	VRP-D Electro-conductive High Friction	VR Steel	VRP-UA Standard	VRP-UB High Friction
Standard Steel General use	○	○	○	○	○	○	○
Hard Chrome (Cr.) Plating HCP Clean room use Avoid rusty conditions	○	○	○	○		○	○
Stainless Steel SS (SUS304) Recommended for non-magnetic and anti-corrosive use	○	○	○	○		○	○
Lubrication-free Lambda (Chain body is standard spec.) Unable to use lubrication or don't wish to use lubrication.	○	○	○	○		○	○

*C2030VRP only

Roller Use Classification

Specifications	Roller		Application	Lubrication	Environment
	Large (Color)	Small (Color)			
VRP-A Standard	Standard (Brown)	Standard (Grey)	General use 10dB quieter than Plastic Side Chain	Use non-lubricated. Note: Lambda base chain does not require lubrication.	Even if the chain body is HCP or SS, as Engineering Plastic Rollers are being used, the chain cannot be used in areas where it may become wet.
VRP-B High friction		High friction (Cream)	Rapid response Low noise		
VRP-C Electro-conductive	Electro-conductive (Black)	Standard (Grey)	Individual volume surface resistance ratio (.3937) (10^6) Ohm-in.		
VRP-D Electro-conductive High friction		High friction (Cream)	Individual volume surface resistance ratio (.3937) (10^6) Ohm-in. Rapid response		
VRP-UA Standard	Urethane (Transparent)	Standard (Grey)	Direct conveying		
VRP-UB High friction		High friction (Cream)	Direct conveying Rapid response		
VR Steel	Steel	Steel	High load	Necessary	Will rust in wet areas.

Roller Types

	Low noise		Low noise			Heat Resistant
A	B	C	D	UA	UB	Steel

Double Plus Free Flow Chain

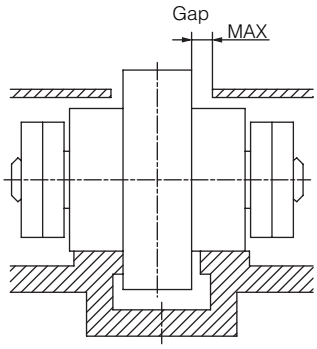
Double-Plus Chain with Snap Cover

1. Prevention of parts falling within the frame

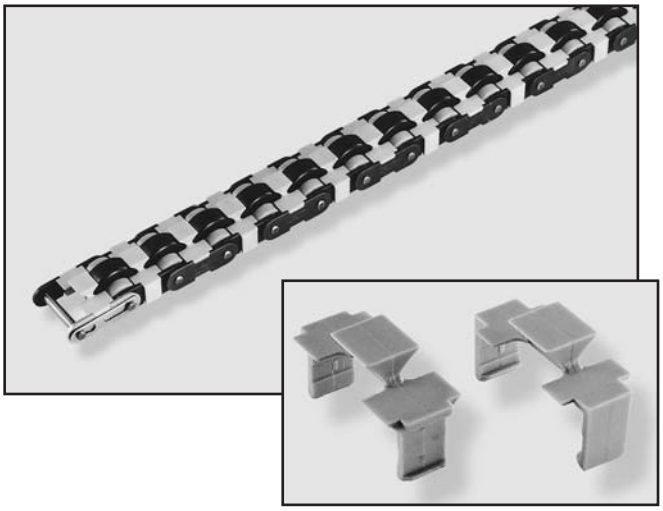
The Snap Cover prevents bolts, screws and other materials from falling or becoming wedged between the rollers. The Snap Cover is light gray and made from Engineering plastic.

2. Spaces between the Frame and the Snap Cover.

As spaces between the Frame and the Large Roller (Snap Cover) are narrow, parts cannot fall in. However please check using the actual chain.

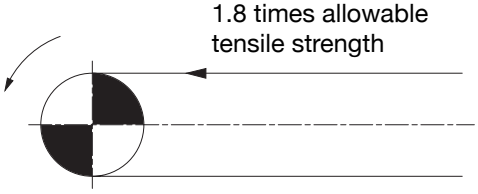


Size	Max. Gap (inches)
C2030VRP-SC	0.06
C2040VRP-SC	0.087
C2050VRP-SC	0.098
C2060HVRP-SC	0.138
C2080HVRP-SC	0.185



3. Conveying ability

Conveying ability and durability of Double-Plus Chain does not change with the installation of the Snap Cover.



Double-Plus Chain with Steel Rollers

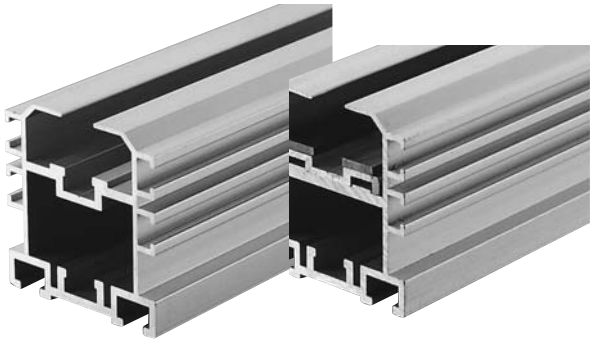
(1) Compared to Engineering Plastic Chain, heavy load conveying is possible.
(2) Maximum operating temperature is 150°C (302°F). Please use a lubricant suitable for the operating temperature.
(3) Compared to chain with steel side rollers or Top rollers, operating noise is 10Db less. This is because chain speed becomes 1/2.5 of the conveying speed.

Double Plus Free Flow Chain

Aluminum Frame

(1) Aluminum Frame is for Chain with Engineering Plastic Rollers.
(2) Aluminum Frame with Steel Rail
The small roller on the aluminum frame conveying side runs on the steel rail (refer to the dimension diagram).
- Double-Plus Chain with Engineering Plastic Roller
- Double-Plus Chain with Steel Roller
- Center Roller Chain

(3) Specialized Aluminum Drive section and Driven Section Frames
To receive the chain return part, the frame has been cut.
Standard length: 3.28 ft. (All sizes)



Aluminum Frame

Aluminum Frame with Steel Rail

Pallet Guide Rail

(1) The rail attached to the side of the Aluminum frame that guides the pallet
(2) Rails for use with the Drive section, Middle section and Driven section are available.

Plastic Rail

(1) So the pallet slides smoothly, attach the plastic rail to the pallet guide rail.
(2) Rails for use with the Drive section, Middle section and Driven section are available.

Return Guide

(1) Attached to either end of the frame it guides the returning Double-Plus Chain.

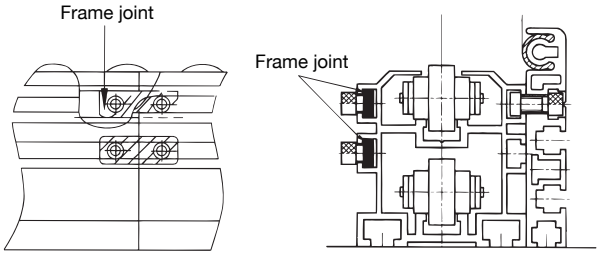
Bracket

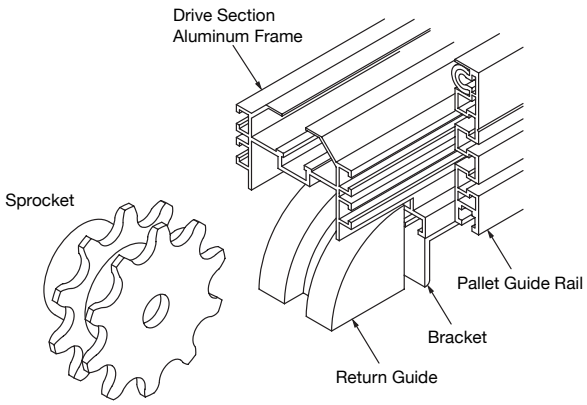
(1) Used to attach the return guide.

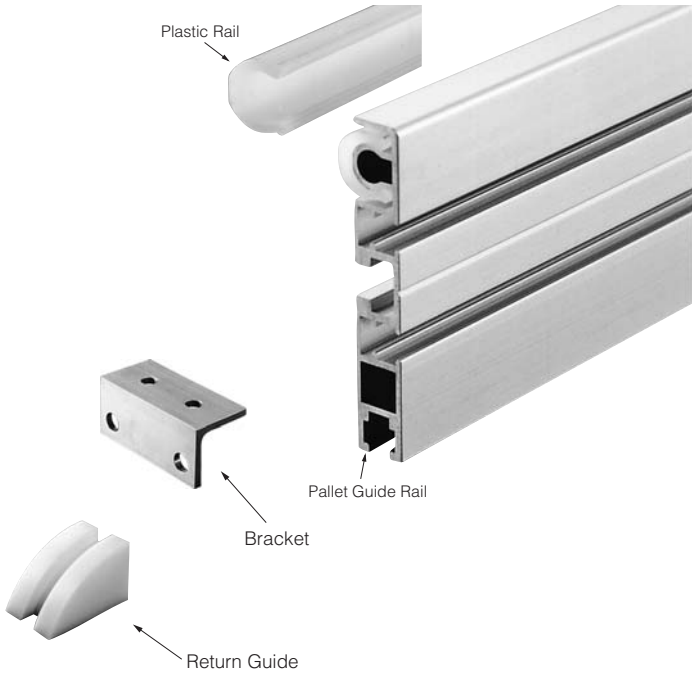
Frame Joint

(1) Nut-like joint part that connects frame sections.

Aluminum Frame for use with Drive section and Driven Section







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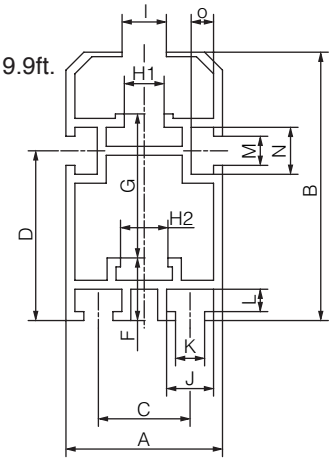
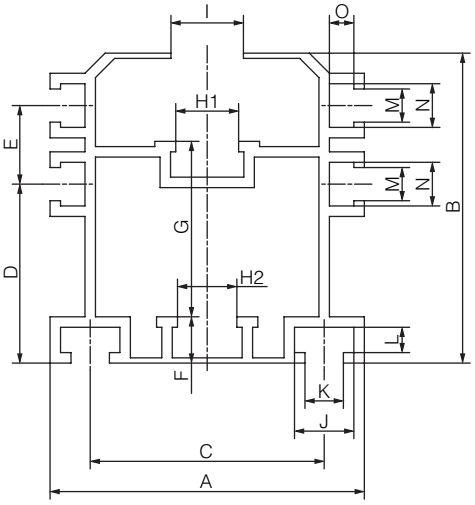
Middle Section Frame Specification

Aluminum Frame
Material: Aluminum

Model
C2030VRP-R3L
Standard Length: 9.9ft.

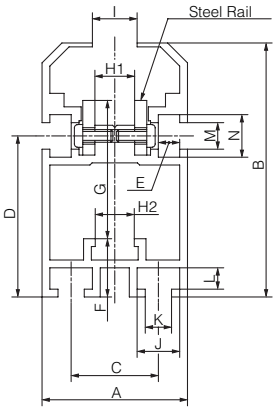


Model
C2040 · C2050 · C2060HVRP-R4L
Standard Length: 13.1ft.

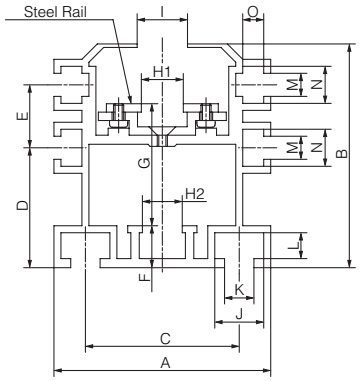


Aluminum Frame with Steel Rail
Material: Aluminum - Steel Rail = Stainless Steel Type 400

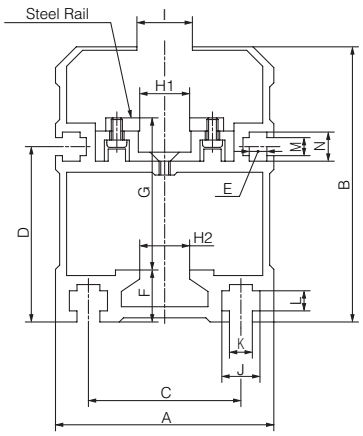
Model
C2030VRP-R3LS
Standard Length:
9.9ft.



Model
C2040 · C2050 ·
C2060VHRP-R4LS
Standard Length: 13.1ft.



Model
C2080HVRP-R3LS
Standard Length: 9.9ft.



For the attachment position of the Steel Rail refer to the Selection Guide.

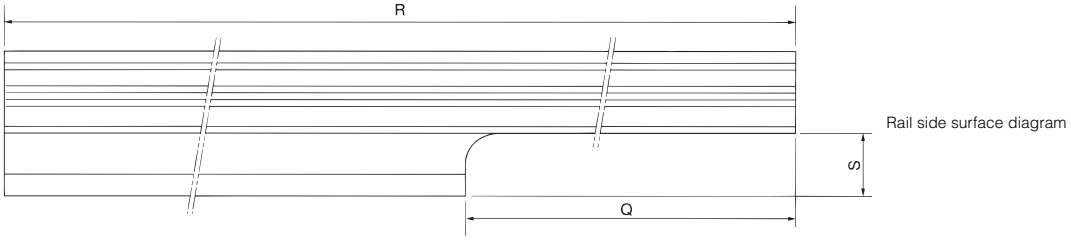
All dimensions in inches unless otherwise stated.

Aluminum Frame Model																		Approx. Weight lbs/ft.	
Aluminum Frame	With Steel Rail	A	B	C	D	E	F	G	H1	H2	I	J	K	L	M	N	O	Alu. Frame	With Steel Rail
C2030VRP-R3L	C2030VRP-R3LS	1.38	2.36	0.81	1.49	0.20	0.55	1.27	0.35	0.37	0.39	0.41	0.26	0.20	0.26	0.41	0.20	0.94	1.47
C2040VRP-R4L	C2040VRP-R4LS	2.48	2.60	1.75	1.39	0.73	0.51	1.37	0.45	0.47	0.53	0.53	0.33	0.30	0.26	0.41	0.20	1.74	2.48
C2050VRP-R4L	C2050VRP-R4LS	3.07	3.15	2.19	1.64	0.91	0.59	1.69	0.56	0.59	0.69	0.69	0.41	0.35	0.33	0.53	0.30	2.41	3.35
C2060HVRP-R4L	C2060HVRP-R4LS	3.74	3.58	2.85	2.02	0.93	0.59	1.99	0.68	0.71	0.69	0.69	0.41	0.35	0.33	0.53	0.30	2.81	3.95
not available	C2080HVRP-R3LS	3.94	4.92	2.76	3.15	0.30	0.94	2.68	0.91	0.91	0.98	0.69	0.41	0.35	0.33	0.53	-	na	6.63

Double Plus Free Flow Chain

Drive Section Frame and Driven Section Frame Specification

- Section shape, materials and dimensions are the same as the Middle Section Frame.
- For Drive section and Driven Section the “Q” dimension is different.
- For the attachment position of the Steel Rail refer to the conveyor set-up and maintenance section.



All dimensions in inches unless otherwise stated.

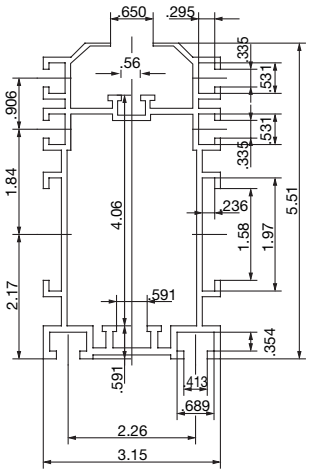
Drive Section Frame and Driven Section Frame Model				Q (inches)		Standard Length R (ft.)	S (in.)	Approx. Weight lbs./ft.	
Aluminum Frame									
Drive Section	Driven Section	Drive Section	Driven Section	Drive Section	Driven Section			Aluminum Frame	With Steel Rail
C2030VRP-R1LK	C2030VRP-R1LJ	C2030VRP-R1LSK		8.27	3.15	3.3	0.98	0.9	1.4
C2040VRP-R1LK	C2040VRP-R1LJ	C2040VRP-R1LSK	C2040VRP-R1LSJ	11.81	3.94	3.3	0.98	1.6	2.3
C2050VRP-R1LK	C2050VRP-R1LJ	C2050VRP-R1LSK	C2050VRP-R1LSJ	13.39	4.72	3.3	1.18	2.3	3.2
C2060HVRP-R1LK	C2060HVRP-R1LJ	C2060HVRP-R1LSK	C2060VRP-R1LSJ	16.93	5.12	3.3	1.57	2.7	3.8
-	-	C2080HVRP-R1LSK	C2080VRP-R1LSJ	21.65	7.87	3.3	2.36	-	6.4

Other Aluminum Frames (For Middle Section) Specification

Aluminum Frame

C2050VRP-R3H

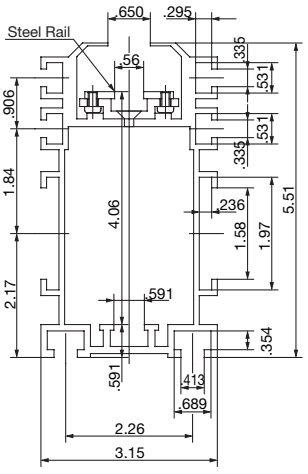
Material: Aluminum
Standard Length: 9.9 ft.
Approx. Wt: 3.35 lbs/ft.
All dimensions in inches unless otherwise stated.



Aluminum Frame with Steel Rail

C2050VRP-R3HS

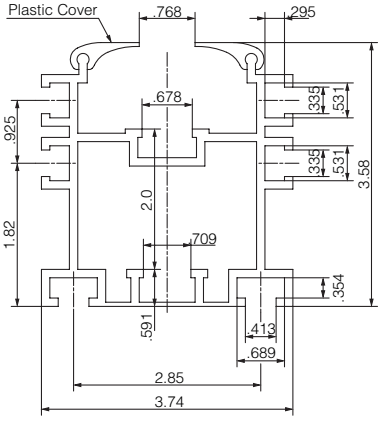
Material: Main Body = Aluminum
Steel Rail = SS400
Standard Length: 9.9 ft.
Approx. Wt: 4.22 lbs/ft.
All dimensions in inches unless otherwise stated.



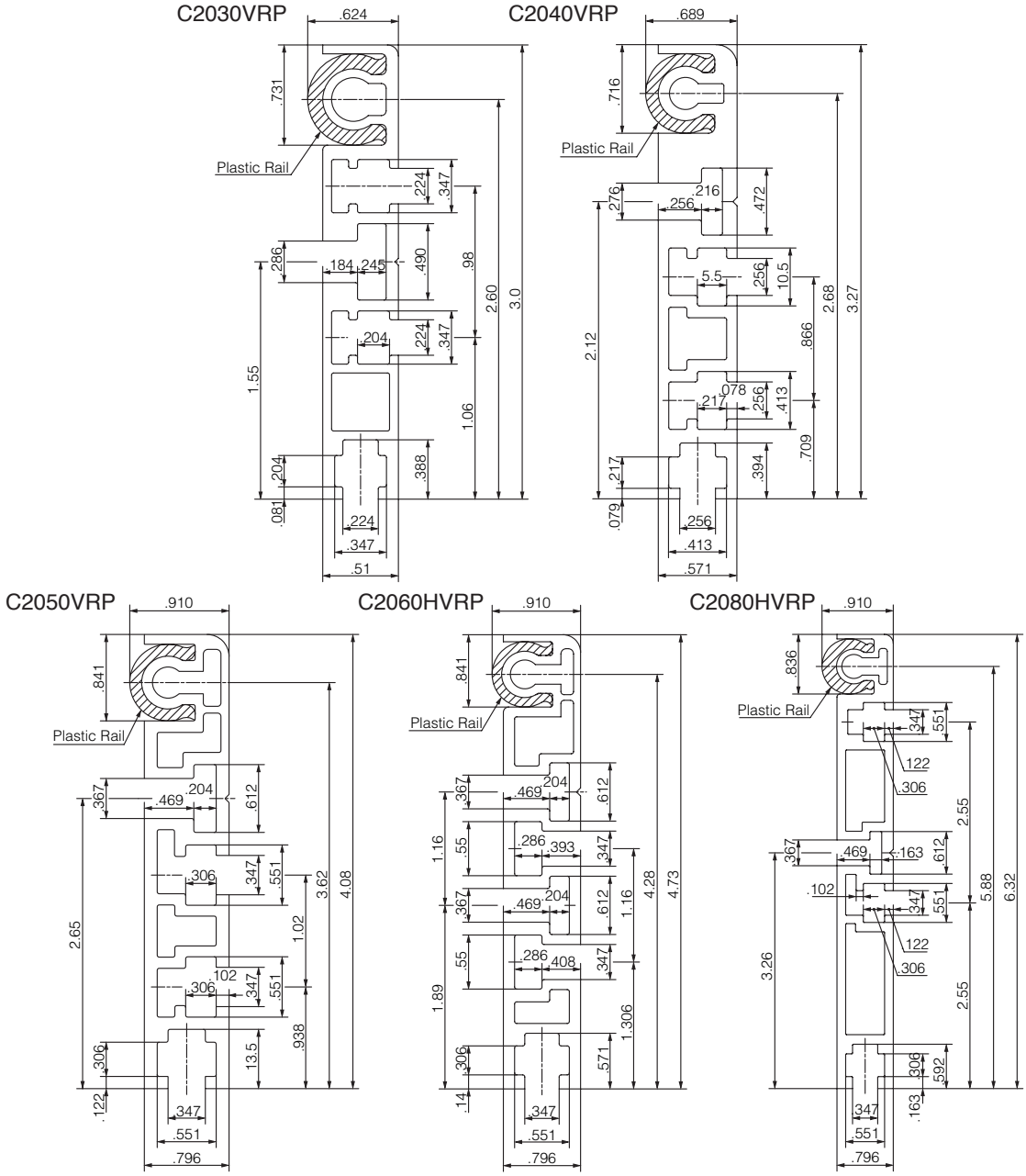
Aluminum Frame with Plastic Cover

C2060HVRP-R4K

Material: Main Body = Aluminum
Standard Length: 13.2 ft.
Approx. Wt: 2.68 lbs/ft.
All dimensions in inches unless otherwise stated.



Pallet Guide Rail (PGR) and Plastic Rail Specifications



Pallet Guide Rail Model		Standard Length (ft.)		Weight (lbs/ft).	Material
Middle Section	Drive and Driven Section	Middle Section	Drive and Driven Section		
C2030VRP-PGR	C2030VRP-PGR-IL	9.9	3.3	.6	Aluminum
C2040VRP-PGR	C2040VRP-PGR-IL	13.2	3.3	1.0	
C2050VRP-PGR	C2050VRP-PGR-IL	13.2	3.3	1.5	
C2060HVRP-PGR	C2060HVRP-PGR-IL	13.2	3.3	1.7	
C2080HVRP-PGR	C2080HVRP-PGR-IL	9.9	3.3	2.3	

Plastic Rail Model		Standard Length (ft.)		Material
Middle Section	Drive and Driven Section	Middle Section	Drive and Driven Section	
C2030VRP-Plastic Rail	C2030VRP-Plastic Rail-IL	9.9	3.3	Ultra High Molecular Polyethylene
C2040VRP-Plastic Rail	C2040VRP-Plastic Rail-IL	13.2	3.3	
C2050VRP-Plastic Rail	C2050VRP-Plastic Rail-IL	13.2	3.3	
C2060HVRP-Plastic Rail	C2060HVRP-Plastic Rail-IL	13.2	3.3	
C2080HVRP-Plastic Rail	C2080HVRP-Plastic Rail-IL	13.2	3.3	

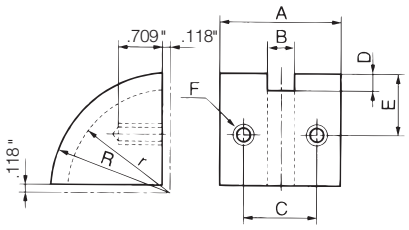
Double Plus Free Flow Chain

Return Guide Specification

Double-Plus Chain

(The return guide models listed in the chart below can be used with standard Double-Plus Chain. In addition the return guide model numbers C2030VRP-RG and C2040VRP-RG can also be used with Double-Plus Chain with Snap Cover. For additional return guide models for use with Double-Plus Chain with Snap Cover, refer to the diagram and chart to the right).

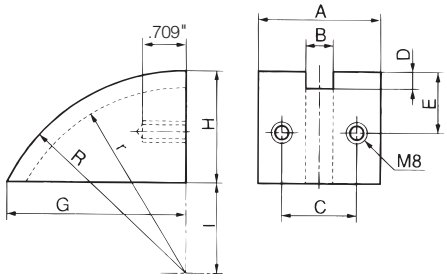
* Can also be used for Center Roller Chain



All dimensions in inches unless otherwise stated.

Return Guide Model	A	B	C	D	E	F	r	R	Applicable chain
C2030VRP-RG	1.34	0.35	0.87	0.24	1.22	M6	2.13	2.36	Double-Plus Chain and
C2040VRP-RG	1.97	0.47	1.18	0.31	1.18	M8	2.05	2.36	Double-Plus Chain with Snap Cover
C2050VRP-RG	2.20	0.59	1.38	0.39	1.26	M8	1.97	2.36	Double-Plus Chain
C2060HVRP-RG	2.36	0.71	1.54	0.49	1.26	M8	1.87	2.36	Double-Plus Chain
C2080HVRP-RG	2.76	0.91	1.77	0.59	1.61	M8	2.56	3.15	Double-Plus Chain

Double-Plus Chain with Snap Cover

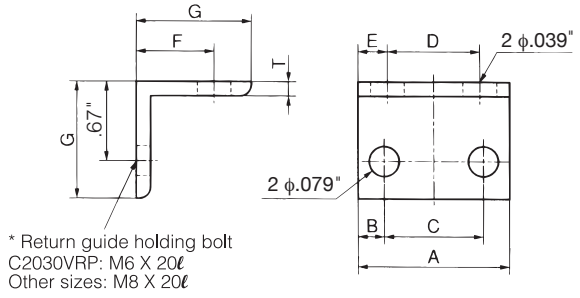


All dimensions in inches unless otherwise stated.

Return Guide Model	A	B	C	D	E	G	H	I	r	R
C2050VRP-RG-SC	2.2	0.6	1.4	0.4	1.3	3.6	2.2	1.7	3.5	3.9
C2060HVRP-RG-SC	2.4	0.7	1.5	0.5	1.3	3.6	2.2	1.7	3.4	3.9
C2080HVRP-RG-SC	2.8	0.9	1.8	0.6	1.6	5.5	3.0	3.5	5.9	6.5

1) C2030, C2040 can be used with Double-Plus Chain's return guide.
2) Materials: Ultra high molecular polyethylene

Bracket

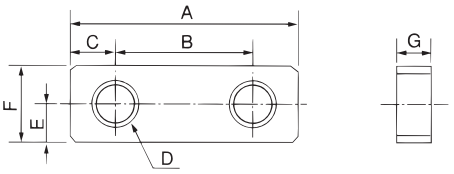


All dimensions in inches unless otherwise stated.

Return guide model	A	B	C	D	E	F	G	R	O1	O2
C2030VRP-GB	1.34	0.24	0.87	0.81	0.26	0.71	0.98	0.12	0.26	0.33
C2040VRP-GB	2.36	0.59	1.18	1.75	0.30	0.79	1.18	0.12	0.33	0.33
C2050VRP-GB	2.99	0.81	1.38	2.19	0.40	0.94	1.38	0.16	0.41	0.33
C2060HVRP-GB	3.70	1.08	1.54	2.85	0.42	0.94	1.38	0.16	0.41	0.33
C2080HVRP-GB	3.94	1.08	1.77	2.76	0.59	0.94	1.38	0.16	0.41	0.33

* note that the holding bolt is not attached.
Material: Aluminum

Frame joint



All dimensions in inches unless otherwise stated.

Frame joint model	A	B	C	D	E	F	G
C2030VRP-FJ	1.57	0.94	0.31	M6	0.20	0.39	0.20
C2040VRP-FJ	1.57	0.94	0.31	M6	0.20	0.39	0.20
C2050VRP-FJ	1.57	0.94	0.31	M8	0.26	0.51	0.24
C2060HVRP-FJ	1.57	0.94	0.31	M8	0.26	0.51	0.24
C2080HVRP-FJ	1.57	0.94	0.31	M8	0.26	0.51	0.24

Material: Stainless steel

Double Plus Free Flow Chain

TSUBAKI

Selection Procedure

1. Check conveying conditions

(1) Type of products conveying, mass, dimensions and amount (including pallet)
(2) Conveyor speed
(3) Conveyor length (Accumulator section and Conveying section length)
(4) Operating environment

2. Chain type selection

Taking into consideration the operating conditions and environment, decide the chain and roller specifications. (Except for the large size series)

Chain

Chain Specification	Operating Environment
Standard	General use
Lubrication-free	Do not want to or cannot lubricate
Hard Cr. plating	For clean rooms and anti-rust use
Stainless Steel	Non-magnetic properties are necessary

Roller

Roller Specification	Features
A: Standard	High allowable tensile strength
UA: Direct conveying/Standard	Direct conveying is possible and high allowable tensile strength
B: High friction	Fast and Low noise
UB: Direct conveying/High friction	Direct conveying is possible, fast and low noise
C: Conductive	Anti-static and High allowable tensile strength
D: Conductive/High friction	Anti-static, fast and low noise
CR: Center Roller	When chain and conveying products are of equal speed, more stable than Top Roller
Steel	High load and heat resistant

* For UA, UB only 2030VRP

3. Chain and Rail Selection

A. Using Chart 1 (next page), calculate the conveyed product's mass per meter of conveyor and select a temporary chain size and frame specification.

$$\omega = \frac{W}{\ell}$$

ω: Converted weight (lbs/ft.) per foot of the conveyed product
W: Conveyed product's weight per pallet (Incl. pallet)
ℓ : Length of pallet ft.(Conveying direction)

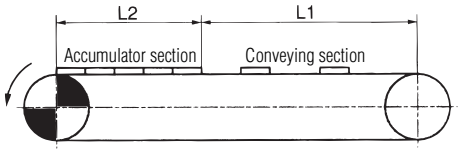
Ex.) Conveyed product's weight: 77 lbs.
Weight/Pallet: 22 lbs.
Pallet length (Conveying direction): 1.65 ft.

$$\omega = \frac{(77+22)}{1.65} = 60 \text{ lbs/ft.}$$

For aluminum frame: C2060HVRP
For frame with steel rail: C2040VRP - C2080HVRP,
as a temporary selection.

B. Confirm chain load
T = WT x f x K

T: Actual Max. load (lbs.) on chain
WT: Total Wt. of conveyed products excluding chain
f: Coefficient of friction f=f2 +f3 (Chart 2, Chart 5)
K: Chain speed coefficient (Chart 3)
T/2≦Max. Allowable load (Chart 4). Select the chain size that satisfies this formula.



Calcualtion

$$T=(\omega_1+m)L_1 \cdot f_1+\omega_2 \cdot L_2 \cdot f_2+(\omega_2+m)\,[L_2 \cdot f_3+1.1m(L_1+L_2)f_1]$$

Required Power calculation

$$HP=\frac{T \cdot V \cdot 1.1}{33000\eta}$$

4. Calculation for final confirmation

Calculation for Actual load on chain (T)

T: Actual Max. load on chain (lbs.)
L_1: Length of conveying section (ft.)
ω_1: Weight of conveying section's conveyed products (lbs./ft.)
L_2: Accumulator section length (ft.)
ω_2: Weight of Accumulator section's conveyed products (lbs./ft.)
f_1: Coefficient of friction of Conveying section's chain and rail
f_2: Coefficient of friction of Accumulator section's chain and conveyed products
f_3: Coefficient of friction of Accumulator section's chain and rail
m: Chain mass (lbs./ft.)
HP: Required power (HP)
V: Chain speed (ft./min)
η: Transmission efficiency of Drive section

Chain load (T) can be obtained using the above formulae and the values for f1, f2 and f3 from charts 2 and 5 (next page).
Free Flow conveyors generally use two strands of chain. In this case the chain weight will be that of two chains; and the value for T will be the Actual Max. load on 2 chains.

5. Chain size selection

Multiply Actual Max. load on chain (T) by the Coefficient of speed (K) (Chart 3). Select the chain that satisfies the formulae below. (Refer to Chart 4).

$$\frac{T \cdot K}{2} \leqq \text{Max. Allowable load for 1 strand of chain}$$

Chart 1. Allowable conveying weight. The chart below shows the Allowable conveying weight for 2 strands of chain.

Unit: lbs/ft.

Chain size	Aluminum frame	Frame with steel rail
C2030VRP	27 (13)	54 (13)
C2040VRP	40	80
C2050VRP	54	107
C2060HVRP	67	134
C2080HVRP	—	201

Figure in ( ) is the Allowable value for Urethane Rollers.

Unit: lbs/ft.

Chain size	Frame with steel rail
C2030VR	107
C2040VR, C2040CR	161
C2050VR, C2050CR	214
C2060HVR, C2060HCR	268

Chart 2. Coefficient of friction for Plastic Roller (Max.)

Coefficient of friction \ Roller specification	A · C · UA	B · D · UB
f_1 { Coefficient of friction for Conveying part's chain rail }	0.08	0.08
f_2 { Coefficient of friction for Accumulator's chain and conveyed product }	0.1	0.15
f_3 { Coefficient of friction for Accumulator's chain and rail }	0.2	0.25

* For selection use the maximum value is applied.

Chart 3. Coefficient of speed

Chain speed (ft/min.)	Coefficient of speed (K)
Less than 48	1.0
48 ~ 96	1.2

Chart 4. Max. Allowable load of Chain

Unit: lbs.

Size \ Chain Specification \ Roller Specification		A · C (UA)	B · D (UB)
C2030VRP	Standard	125	60
	Hard Cr. Plating		
	Lubrication-free		
	Stainless steel	60	
C2040VRP	Standard	200	100
	Hard Cr. Plating		
	Lubrication-free		
	Stainless steel	100	
C2050VRP	Standard	310	155
	Hard Cr. Plating		
	Lubrication-free		
	Stainless steel	155	
C2060HVRP	Standard	460	230
	Hard Cr. Plating		
	Lubrication-free		
	Stainless steel	230	
C2080HVRP	Standard	1190	595
	Hard Cr. Plating		
	Lubrication-free		
	Stainless steel	595	

Size \ Chain Specification \ Roller Specification		Steel (Double-plus Chain)	Center Roller (Single-plus chain)
C2030VR	Standard	220	—
C2040VR-CR	Standard	350	350
C2050VR-CR	Standard	550	550
C2060HVR-CR	Standard	835	835

Chart 5. Coefficient of friction for Large Size Series Steel Roller

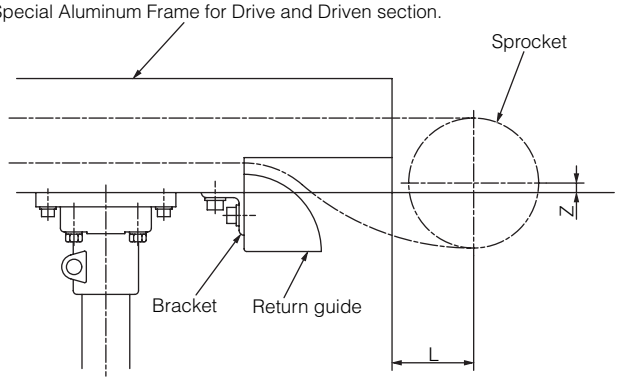
Coefficient of friction	Steel Roller		Large Size Series		Center Roller	
	Non-lubricated	Lubricated	Non-lubricated	Lubricated	Non-lubricated	Lubricated
f_1 { Coefficient of friction for Conveying part's chain and rail }	(0.05)	0.05	(0.05)	0.05	(0.12)	0.08
f_2 { Coefficient of friction for Accumulator's chain and conveyed product }	(0.15)	0.1	(0.15)	0.1	(0.09)	0.06
f_3 { Coefficient of friction for Accumulator's chain and rail }	(0.25)	0.1	(0.15)	0.1	(0.12)	0.08

NOTE: The coefficient of friction figure for Non-lubricated is a reference value. Lubrication is recommended for the Steel Roller and Large size series.

Conveyor Design

1. Conveyor ends and correct sprocket position

Special Aluminum Frame for Drive and Driven section.



All dimensions in inches unless otherwise stated.

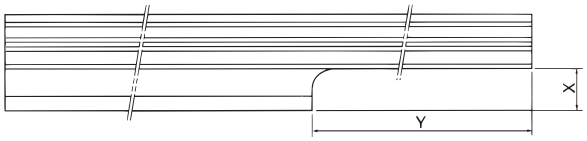
Chain No.	C2030VRP	C2040VRP	C2050VRP
Rail No.	C2030VRP-R3L C2030VRP-R3LS	C2040VRP-R4L C2040VRP-R4LS	C2050VRP-R4L C2050VRP-R4LS
Z	0.87	0.6	0.66
L	1.63	2.04	2.45

All dimensions in inches unless otherwise stated.

Chain No.	C2050VRP	C2060VRP	C2080VRP
Rail No.	C2050VRP-R3H C2050VRP-R3HS	C2060VRP-R4K C2060VRP-R4L C2060VRP-R4LS	C2080VRP-R3LS
Z	3.11	0.61	0.98
L	2.45	2.86	4.08

2. Aluminum frame operation dimensions

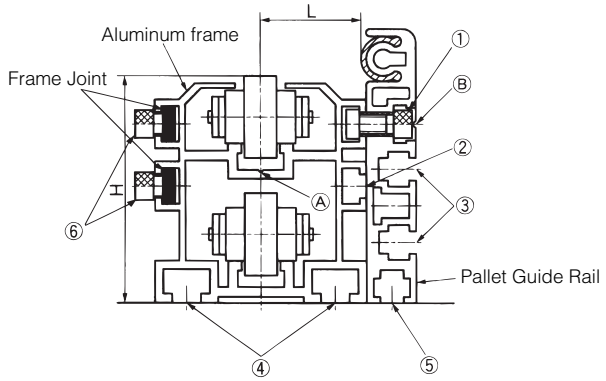
The rail shown below has no Aluminum frame for the Drive or Driven parts. Use the following dimensions as a reference and additionally process a Middle Section frame.



All dimensions in inches unless otherwise stated.

Chain No.	C2050VRP	C2060VRP
Rail No.	C2050VRP-R3H C2050VRP-R3HS	C2060VRP-R4K
X (Drive side)	13.88	17.55
X (Driven)	4.90	5.31
Y	1.22	1.63

3. Fastening bolt and conveyor height



All dimensions in inches unless otherwise stated.

Frame \ Item	①	②	③	④	⑤	⑥	H	L
C2030VRP-R3L C2030VRP-R3LS	M6 x 10ℓ	M6	M5	M6	M5	M6 x 8ℓ	2.51	0.59
C2040VRP-R4L C2040VRP-R4LS	M6 x 12ℓ	M6	M6	M8	M6	M6 x 8ℓ	2.78	11.63
C2050VRP-R4L C2050VRP-R4LS	M8 x 20ℓ	M8	M8	M10	M8	M8 x 10ℓ	3.37	1.47
C2050VRP-R3H C2050VRP-R3HS	M8 x 20ℓ	M8	M8	M10	M8	M8 x 10ℓ	5.82	1.51
C2060HVRP-R4K C2060HVRP-R4L C2060HVRP-R4LS	M8 x 20ℓ	M8	M8	M10	M8	M8 x 10ℓ	3.76	1.82
C2080HVRP-R3LS	M8 x 25ℓ	M8	M8	M10	M8	M8 x 12ℓ	5.31	1.92

(1) Positioning between Aluminum frames

Referring to the above diagram, using the V-notch, Ⓐ, as a guide, position the frame. Using bolts fix the frame at ④ .

(2) Aluminum frame connection

After positioning, connect the frames using the frame joint; this is firmly reinforced.
* The frame joint is not to be used for positioning between the frames.

(3) Attachment of Pallet Guide Rail

Referring to the above diagram, at the V-notch, Ⓑ, make the required size hole and using a hexagonal bolt attach the Pallet Guide Rail.

Conveyor Design

4. Nominal spacing of conveyor supports

Proper operation of DOUBLE PLUS Chain is maintained by controlling the amount of deflection or bend of the aluminum guide rail. This deflection is determined from the weight of the conveyed goods and the geometrical moment of inertia. To control deflection, supports should be spaced as shown in the diagram below in accordance with the following equation:

Type	Rail Model Number	Geometrical Moment of Inertia (I) (in.^{4})
Aluminum Frame	C2030VRP-R3L	0.41148
	C2040VRP-R4L	0.96545
	C2050VRP-R4L	2.01905
	C2050VRP-R3H	9.80904
	C2060HVRP-R4L	3.24668
	C2060HVRP-R4K	2.60692
Aluminum Frame with Steel Rail	C2030VRP-R3LS	0.42815
	C2040VRP-R4LS	1.06460
	C2050VRP-R4LS	2.29735
	C2050VRP-R3HS	10.62133
	C2060HVRP-R4LS	4.12657
	C2080HVRP-R3LS	8.66648

Determining support spacing:

$$\ell = \left[\frac{384 \times E \times I \times \delta \times 12}{5 \times 0.6 \times W}\right]^{1/4} \text{(inches)}$$

Where:

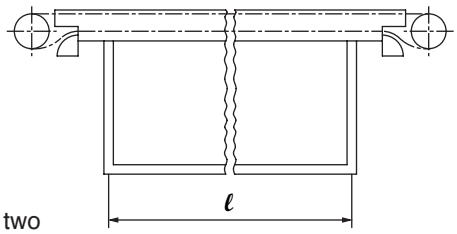
E = Young's Modulus = 9.956 x 106 lbs./in.

I = Geometrical moment of inertia = in.^{4}

(refer to chart above)

δ = Bend/deflection = 0.079 in.

W = Total conveyed weight = lbs./ft.

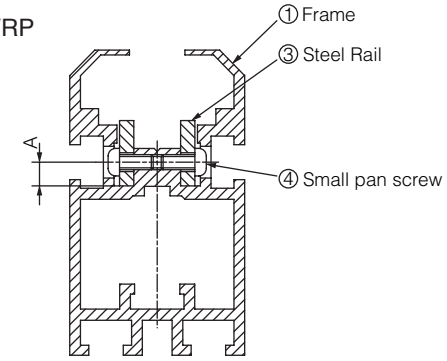


Note: The total conveyed weight (W) is not always distributed evenly between the two conveyor strands. This is taken into account in the above equation with the factor 0.6.

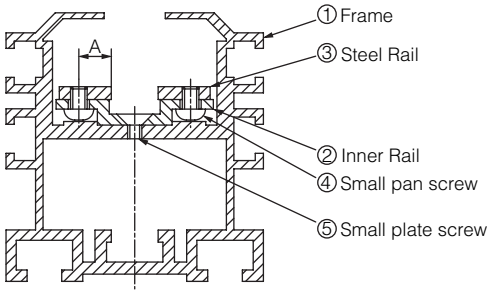
5. Aluminum frame with Steel Rail

(1) Cross section structure

C2030VRP



C2040VRP - C2080VRP



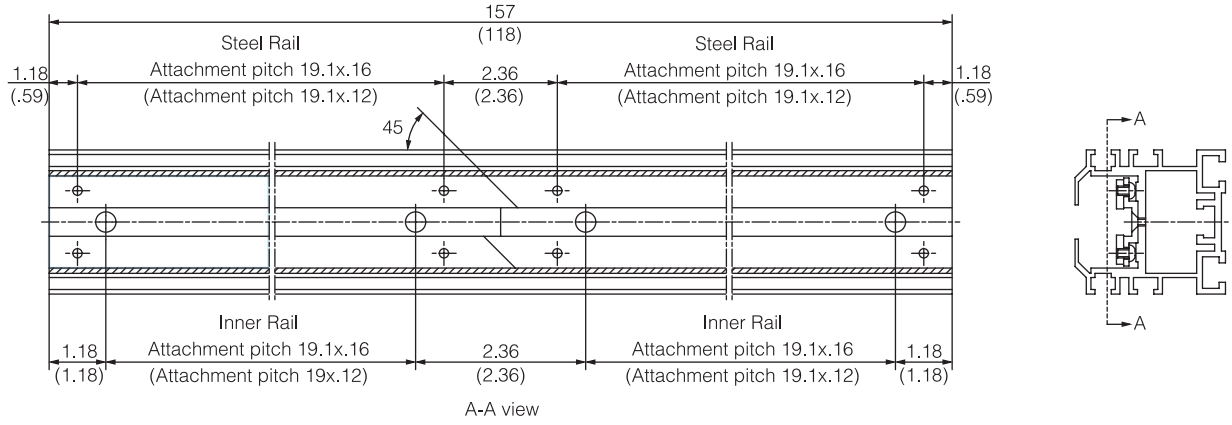
All dimensions in inches unless otherwise stated.

Frame Model		Steel Rail ③		Steel Rail screw ④ Phillips head Small pan screw (mm)	Inner Rail screw ⑤ Phillips head Small plate screw (mm)
Middle section	Drive and Driven section	Dimensions (Plate Thickness x Width)	A Dimension		
C2030VRP-R3LS	C2030VRP-R1LSK, -R1LSJ	.122 x .53	.194	M3 x 7ℓ	—
C2040VRP-R4LS	C2040VRP-R1LSK, -R1LSJ	.122 x .53	.343	M4 x 5ℓ	M4 x 6ℓ
C2050VRP-R4LS	C2050VRP-R1LSK, -R1LSJ	.122 x .53	.343	M4 x 6ℓ	M4 x 6ℓ
C2050VRP-R3HS	—	.122 x .53	.343	M4 x 6ℓ	M4 x 6ℓ
C2060HVRP-R4LS	C2060HVRP-R1LSK, -R1LSJ	.122 x .53	.343	M4 x 6ℓ	M4 x 6ℓ
C2080HVRP-R3LS	C2080HVRP-R1LSK, -R1LSJ	.245 x .653	.430	M5 x 8ℓ	M6 x 10ℓ

Conveyor Design

(2) Middle section frame construction diagram

All dimensions in inches unless otherwise stated.

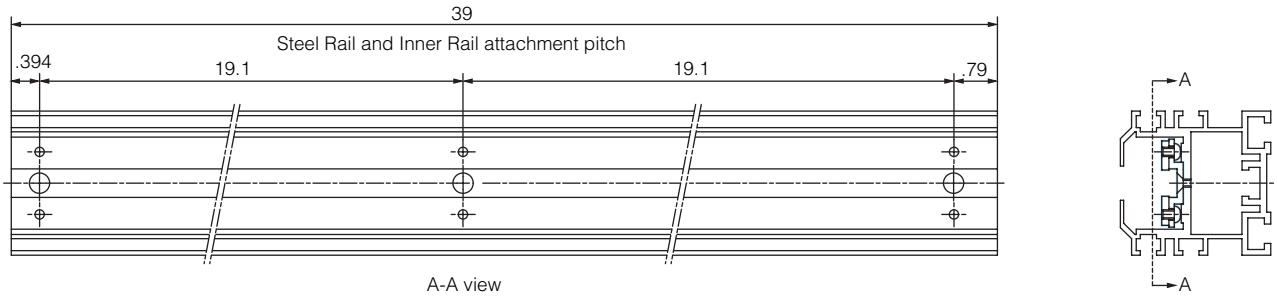


A-A view

- C2040VRP-R4LS, C2050VRP-R4LS, C2060HVRP-R4LS ··· Overall length 157”
- C2030VRP-R3LS, C2050VRP-R3HS, C2080HVRP-R3LS ··· Dimensions in ( ) are for overall length of 118”
- The Steel Rail has a 45° cut in the center of the rail.

(3) Drive and Driven section frame construction diagram

All dimensions in inches unless otherwise stated.



A-A view

- There are no Drive section or Driven section frames for C2050VRP-R3HS
- The lower right hand side section of the above diagram has been notched.

(4) Handling points of Aluminum Frame with Steel Rail

- When cutting the Aluminum Frame with Steel Rail:
  (1) Do not cut the middle section or the screw section of the frame.
  (2) File down any abrasive areas on the cut surface
  (3) Between .59” - 1.18” from the cut surface, the Steel Rail and the Inner Rail, as well as the Inner rail and the Frame should be anchored with a screw.
  (4) All parts are to be additionally processed individually. Parts should be checked for abrasive surfaces and aluminum filings and if necessary filed down or removed, then reassembled. Make sure that there is no mis-fitting of parts cut to a 45°.
- Connecting the frame:
  After connecting the frame, any connecting areas of the Steel Rail that do not fit correctly, vertically or horizontally, should be chamfered to fit correctly and prevent interference with the chain’s roller.

Double Plus Free Flow Chain

Conveyor Set-Up and Maintenance

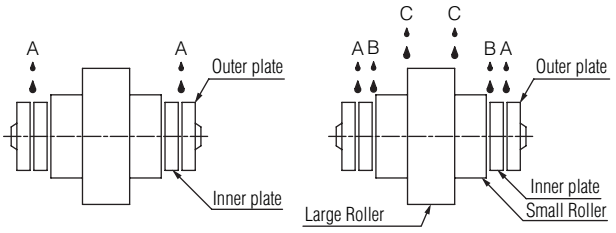
1. Similarities of Double-Plus Chain and Double-Plus Chain with Snap Cover.

(1) Recommended conveyor line length of 50 ft. or less

(2) Do not use Engineering Plastic Rollers in conditions where they may come into contact with oil or water. (The Double-Plus function may lessen.)

(3) Avoid applications where pallets or conveyed products may fall onto the chain and where shocks or pressure on the chain may occur.

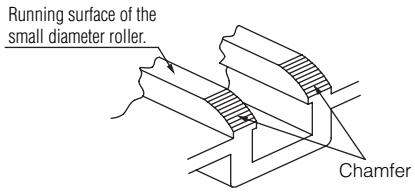
(4) After long time use, if noises from the sprocket occur, apply a small amount of oil, SAE 10 - 20, between the outer and inner plates onto the pin. (See diagram below). (For the large size series use SAE 30 - 40). Remove any oil from the plastic rollers.



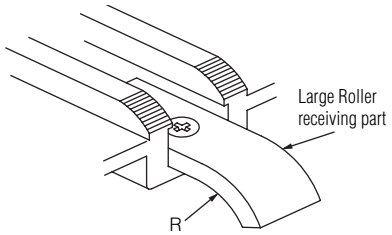
Plastic roller lubrication **Steel Roller lubrication**

(5) The Steel roller requires lubrication. In the above diagram, please lubricate areas A, B, C with SAE10 - 20. Use a needle pipe nozzle to apply the lubricant. Please remove any lubricant from the outer surfaces of the large and small rollers.

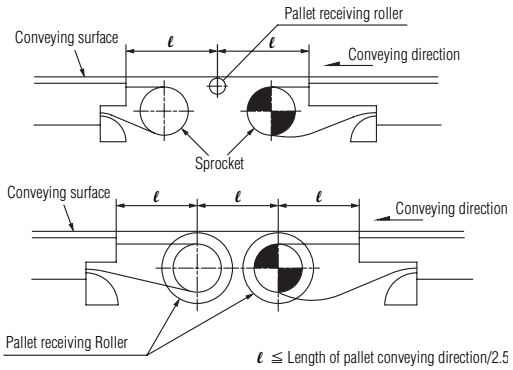
(6) Processing the upper surface of the ends of the conveying side frame Please chamfer the running surface of the small roller.



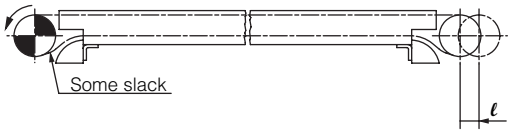
(7) Large roller receiving part
Fitting the large roller receiving part to the end of the driven section will prevent drop off of the chain (Large Roller) at the chamfered area.



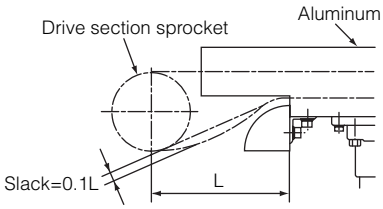
(8) Handling of area between conveyors (Straight line transfer) At the conveyor transfer part, so as to provide stable conveying for the pallet, please fit a Free roller or a Motor roller for the pallet receiving roller.



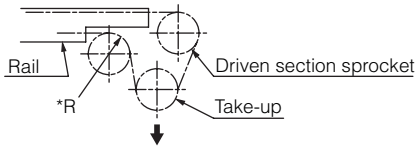
(9) Take-up (1)



Please allow for some chain slack under the drive section sprocket (Slack is 10% of the span). Take up amount: ℓ = Chain pitch x 2 + Actual length with clearance. If the amount of slack increases either adjust the take-up or cut the chain.



(10) Take-up (2)
If take-up cannot be performed at each end of the conveyor as in the above diagram, please refer to the diagram below. However, for Double Plus Chain with Snap Cover, the dimension *R, must be larger than the R dimension for the return guide rail (Refer to dimension diagram).



(11) Sprocket and Shaft
Drive sprockets should be keyed, with both left and right sprockets aligned. Take-up sprockets should be keyless (Free), with separate shafts on the left and right sprockets. Other sprockets should not be keyed.

Conveyor Set-Up and Maintenance

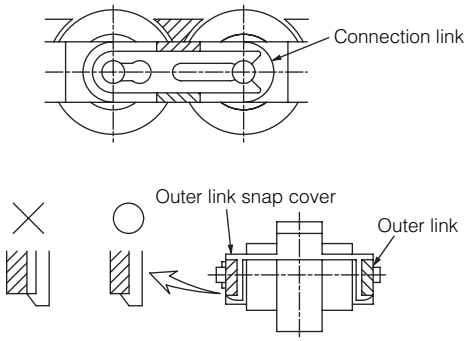
2. Double-Plus Chain with Snap cover.

(1) As the snap cover is made of Engineering Plastic, please handle it with care.

(2) As there are snap covers for outer link and Inner link use, ensure that the appropriate one is attached. (Refer to below diagram)
(Chain is shipped with snap cover attached)

Outer link snap cover Inner link snap cover

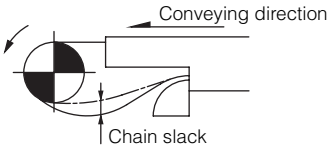
(3) After attaching the special connection link, correctly attach the outer link snap cover at the cut section of the plate. (Refer to below diagram)



(4) If the snap cover is broken during attachment please replace with a new snap cover.

(5) Please ensure a sprocket specified for Double Plus Chain with Snap Cover is used.

(6) The sprocket for use with a snap cover has a smaller outer diameter than the sprocket for use with no snap cover. Therefore, if the slack becomes larger it will be easier for the chain to come off the sprocket. Please ensure that take-up is adjusted so as not to surpass maximum slack.



Chain slack

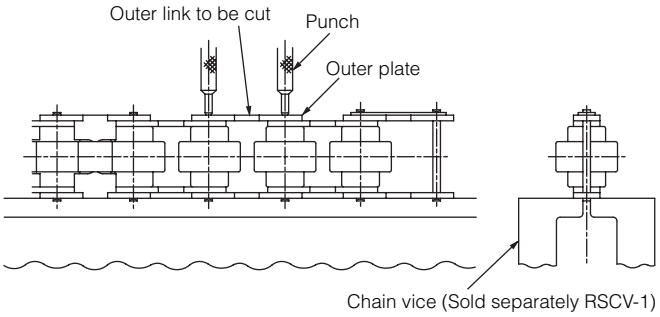
Chain size	Standard slack (in.)	Maximum slack (in.)
C2030	1.00	2.95
C2040	1.38	4.13
C2050	1.57	4.72
C2060H	1.97	5.91
C2080H	2.56	7.48

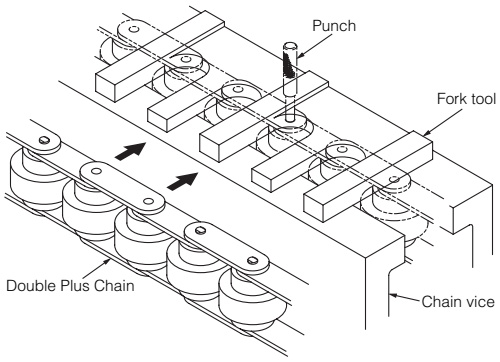
Based on previously described conveyor design data.

Double Plus Free Flow Chain

Double Plus chain cutting and connecting methods

1. Cutting method

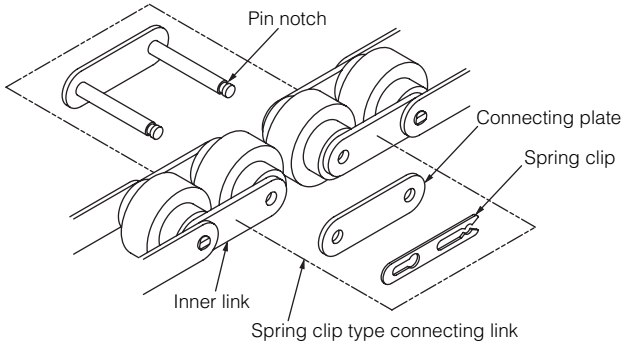




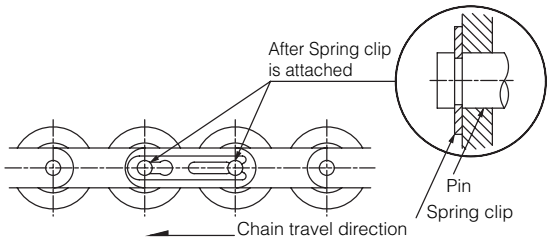
(A) Using a hand grinder, remove the riveted edge of the pin on the outer link to be cut.
(B) Put the Double Plus Chain in the chain vice (or similar device) and using a punch strike the pin until the outer plate can be removed. (For Double Plus with Snap Cover, remove the snap covers of three links around the link to be cut.)
(C) Using the fork tool and the chain vice, cutting can also be performed.

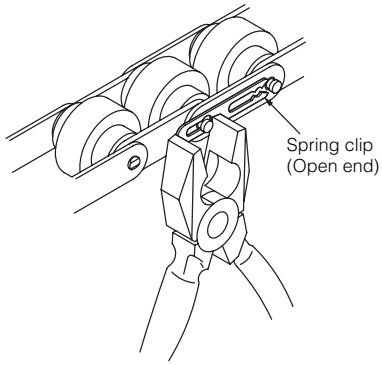
2. Connecting method (Using the connecting link)

(1) Connecting using a spring clip (Sizes of C2060H and under)
(A) After inserting the two (2) pins of the connecting link in the inner link's bushing, insert them in the connecting plate's holes.

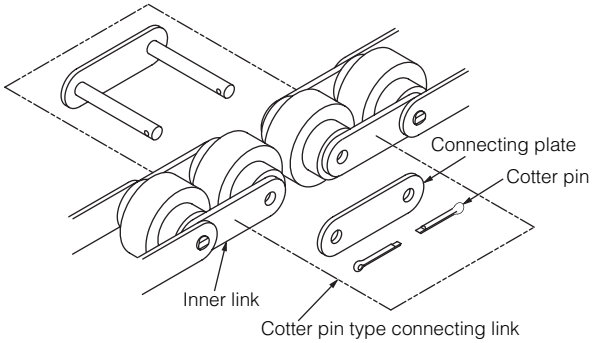


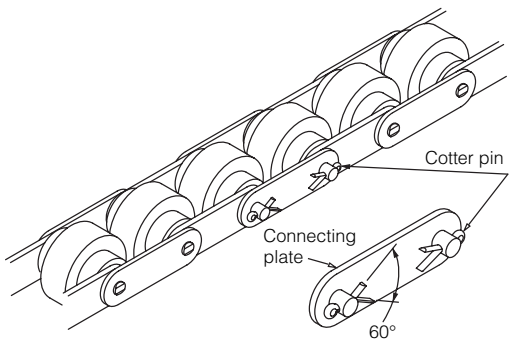
(B) Correctly attach the Spring clip to the pin notches





(2) Connecting using a cotter pin (Sizes of C2080H and over)
(A) After inserting the two (2) pins of the connecting link in the inner link's bushing, insert them in the connecting plate's holes.
(B) Insert the cotter pin into the pin's hole and open the cotter pin 60°.





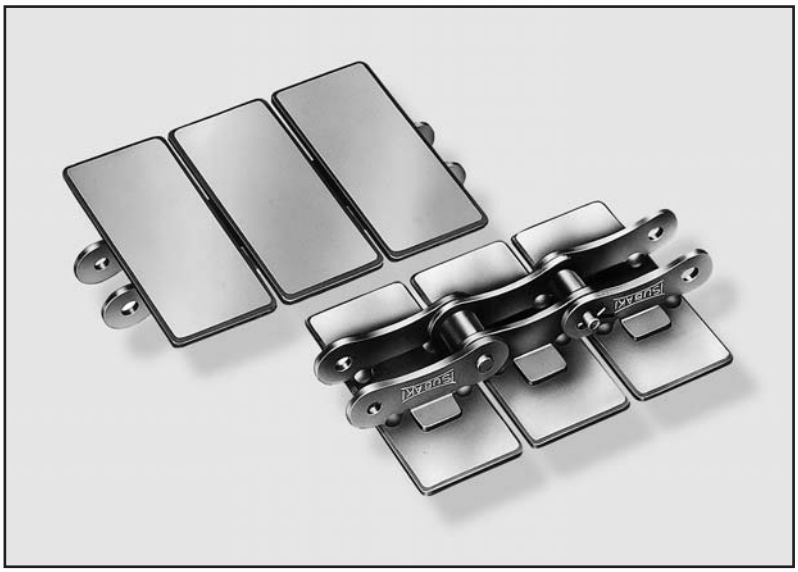
An Introduction to Tsubaki Top Chain

Tsubaki Top Chain has a plate to hold conveyed objects on its upper side. These chains were originally used for bottling and canning in the food industries. Today you will also find them in a variety of applications, because they are convenient and economical.

Tsubaki Top Chains are divided into two categories based on the type of movement: linear or curved. The chain may be constructed of engineered plastic, carbon steel, or stainless steel or nickel plated carbon steel. Usually steel chains have stainless steel top plates; however, engineered plastic snap-on tops are sometimes used.

There are several kinds of Tsubaki Top Chains, including: linear movement -TS type; and curved movement – TRU, TKU, TO and TU types.

Tsubaki also offers specailty top chain types: Rubber Pad, Bent End, Inclined Attachment and Crescent Plate.



Top Chain

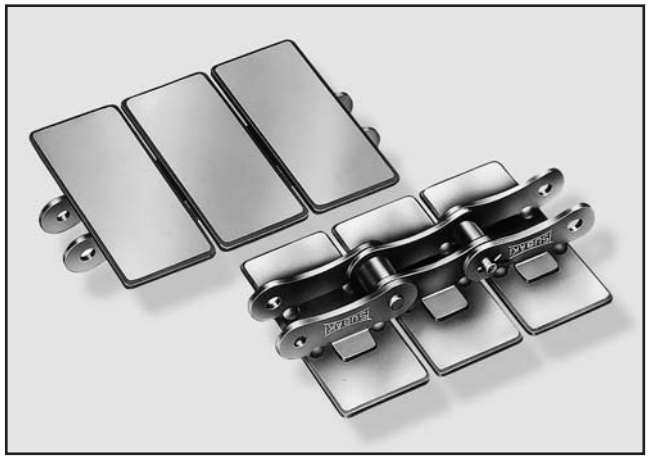
TS-Linear Movement

Top Chain

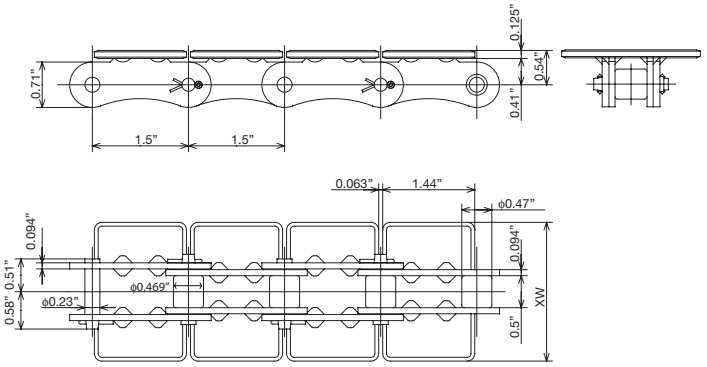
TS Top chain is used for linear conveyance.

TS-P type allows for loading and unloading objects along the direction of the chain movement, when a single strand of chain is used. When objects are conveyed or moved across several strands of chains, TS-PA type works effectively. TS-PA type also has hold-down tabs.

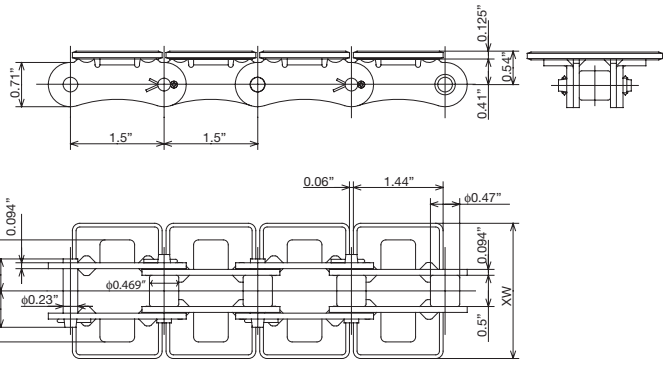
TS Top Chain consists of top plates (made of Type 304 grade stainless steel) that are projection welded onto RS Double Pitch Roller Chain (C2060H).



P Type



PA Type



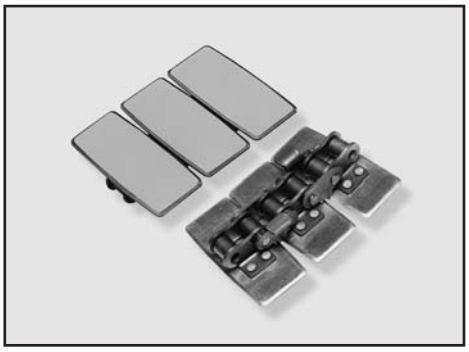
All dimensions in inches unless otherwise stated.

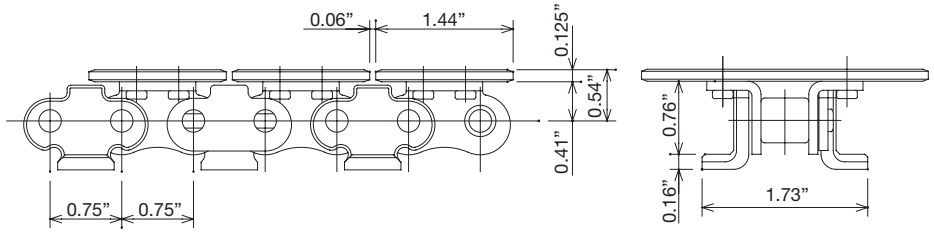
Carbon Steel Chain Number (PA type)	Nickel Plated Chain Number (PA type)	Stainless Steel Chain Number (PA type)	Carbon Steel Chain Number (P type)	Nickel Plated Chain Number (P type)	Stainless Steel Chain Number (P type)	Top Plate Width XW	Maximum Allowable Load CS/NP (lbs.)	Maximum Allowable Load SS (lbs.)	Approx. Weight (PA type) (lbs./ft.)	Approx. Weight (P type) (lbs./ft.)
TS550CS-PA	TS550NP-PA	TS550SS-PA	TS550CS-P	TS550NP-P	TS550SS-P	2.16"	660	230	1.9	1.7
TS635CS-PA	TS635NP-PA	TS635SS-PA	TS635CS-P	TS635NP-P	TS635SS-P	2.50"	660	230	2.1	1.8
TS762CS-PA	TS762NP-PA	TS762SS-PA	TS762CS-P	TS762NP-P	TS762SS-P	3.00"	660	230	2.2	2.0
TS826CS-PA	TS826NP-PA	TS826SS-PA	TS826CS-P	TS826NP-P	TS826SS-P	3.25"	660	230	2.4	2.3
TS950CS-PA	TS950NP-PA	TS950SS-PA	TS950CS-P	TS950NP-P	TS950SS-P	3.74"	660	230	2.6	2.4
TS1016CS-PA	TS1016NP-PA	TS1016SS-PA	TS1016CS-P	TS1016NP-P	TS1016SS-P	4.00"	660	230	2.8	2.6
TS1100CS-PA	TS1100NP-PA	TS1100SS-PA	TS1100CS-P	TS1100NP-P	TS1100SS-P	4.33"	660	230	2.9	2.7
TS1143CS-PA	TS1143NP-PA	TS1143SS-PA	TS1143CS-P	TS1143NP-P	TS1143SS-P	4.50"	660	230	3.0	2.8
TS1270CS-PA	TS1270NP-PA	TS1270SS-PA	TS1270CS-P	TS1270NP-P	TS1270SS-P	5.00"	660	230	3.1	2.9
TS1524CS-PA	TS1524NP-PA	TS1524SS-PA	TS1524CS-P	TS1524NP-P	TS1524SS-P	6.00"	660	230	3.5	3.4
TS1905CS-PA	TS1905NP-PA	TS1905SS-PA	TS1905CS-P	TS1905NP-P	TS1905SS-P	7.50"	660	230	4.1	4.0

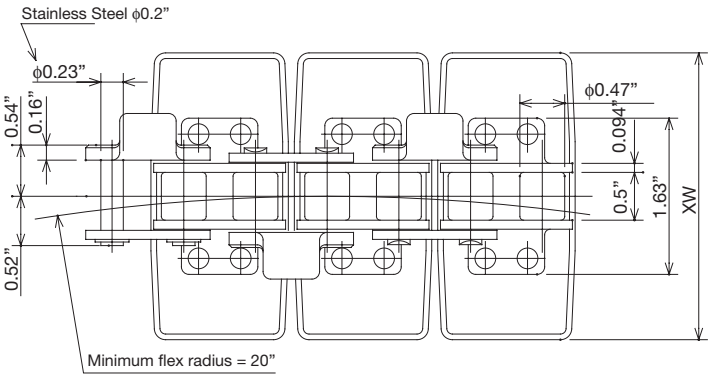
TRU-Curved Movement

Top Chain

TRU Top Chain uses a top-plate-riveted RS60 roller chain as its base with special provisions for curving. A hold down tab prevents lifting at corners to allow for curved conveyors. The same tab can be used for inclined conveyors to keep the chain in position.
There are two types of TRU Top Chain:
- TRU (carbon steel base chain and Type 430 stainless steel top plates)
- TRU-SS (base chain and top plates are Type 304 stainless steel)







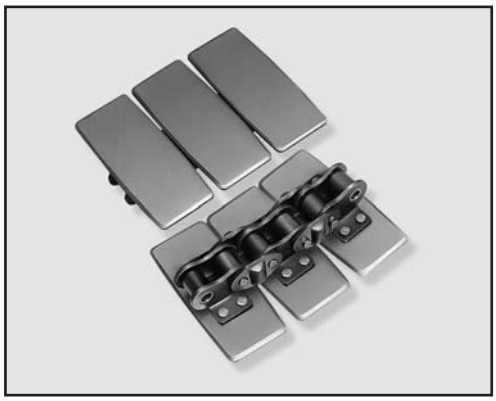
All dimensions in inches unless otherwise stated.

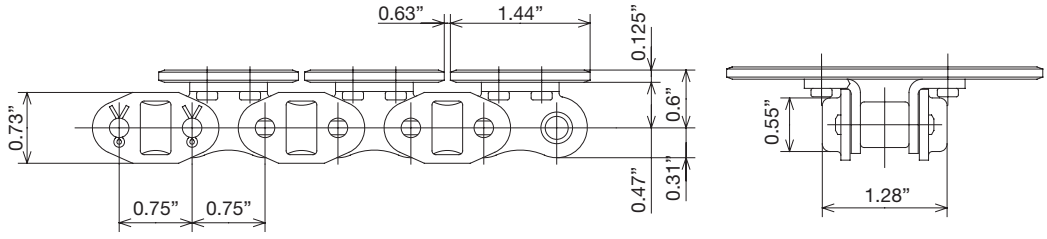
Carbon Steel Chain Number	Stainless Steel Chain Number	Top Plate Width XW	Maximum Allowable Load Carbon Steel (lbs.)	Maximum Allowable Load Stainless Steel (lbs.)	Approx. Weight (lbs./ft.)
TRU762	TRU762SS	3.00"	900	150	2.6
TRU826	TRU826SS	3.25"	900	150	2.7
TRU1016	TRU1016SS	4.00"	900	150	3.1
TRU1100	TRU1100SS	4.33"	900	150	3.2
TRU1143	TRU1143SS	4.50"	900	150	3.3
TRU1270	TRU1270SS	5.00"	900	150	3.5

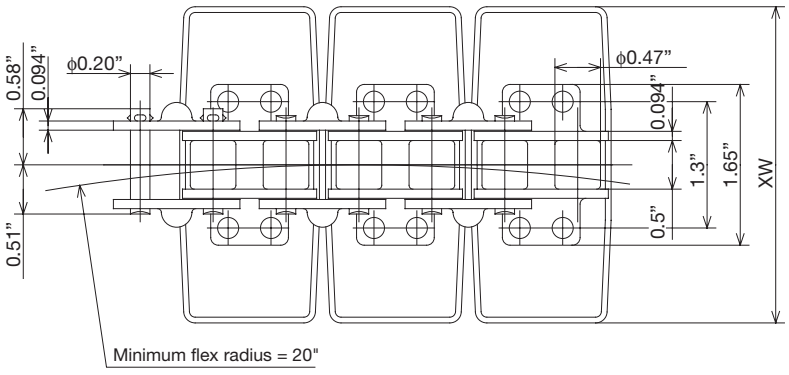
TKU-Curved Movement

Top Chain

TRU Top Chain uses a top-plate-riveted RS60 roller chain as its base with special provisions for curving. Slow and simple curved running is recommended as there are no hold down tabs on the chain. The base chain is made of carbon steel and the top plates are made of Type 430 stainless steel.







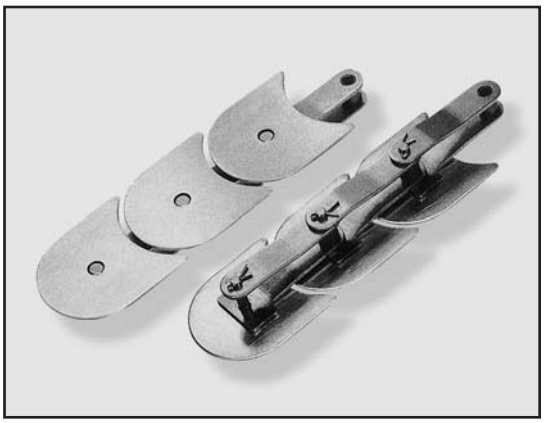
All dimensions in inches unless otherwise stated.

Chain Number	Top Plate Width XW	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
TKU826	3.25"	615	2.6
TKU1100	4.33"	615	3.0

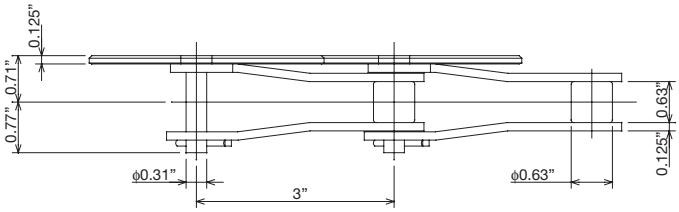
TO-Curved Movement

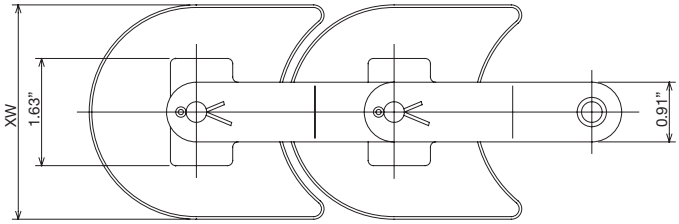
Top Chain

TO Top Plate chain is crescent shaped and is used to convey containers and materials in the bottling and canning industries. TO Top Plate Chain is triple pitch (3"). It can follow any horizontal direction because the top plates installed with each chain link are crescent shaped. The chain can be connected or disconnected at each chain link. When the chain is used horizontally, ensure that the chain does not hang down. Support top plates with a top plate guide near the sprocket. Use guide rails in other sections of the conveyor. Standard (S) or oversize R type rollers are available. There are two chain types available - carbon steel base chain with top plates made of Type 430 stainless steel; and "SS" type which is made entirely of Type 304 stainless steel.

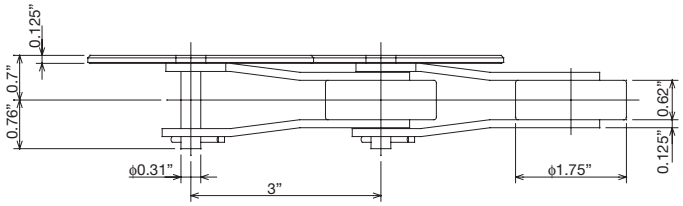


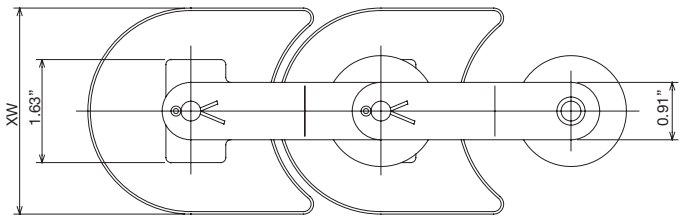
Standard Type Roller





Oversize Type Roller





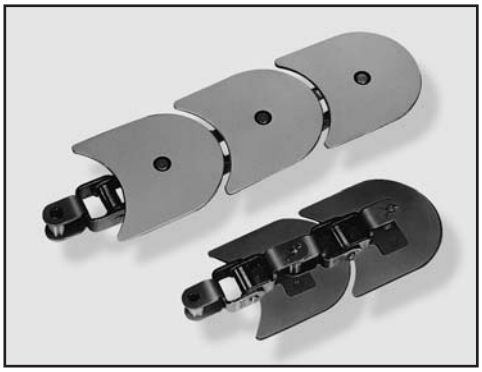
Carbon Steel Chain Number	Stainless Steel Chain Number	Top Plate Width XW	Maximum Allowable Load Carbon Steel (lbs.)	Maximum Allowable Load Stainless Steel (lbs.)	Approx. Weight (lbs./ft.)
Standard Type Roller					
TO826	TO826SS	3.25"	660	400	2.7
TO1143	TO1143SS	4.50"	660	400	3.2
TO1778	TO1778SS	7.00"	660	400	4.2
Oversize Type Roller					
TO826	TO826SS	3.25"	660	400	4.0
TO1143	TO1143SS	4.50"	660	400	4.6
TO1778	TO1778SS	7.00"	660	400	5.4

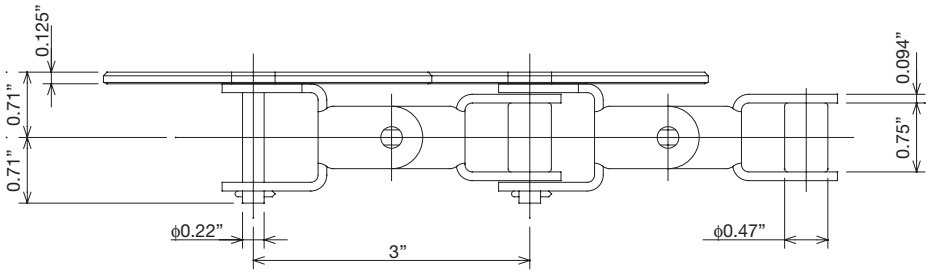
Top Chain

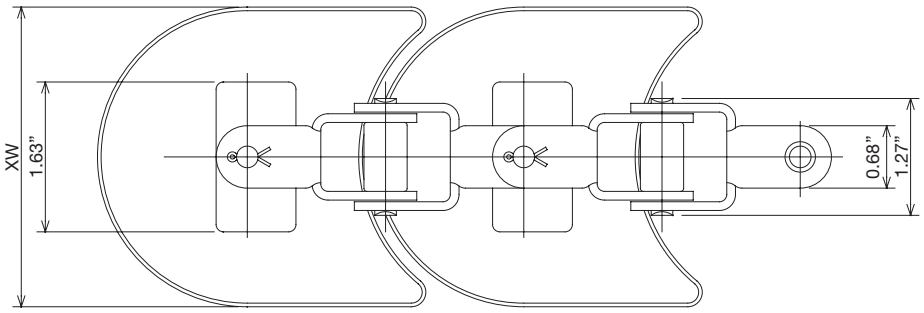
TU-Curved Movement

Top Chain

TU Top Plate chain is crescent shaped and is designed for multi-plane operation. It conveys cans, bottles or packages in a straight or curved line on a horizontal plane and the return may travel in any path best suited to conditions. The base chain is carbon steel with Type 430 stainless steel crescent shaped top plates.







Chain Number	Top Plate Width XW	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
TU826	3.25"	220	2.5
TU1143	4.50"	220	3.0

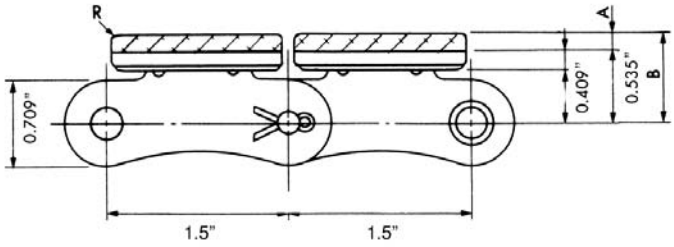
Rubber Pad Attachment

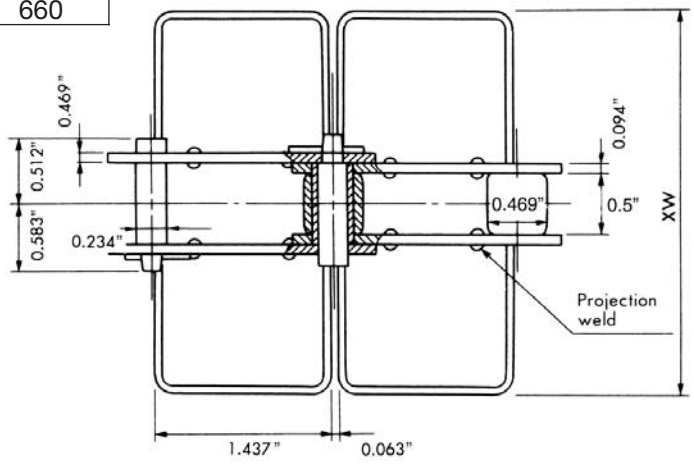
Top Chain

To prevent damage to the conveyed object, rubber pads are fixed to the top plates.

All dimensions in inches unless otherwise stated.

Chain Number	Top Plate Width XW	Attachment Dimensions			Maximum Allowable Weight (lbs.)
		A	B	R	
TS826PSG	3.252	0.197	0.732	0.118	660
TS1100PSG	4.331	0.118	0.654	0.039	660



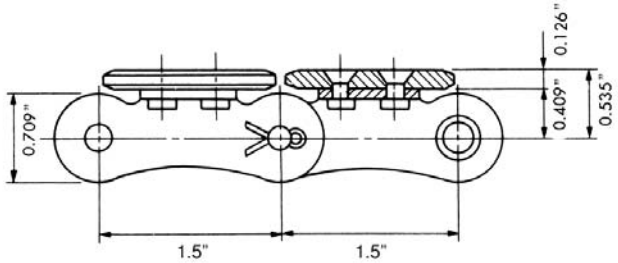


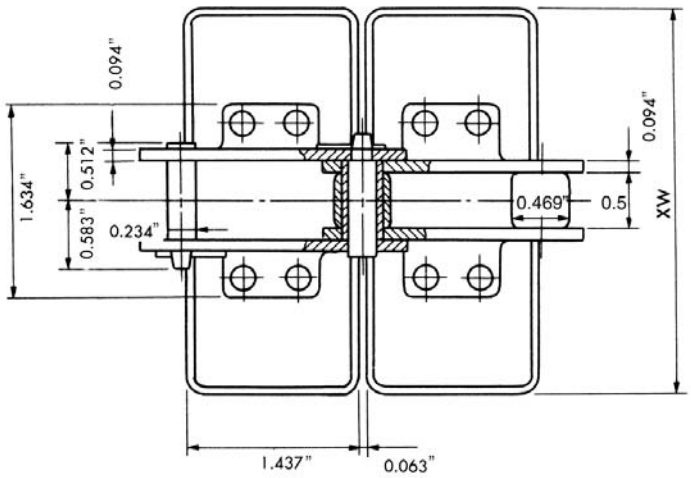
Heat Treated Top Plates

Top Chain

The carbon steel top plate is heat treated for improved resistance to damage.

Chain Number	Top Plate Width XW	Maximum Allowable Load (lbs.)
TS550YP	2.165”	660
TS635YP	2.500”	660
TS762YP	3.000”	660
TS826YP	3.252”	660
TS950YP	3.740”	660
TS1016YP	4.000”	660

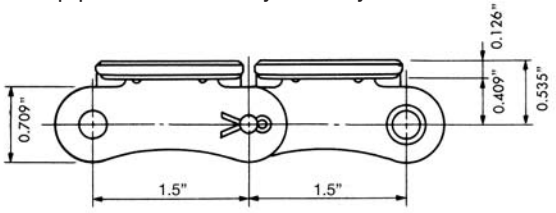


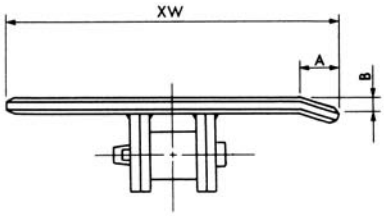


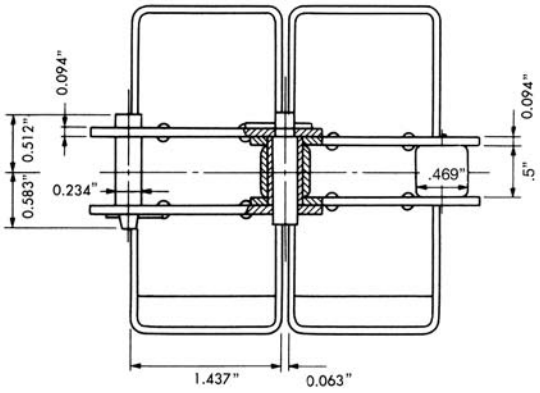
Bent End Attachment

Top Chain

Bent end top plates allows easy sideways transfer of the conveyed objects.







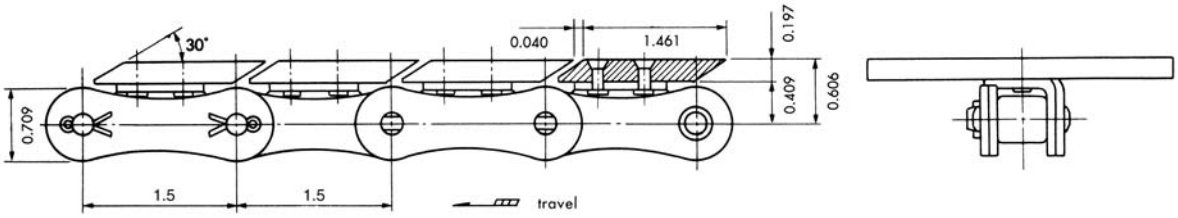
All dimensions in inches unless otherwise stated.

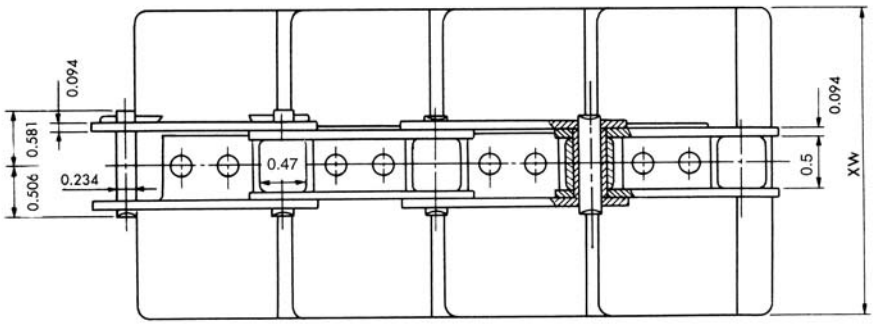
Chain Number	Top Plate Width XW	Attachment Dimensions A	Attachment Dimensions B	Maximum Allowable Load (lbs.)
TS1016SM	4.000	0.591	0.197	660
TS1270SM	5.000	0.591	0.197	660
TS1524SM	6.000	0.748	0.276	660
TS1905SM	7.500	0.787	0.315	660

Inclined Attachment

Top Chain

The space between the top plate slats are small.



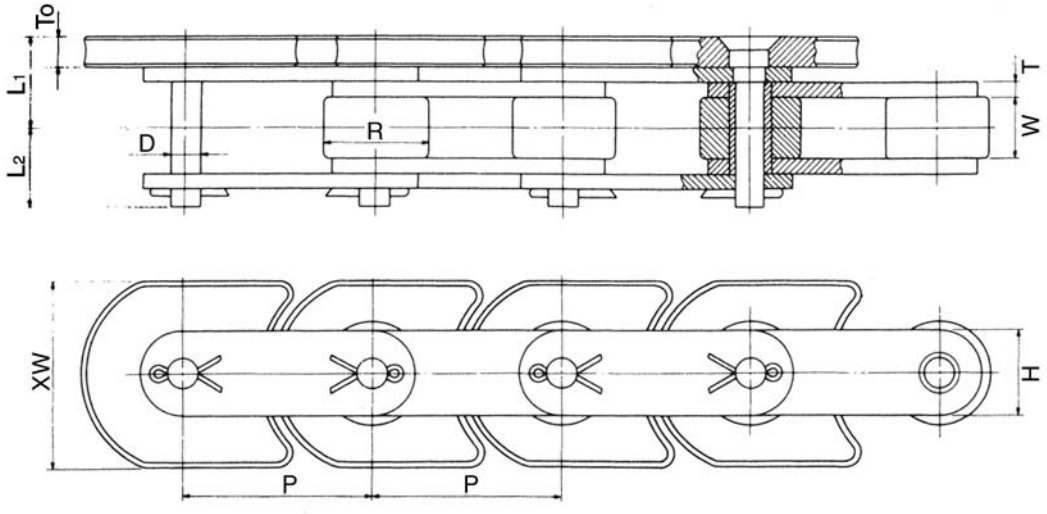


Chain Number	Top Plate Width XW	Maximum Allowable Load (lbs.)
TS635CT	2.500”	660
TS762CT	3.000”	660

Crescent Plate-Double Pitch

Top Chain

This chain is used to convey many types of containers or materials for the bottling and canning industries.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate		Pin				Top Plate		Average Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length L_1+L_2	Length L_1	Length L_2	Width XW	Thickness T_0		
Oversize Roller Type													
C2050CL	1.250	0.750	0.375	0.080	0.590	0.200	1.060	0.592	0.468	1.259	0.236	6,140	1.9
C2060HCL	1.500	0.875	0.500	0.125	0.677	0.234	1.434	0.767	0.667	1.500	0.250	9,040	2.8
C2080HCL	2.000	1.125	0.625	0.157	0.905	0.312	1.782	0.952	0.830	1.968	0.314	15,400	4.7
C2100HCL	2.500	1.563	0.750	0.188	1.125	0.375	1.975	1.019	0.956	2.500	0.250	24,300	6.7

Top Chain Selection and Engineering

All dimensions in inches unless otherwise stated.

Chain Type		Materials		Specifications				Feature	Applications
		Chain/Pin	Top Plate	Max. Allowable Load lbs.	Suggested Max. Speed (ft./min.) Lubricated	Suggested Max. Speed (ft./min.) Dry	Ambient Temperature °F		
Linear Movement	TS-P	Carbon steel	18 Chrome stainless steel	660	390	200	15~350	Type P : Suitable for single strand operation Type SS: Suitable for multi-strand operation and corrosive environment Type CS: Suitable for heavy load operation	Assembly line for bottling or canning, and conveying cartons or other parts.
	TS-SS	304 Stainless steel	304 Stainless steel	231	230	150	–4~750		
	TS-CS	Hardened carbon steel		1,100	390	200	15~350		
Curved Movement	TRU	Carbon steel	18 Chrome stainless steel	902	330	200	15~350	Float-prevention tab allows high speed, complex, and curved transportation.	Curved operation for type TS and TT.
	TRU-SS	304 Stainless steel		231	230	150	–4~750		
	TKU	Carbon steel	18 Chrome stainless steel	638	150	150	15~350	Easy removal of chain. Used for low speed and simple curved operation.	
	TO	Carbon steel	18 Chrome stainless steel	660	200	200	15~350	Any horizontal curved operation is possible. Min. radius: 4.00 inches. Complex curved operation is available.	Suitable for horiizontal curved operations.
	TU			220				Any return such as straight/curved line on horizontal and vertical route is available. Complex curved operation available.	

Top Plate Chain Selection
Follow the procedure below to select top chain and liner that are most economical and suitable for the application.

Step 1: Establish general conveyor conditions
Step 2: Select top plate material
Step 3: Select liner material
Step 4: Determine factors and coefficients
Step 5: Select top plate width
Step 6: Calculate chain tension
Step 7: Determine chain size

Step 1 Establish general conveyor conditions

A) Materials conveyed
   (1) Container material
   (2) Weight
   (3) Dimensions

B) Conveyor arrangement
   (1) Straight or curved movement
   (2) Conveyor length
   (3) Layout
   (4) Space limitations

C) Other conditions
   (1) Conveyor capacity
   (2) Interval
   (3) Conveyor speed
   (4) Lubrication requirements
   (5) Material conveyance regularity

D) Environment
   (1) Temperature
   (2) The presence of corrosive chemical substances (See Table I)
   (3) Existence of wear causing agents, such as glass, paint, metal, powder, or sand.

Table I must be referred to when selecting chain and liner materials to be used with top chain. The table shows the results of lab tests at 68°F. It is to be used for reference only and does not state or imply any warranty conditions whatsoever. Humidity and other conditions must also be considered.

Table I: Corrosion Resistance to Various Fluids

Fluid	Steel	Stainless Steel				Ultra-high Polymer Polyethylene
		Polyacetal	304	18 Chrome	13 Chrome	
Acetone	×	○	○	○	○	○
Oils (vegetable and mineral)	○	○	○	○	○	○
Alcohol	○	○	○	○	○	○
Aqueous ammonia	Δ	○	○	○	○	○
Sodium chloride	×	○	Δ	Δ	×	○
Hydrochloric acid (2%)	×	×	×	×	×	×
Sea water	×	Δ	Δ	×	×	○
Hydrogen peroxide	×	×	○	○	Δ	○
Caustic soda (25%)	×	×	○	○	○	○
Gasoline	○	○	○	○	○	Δ
Formic acid	×	×	×	×	×	○
Formic acid aldehyde	○	○	○	○	○	○
Milk	○	○	○	○	○	○
Lactic acid	×	○	○	×	×	○
Citric acid	×	Δ	○	Δ	Δ	○
Acetic acid (5%)	×	×	○	○	×	○
Carbon tetrachloride	Δ	○	Δ	Δ	Δ	Δ
Nitric acid (5%)	×	×	○	○	Δ	Δ
Rice vinegar (5%)	×	○	Δ	Δ	×	○
Hypochlorite soda	×	×	×	×	×	○
Soapy water	Δ	○	○	○	○	○
Paraffin	○	○	○	○	○	○
Beer	○	○	○	○	○	○
Fruit juice	×	○	○	Δ	Δ	○
Wine	○	○	○	○	○	○
Whiskey	○	○	○	○	○	○
Benzene	○	○	○	○	○	Δ
Water	×	○	○	○	○	○
Vegetable juice	Δ	○	○	○	○	○
Iodine	×	×	×	×	×	×
Sulfuric acid	×	×	×	×	×	×
Phosphoric acid	×	×	Δ	×	×	○
Soft drinks	○	○	○	○	○	○

○: Totally resistant Δ: Partially resistant ×: Not suggested

Step 2 Select top plate material
Top plate material must be selected according to the type of goods to be moved.

Table II: Plate Material Selection Guide

Material Conveyed	Top Plate Material	Dry		Lubricated	
		Abrasive Atmosphere			
		No	Yes	No	Yes
Tin cans, aluminum cans, and metal containers (beer cans, soft drink cans and other cans having metal tops and bottoms, and fiber sides). Industrial parts (machine parts, dies, castings, forgings, metals, bearings, bolts, nuts, etc.)	Polyacetal	◎	×	◎	▼
	Stainless Steel	▼	◎	▲	◎
Plastics and plastic covered containers and paper containers (for milk products such as milk, cheese, ice cream and confectionery, includes containers with paper boards and paper bottoms such as those for soap and cereal).	Polyacetal	▼	×	▲	▼
	Stainless Steel	◎	◎	◎	◎
Glass jars, glass products and ceramics (for spirits, foods, pharmaceuticals and cosmetics).	Polyacetal	▼	×	▲	×
	Stainless Steel	◎	◎	◎	◎

◎ Suggested ▲ Good ▼ Limited use × Not suggested

Step 3 Select liner material
The appropriate liner material must be selected from the top plate materials listed under step 2.

Table III: Liner Material Selection Guide

Top Plate Material (chain type)	Liner Material	Dry		Lubricated	
		Abrasive Atmosphere			
		No	Yes	No	Yes
Stainless steel (TS for straight running TRU, TKU, TO and TU for curved movement).	Stainless Steel	▼	▼	▲	▲
	Steel	▼	◎	▲	◎
	Super-high-polymer polyethylene	◎	×	◎	▼

◎ Suggested ▲ Good ▼ Limited use × Not suggested

Step 4 Determine factors and coefficients (f_2, f_3, k_2, k_3)

Table IV: Coefficient of Friction (f_2) between Top Plate and Liner

Top Plate Material	Lubrication	Coefficient of Dynamic Friction of Liner Material		
		Stainless Steel	Steel	Ultra High Polymer Polyethylene
Stainless Steel	Dry	0.35	0.35	0.25
	Lubrication by soapy water	0.20	0.20	0.15
	Oil Lubrication	0.20	0.20	0.15
Polyacetal	Dry	0.25	0.25	0.25
	Lubrication by soapy water	0.15	0.15	0.15

Table V: Coefficient of Friction (f_3) between Material Conveyed and Top Plate

Material Conveyed	Lubrication	Coefficient of Dynamic Friction of Top Plate Material	
		Stainless Steel	Polyacetal
Plastic and paper containers and film packages.	Dry	0.30	0.25
	Lubrication by soapy water	0.20	0.10
Cans (with metal tops and bottoms	Dry	0.35	0.25
	Lubrication by soapy water	0.20	0.15
Bottles and ceramics	Dry	0.30	0.40
	Lubrication by soapy water	0.20	0.20
Industrial parts (metal)	Dry	0.35	0.25
	Oil Lubrication	0.20	0.15

Table VI: Angle Factor (k_2) and Length Factor (k_3)

Turning Angle	Length Factor (k_3)	Angle Factor (k_2)			
		TPU and TNU Chains		TRU and TKU Chains	
		Dry	Lubricated	Dry	Lubricated
30°	0.5	1.15	1.10	1.20	1.10
60°	1.0	1.30	1.15	1.45	1.25
90°	1.6	1.50	1.25	1.75	1.35
120°	2.1	1.70	1.35	2.10	1.50
150°	2.6	1.90	1.50	2.50	1.70
180°	3.1	2.20	1.60	3.00	1.85

k_2 and k_3 factors are to be used for curved movement except for TO and TU type.

$k_3 = \pi$ X Turning Angle/180°

Step 5 Select top plate width

Generally, the top plate must be wider than the material conveyed. When materials are very wide and none of the top plate widths are satisfactory, top plates of the same width may be used in multi-strand arrangement. Top plates of different widths can be used together, but this is not desirable since the tension on the chains will be uneven.

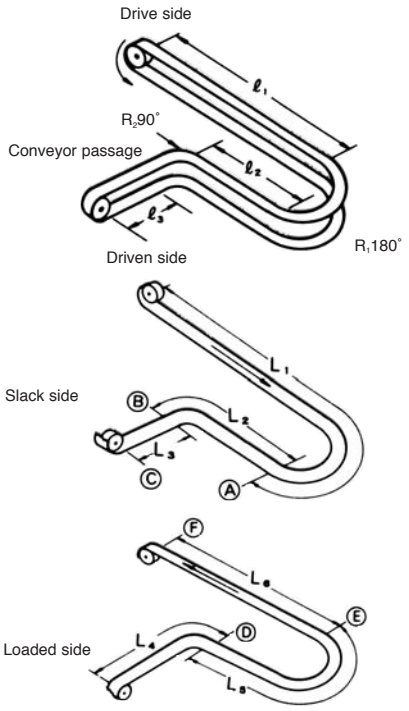
Step 6 Calculate chain tension (T)

1) Linear movement
(TS, TTP chains)

$T = (M + 2.1\ w)\ Lf_2 + ML'f_3$ . . . . . .Formula 1

2) Curved movement
(TRU, TKU chains)

The chain tension for curved movement is calculated similarly to that for linear movement. The tension at corners, however, is compensated for by angle factor (K_2) and length factor (K_3). Calculations are shown below for the illustrated examples.



The tension on the chain at each part ABC . . . F must be calculated. The tension at F is the greatest acting on the chain.

$T = T_Ⓕ$ .....Formula 2

Slack side:

Chain tension at Ⓐ : $T_Ⓐ$

$T_Ⓐ = L_1wf_2k_2$, $L_1 = \ell_1 + R_1k_3$ (k_2 and k_3 at 180°)

Chain tension at Ⓑ : $T_Ⓑ$

$T_Ⓑ = \{T_Ⓐ + L_2wf_2\}\ k_2$, $L_2 = \ell_2 + R_2k_3$ (k_2 and k_3 at 90°)

Chain tension at Ⓒ : $T_Ⓒ$

$T_Ⓒ = T_Ⓑ + L_3wf_2$, $L_3 + \ell_3$

Loaded side :

Chain tension at Ⓓ : $T_Ⓓ$

$T_Ⓓ = \{ T_Ⓒ + (M + w)\ L_4f_2 + ML'_4f_3\}\ k_2$, $L_4 = \ell_3 + R_2k_3$ (k_2 and k_3 at 90°)

Chain tension at Ⓔ : $T_Ⓔ$

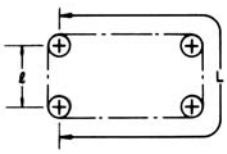
$T_Ⓔ = \{T_Ⓓ + (M + w)\ L_5f_2 + ML'_5f_3\}\ k_2$, $L_5 = \ell_2 + R_1k_3$ (k_2 and k_3 at 180°)

Chain tension at Ⓕ : $T_Ⓕ$

$T_Ⓕ = T_Ⓔ + (M + w)\ L_6f_2 + ML'_6f_3$

3) TO and TU chains

Calculations for chain selection vary according to their usage and arrangement. A sample calculation is given below for the arrangement shown on the right.



$T = (M + w)\ Lf_2 + w\ell f_2 + ML'f_3$

.....Formula 3

4) Calculation of power required

$$HP = \frac{TS}{33{,}000 \times \eta}$$ .....Formula 4

Step 7 Determine chain size

Multiply the maximum chain tension (T) by the speed coefficient (k_1) taken from Table VII and verify that the following equation is satisfied.

$T \times k_1 \leqq$ Chain maximum allowable load

..... Formula 5

When the maximum allowable load is insufficient, it can be corrected by using top plates with narrower width and increasing the number of chain strands, or by splitting into many short conveyors.

Table VII: Speed Coefficient (k_1)

Chain Speed (ft./min.)	Speed Factor (k_1)
0 ~ 50	1.0
50 ~ 100	1.2
100 ~ 160	1.4
160 ~ 230	1.6
230 ~ 300	2.2
300 ~ 360	2.8
360 ~ 400	3.2

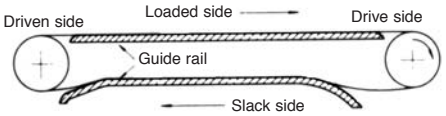
T : Chain tension (lbs.)
M : Weight of material conveyed per ft. (lbs./ft.)
w : Chain weight (lbs./ft.)
L : Center distance between sprockets (ft.)
ℓ : Distance not loaded (ft.)
L' : Distance of the material sliding on the chain for storage (L'=0 when items and chain are not slipping)
f_2 : Coefficient of friction between the top plate and liner (See Table IV)
f_3 : Coefficient of friction between goods moved and top plate (See Table V)
k_1 : Speed coefficient (See Table VII)
k_2 : Angle factor (See Table VI)
k_3 : Length factor (See Table VI)
R : Radius at corner (ft.)
S : Chain speed (ft./min.)
η : Mechanical transmission efficiency for drive unit
HP : Power required

Conveyor design

The layout of a conveyor varies with the type of chain used. A typical layout is shown below. Goods should be conveyed on the tension side of the chain, and the slack (return) side should be supported by guide rails with sloped ends to prevent chain vibration and conveyor pulsation.

2-1 **Guide rail**

The guide rail consists of the conveyor frame and liner. The liner sides with the top chain to minimize frictional resistance and wear so the chains are protected and driving power can be minimized.

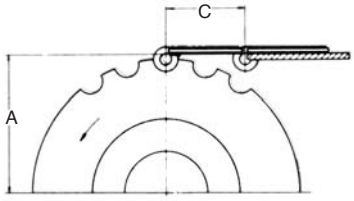


2-2 **Location of guide rails and sprocket**

When the chain engages with the sprocket, the chain itself moves up and down slightly due to the polygonal effect of the sprocket. Therefore, the guide rail on the loaded side must be positioned so that the chain is horizontal when at the highest level. Guide rail installation dimension (A) is determined from the following equation.

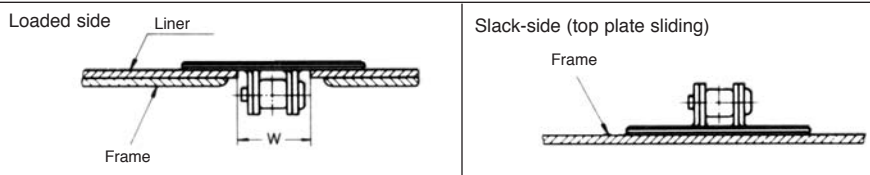
$$A = \frac{\text{pitch diameter of sprocket}}{2} + B \text{ (inch)}$$

Chain Type	B	C
TRU • TKU • TN • TNU	.433"	1.496"



Guide Rail Inside Width

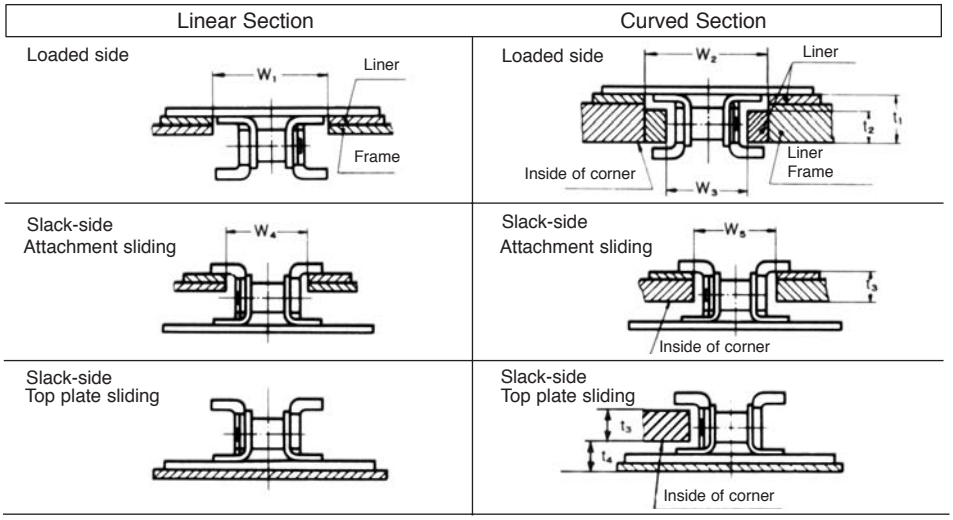
Linear Movement Chain



Note: TS-P type chains are shown in this illustration. Other chain types can also be used.

Chain Type	W	Chain Type	W
TS-P	1.300	TP	1.772
TS-SS & CS	1.594	TTP	1.772

Curved Movement Chain

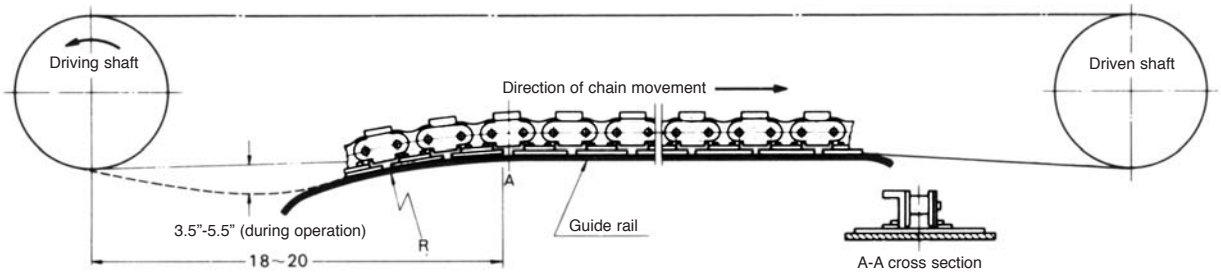


Note: TRU chains are shown in the illustration. Other chain types can also be used.

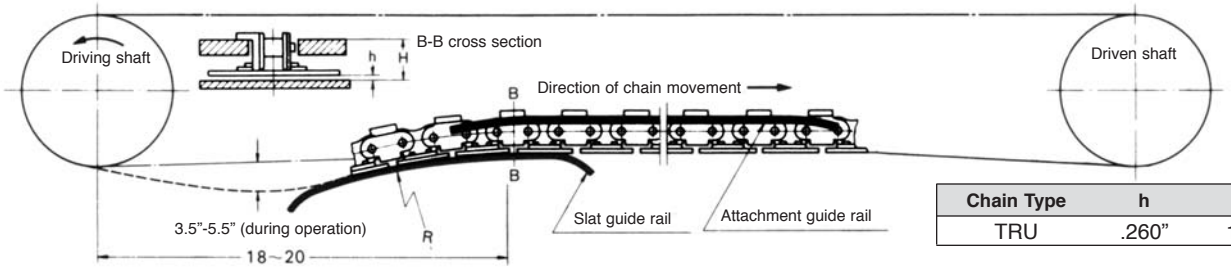
Chain Type	W_1	W_2	W_3	t_1	t_2	W_4	W_5	t_3
TRU	1.752	1.890	1.220	.689	.472	1.220	1.220	.472
TPU	1.772	1.772	1.772	.472	.472	1.890	1.890	.472
TNU	1.496	1.496	1.496	.709	.709	–	–	–
TO	1.752	–	–	–	–	–	–	–
TU	1.752	–	–	–	–	–	–	–
TKU	1.772	1.890	1.417	.748	.531	–	–	–

2-3 **Slack side guide rail arrangement**

Top plate sliding (applicable for all top chains)



Attachment sliding (TRU type)

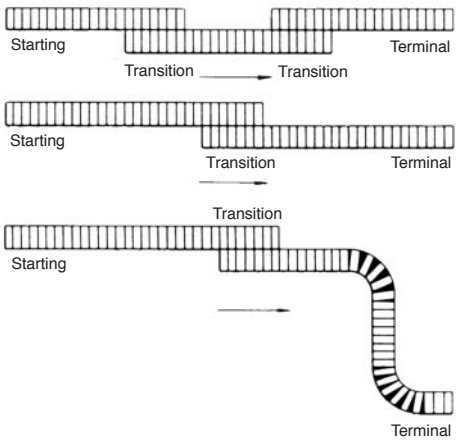


Chain Type	h	H
TRU	.260"	1.181"

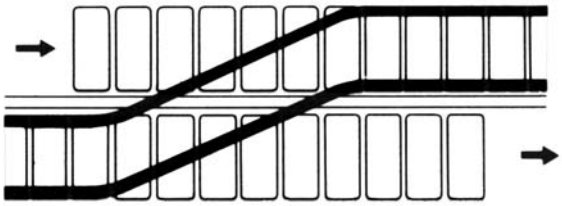
(1) Slack of 3.5 - 5.5 inches (during operation) is needed under the drive sprocket.
(2) Engagement angle must be more than 150° between the drive sprocket and the chain.
(3) The radius R (inches) of the guide rail must be larger than the radius of chain back-bend given in the table below.
(4) Guide rails must have sloped ends to prevent interference with the chain.

2-4 **Connection of additional conveyors**

If a conveyor is too long, the chain tension will increase and chain strength will not be sufficient. In such cases, additional conveyors should be used.



Locations of the chain and the guide rail are very important for a smooth transition between conveyors. Two parallel chains must be positioned at the same height, or the output chain must be positioned slightly higher than the receiving chain. The guide rail must be shaped such that transition of goods can be accomplished smoothly.



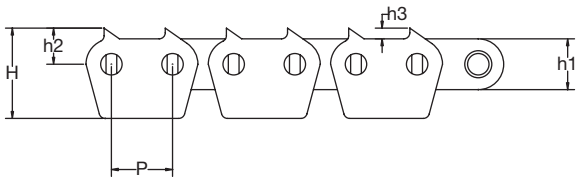
Sharp Top Chains

An Introduction to Tsubaki Sharp Top Chains

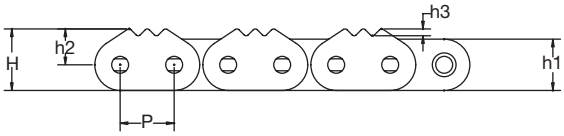
Tsubaki sharp top chains are the right choice for today's sawmill operations. Building upon nearly a century of expertise, our chains are constructed of quality materials and engineered to precise standards that offer minimal elongation and maximum performance. We offer a wide range of chain sizes and tooth configurations to cover many different lumber processing applications. Features of our chains include teeth that are uniformly designed to exacting specifications that deliver better grip and provide greater accuracy with less timber penetration. Tsubaki sharp top chains have been developed in response to industry demand for increased conveying speeds, resulting in faster processing and greater productivity throughout the mill. Tsubaki sharp top chains feature patented lube groove bushings that act as a reservoir for excess lubricant, thereby reducing pin and bushing wear, extending chain life. Engineered to the industry's demanding standards, our chains are made with case hardened pins and bushings resulting in increased durability and performance. Average Tensile strength on Tsubaki sharp top chain exceeds ANSI standards, so the application will keep running under the most demanding conditions. Tsubaki sharp top chains are the money saving solution for increased application life and reduced downtime.

Sharp Top Chains

RF32B STYLE

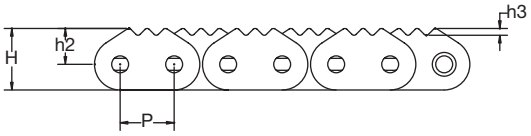


ST STYLE



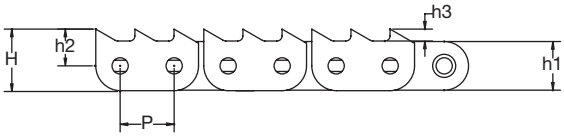
SIZES: 60, 80, 100, 120

ST-ALL STYLE



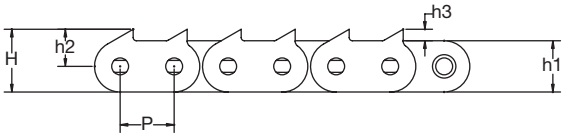
SIZES: 60, 80

SL STYLE (RF100)



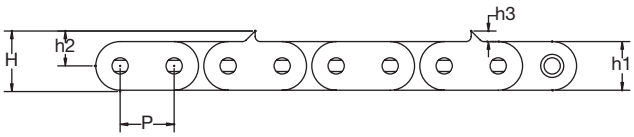
SIZE: 100

SL STYLE
(RF80)



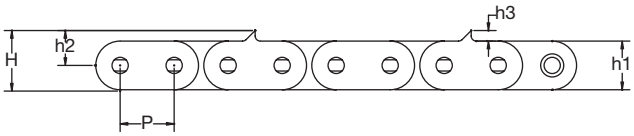
SIZE: 80

P4P-AD STYLE
(shown here)
and
P8P-AD STYLE
(as above except point on
every 8th pitch)



SIZES: 80, 100

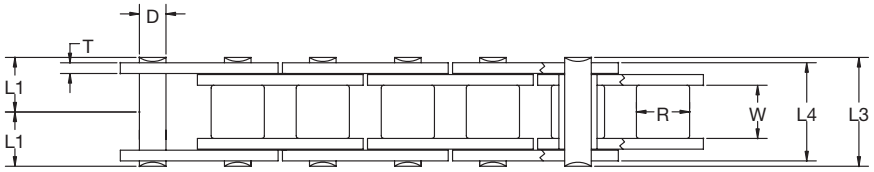
P4P-SD STYLE



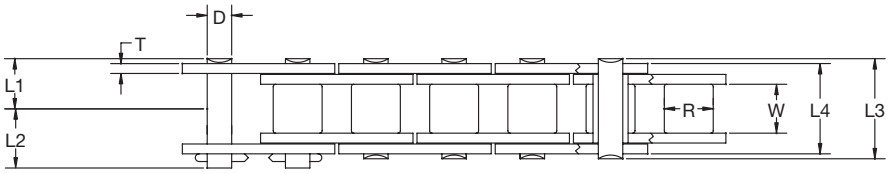
SIZES: 80, 100

Sharp Top Chains

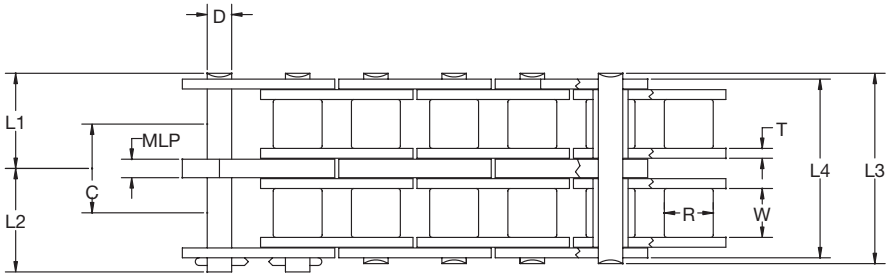
SIZE: RF32B



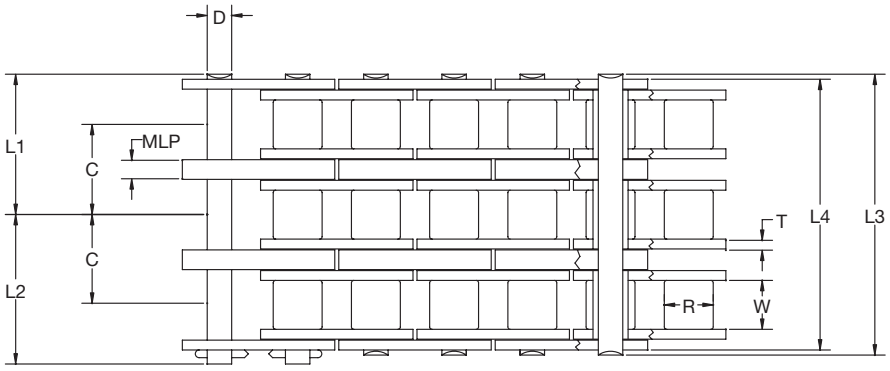
SIZES: 60, 80, 100, 120



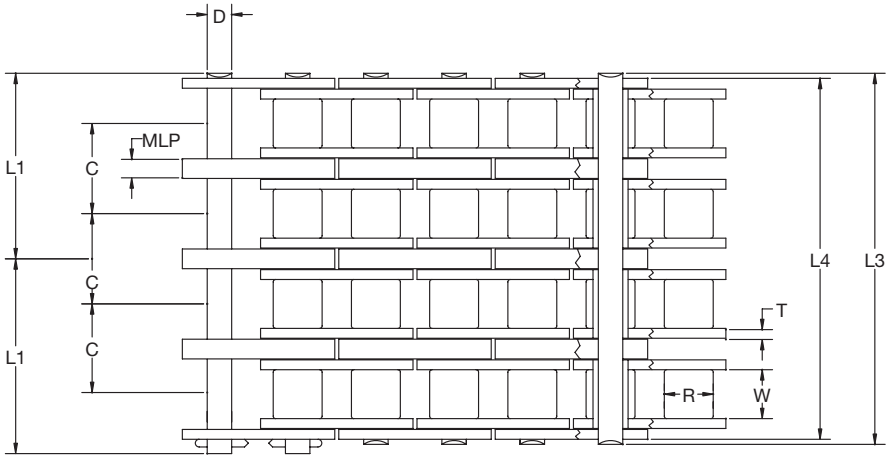
SIZES: 60-2, 80-2, 100-2



SIZE: 80-3



SIZE: 80-4



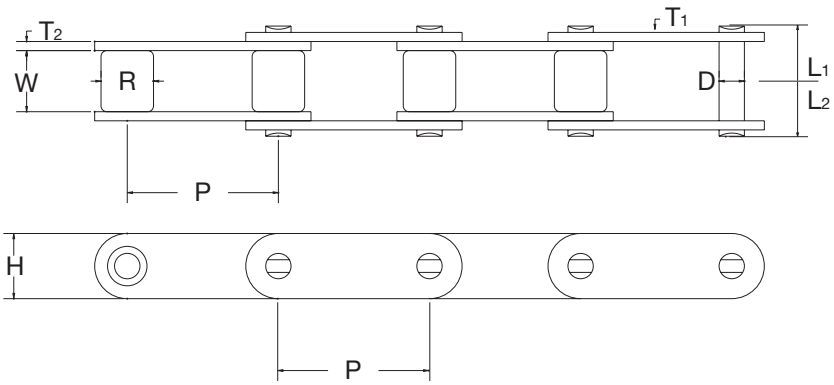
Sharp Top Chain Specifications:

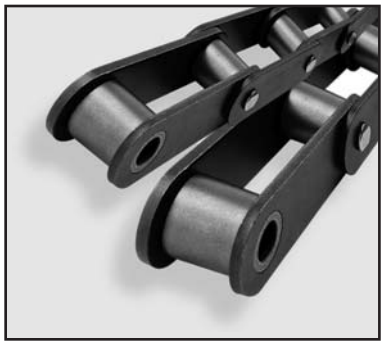
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate						Pin						Transverse Pitch C
				Thickness T	Middle Link Plate Thickness MLP	Height H	Height h_1	Height h_2	Tooth Height h_3	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Length (L_1 x 2) L_3	Length L_4	
2 straight points on every second pitch and extended flat side bar																
RF32BSTKNew	2.000	1.150	1.220	0.248	-	2.953	1.661	1.181	0.807	0.701	-	1.264	-	2.528	2.305	-
RF32BSTKNarrow	2.000	1.150	0.900	0.220	-	2.953	1.661	1.181	0.807	0.701	-	1.020	-	2.040	2.137	-
3 straight points on every second pitch																
60-1-ST	0.750	0.469	0.500	0.094	-	0.854	0.713	0.498	0.094	0.235	1.087	0.506	0.581	1.012	0.898	-
60-2-ST	0.750	0.469	0.500	0.094	0.188	0.854	0.713	0.498	0.094	0.235	1.988	0.955	1.033	1.910	1.794	0.898
80-1-ST	1.000	0.625	0.625	0.126	-	1.143	0.949	0.669	0.197	0.313	1.398	0.640	0.758	1.280	1.138	-
80-2-ST	1.000	0.625	0.625	0.126	0.236	1.143	0.949	0.669	0.197	0.313	2.540	1.217	1.323	2.434	2.276	1.138
80-3-ST	1.000	0.625	0.625	0.126	0.252	1.143	0.949	0.669	0.197	0.313	3.704	1.795	1.909	3.590	3.459	1.154
80-4-ST	1.000	0.625	0.625	0.126	0.252	1.143	0.949	0.669	0.197	0.313	4.862	2.372	2.490	4.744	4.612	1.154
100-1-ST	1.250	0.750	0.750	0.157	-	1.319	1.126	0.756	0.126	0.376	1.678	0.778	0.900	1.556	1.408	-
100-2-ST	1.250	0.750	0.750	0.157	0.315	1.319	1.126	0.756	0.126	0.376	3.090	1.484	1.606	2.968	2.818	1.409
120-1-ST	1.500	0.875	1.000	0.189	-	1.583	1.354	0.906	0.126	0.437	2.118	0.980	1.138	1.960	1.789	-
3 straight points on every pitch																
60-1-ST-All	0.750	0.469	0.500	0.094	-	0.854	-	0.498	0.094	0.235	1.087	0.506	0.581	1.012	0.898	-
80-2-ST-ALL	1.000	0.625	0.625	0.126	0.236	1.143	-	0.669	0.197	0.313	2.540	1.217	1.323	2.434	2.276	1.138
80-4-ST-ALL	1.000	0.625	0.625	0.126	0.252	1.143	-	0.669	0.197	0.313	4.862	2.372	2.490	4.744	4.612	1.154
3 slasher points on every second pitch																
100-1-SL-LP	1.250	0.750	0.750	0.157	-	1.425	1.126	0.850	0.299	0.376	1.678	0.778	0.900	1.556	1.408	-
100-2-SL-LP	1.250	0.750	0.750	0.157	0.315	1.425	1.126	0.850	0.299	0.376	3.090	1.484	1.606	2.968	2.818	1.409
100-2-SL-HP	1.250	0.750	0.750	0.157	0.315	1.638	1.126	1.063	0.512	0.376	3.090	1.484	1.606	2.968	2.818	1.409
2 slasher points on every second pitch																
80-1-SL	1.000	0.625	0.625	0.126	-	1.161	0.949	0.667	0.212	0.313	1.460	0.671	0.789	1.342	1.216	-
80-2-SL	1.000	0.625	0.625	0.126	0.236	1.161	0.949	0.667	0.212	0.313	2.590	1.236	1.354	2.472	2.276	1.138
1 opposite slant point on every 4th pitch																
100-2-P4P-AD	1.250	0.750	0.750	0.157	0.315	1.370	1.126	0.807	0.244	0.376	3.090	1.484	1.606	2.968	2.818	1.409
1 opposite slant point on every 8th pitch																
80-2-P8P-AD	1.000	0.625	0.625	0.126	0.236	1.184	0.949	0.709	0.235	0.313	2.540	1.217	1.323	2.434	2.276	1.138
1 right slant point on every 4th pitch																
100-2-P4P-SD	1.250	0.750	0.750	0.157	0.315	1.370	1.126	0.807	0.244	0.376	3.090	1.484	1.606	2.968	2.818	1.409

81X Chain

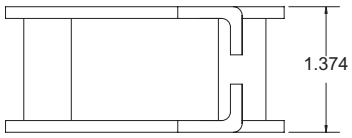
These multi-purpose chains are ideal for such forestry applications as: sorters, conveying and transferring and also for trimming lines. 81X chain is also used in general industry applications such as palletizing and the transfer of steel bars. Tsubaki offers 3 types of 81X: standard, heavy duty (HD) and lube free Lambda.

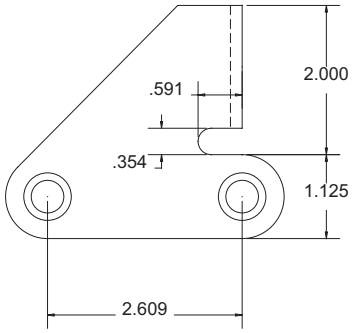




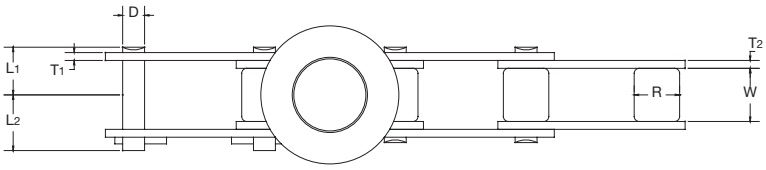
81X Lambda

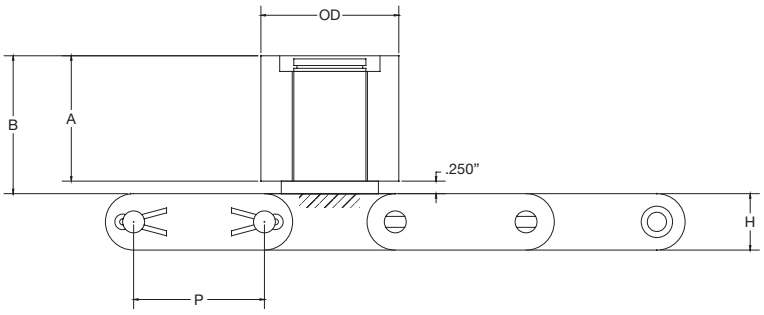
Roller Link Pusher Attachment
(Pusher attachment also available for connecting link)





Trimmer Lug with Roller Attachment





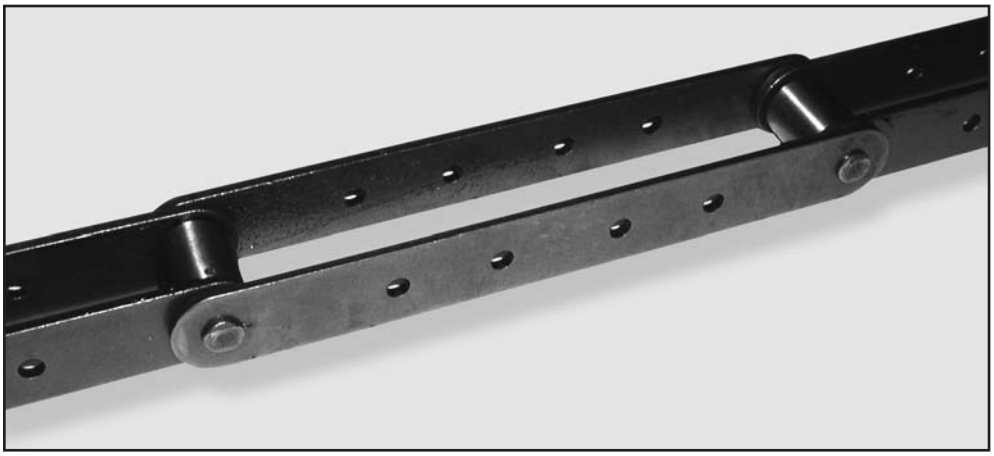
Note: Trimmer Lug will be welded onto the pin link or roller link depending on spacing requirements. Please specify when ordering. Tsubaki offers various sizes of trimmer lug weld-on attachments. Consult Tsubaki Technical Support for more information.

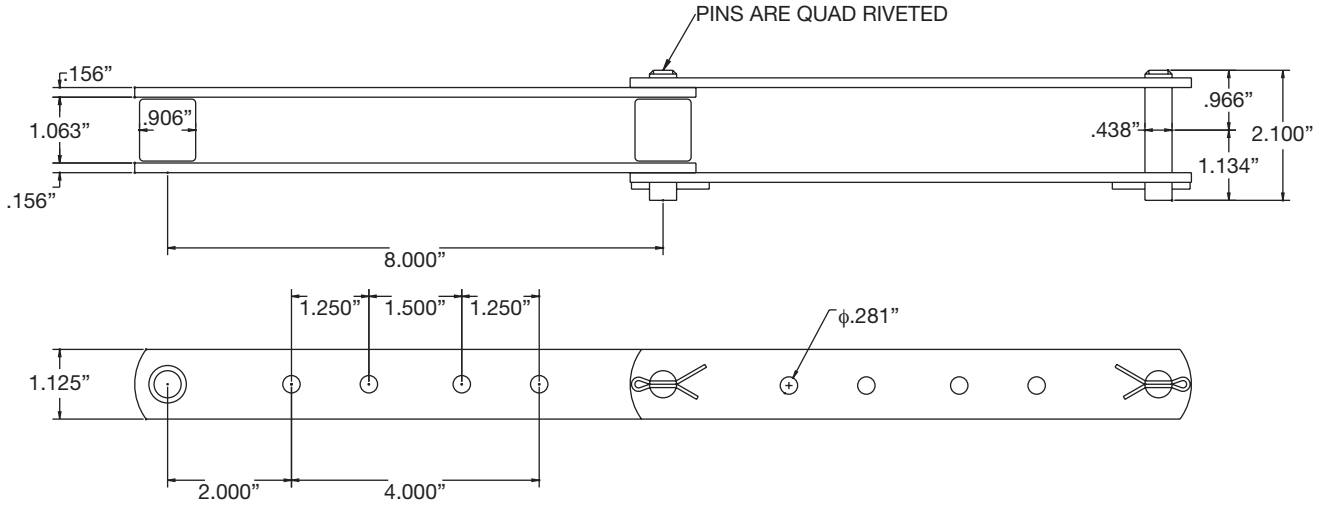
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin				Average Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T_1	Thickness T_2	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2		
81X	2.609	0.906	1.060	0.157	0.157	1.125	0.437	2.063	0.951	1.112	24,000	2.42
81XHD	2.609	0.906	1.060	0.220	0.315	1.260	0.437	2.536	1.181	1.355	41,800	4.12
81X Lambda	2.609	0.906	1.060	0.157	0.189	1.125	0.437	2.146	0.998	1.148	24,000	2.42

3939-B4 Chain

3939-B4 chain is an 8“ pitch version of 81X chain and is used for lumber conveying. It is typically used in drop sorter applications. Lumber is conveyed using J-hook attachments on the chain.

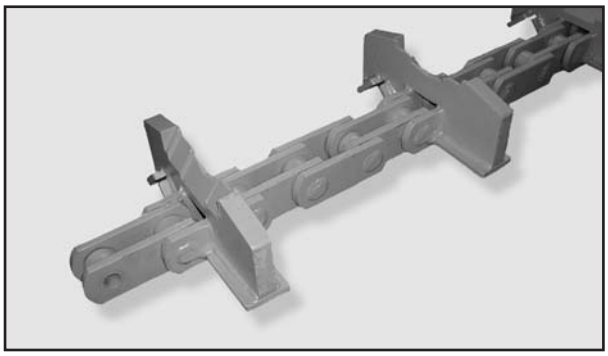




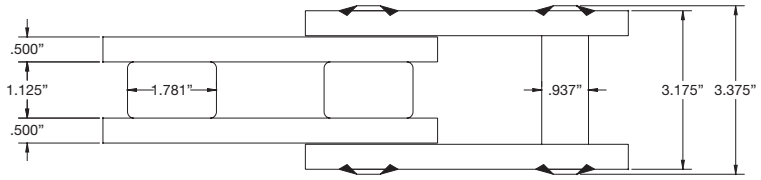
Chain Number	Average Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)
3939-B4	24,000	1.70

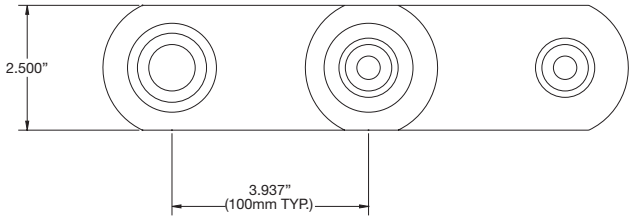
Double Length Infeed (DLI) Chain

DLI or Double Length Infeed chain is a log conveying chain that is used for Infeed machines. The chain is made with tight tolerances for high-speed log conveying applications. The wear plates on the surface of the chain has been hardened (50RD-55RD) for longer life. A common attachment is depicted below – different attachment dimensions are available.

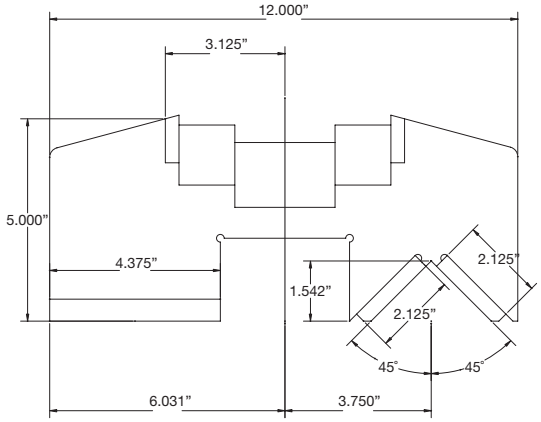


DLI 100mm 32 Pitch Chain

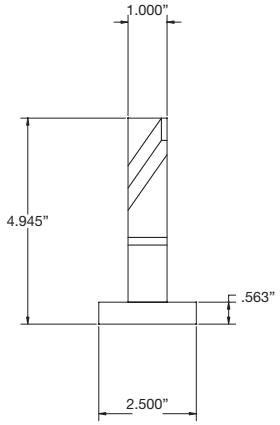




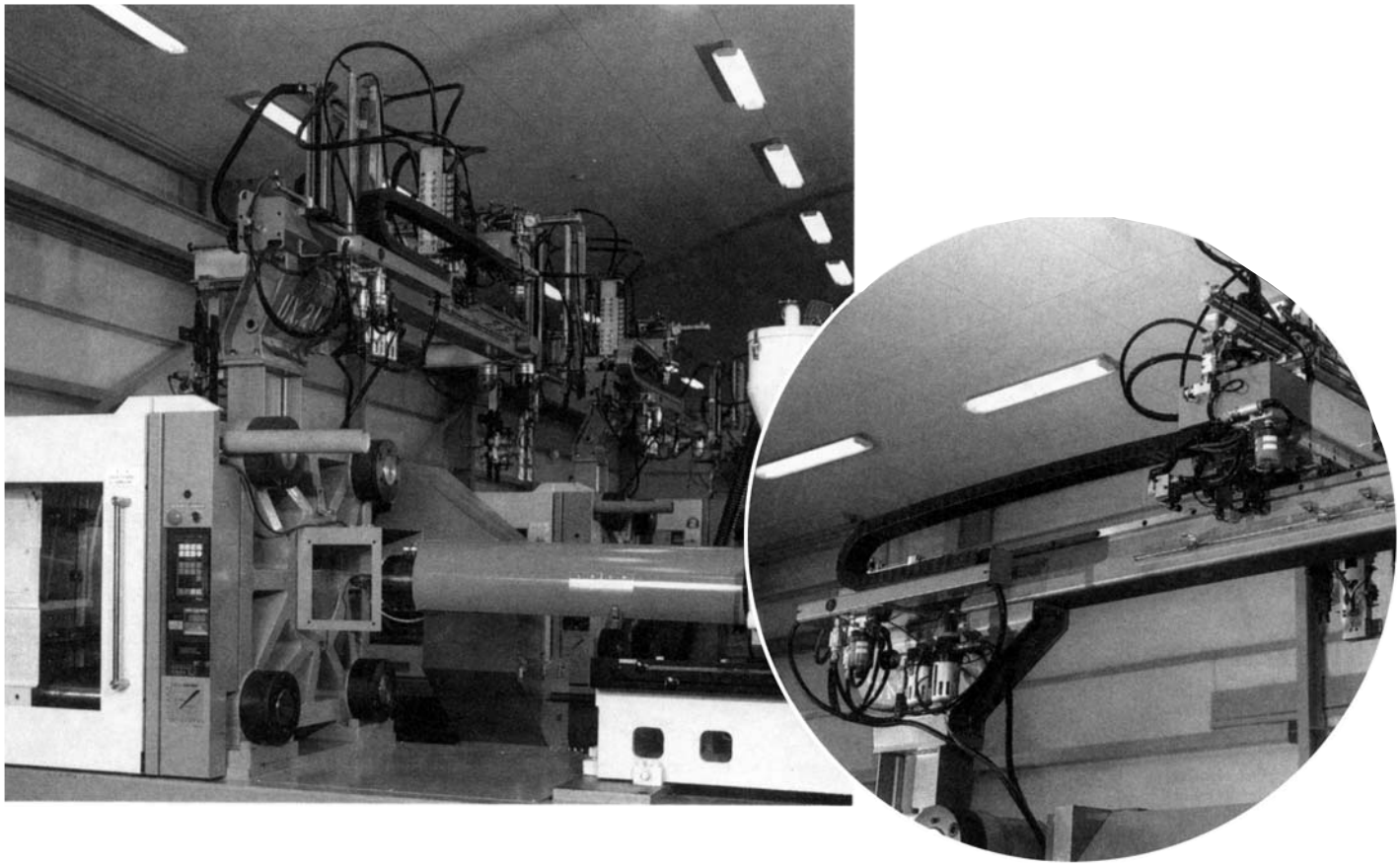
TYPE II ATTACHMENT



SIDEVIEW

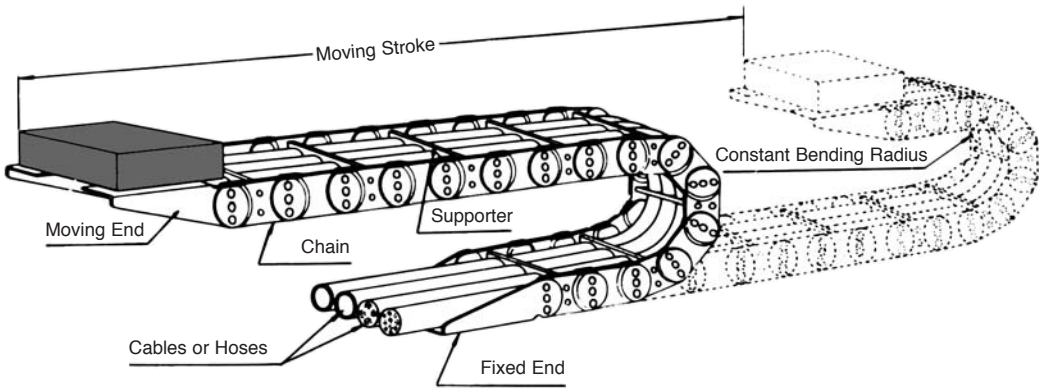


Cableveyor



Tsubaki Cableveyor provides protection for power supply cables and hoses supporting them for smoother, controlled movement on machines of all types. Cableveyor is used in a wide variety of applications, including industrial robots, tooling machines and machines for food, woodworking, steel and electronic industries. Safe, reliable and durable, Cableveyor enables cables or hoses to be bent without breakage, ripping, twisting, or accidental power stoppage.

Cableveyor



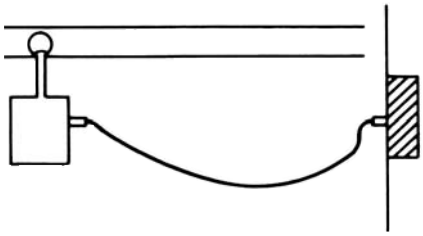
A superior support installation for cables and hoses:

Tsubaki Cableveyor is superior when compared with other systems such as the curtain, winder or wiredrum. Unlike conventional systems, the smooth running Cableveyor allows for greater efficiency and increases the working life of cables and hoses.

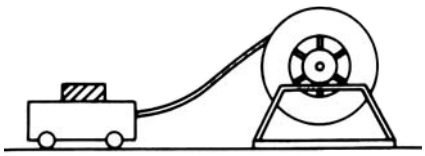
Why Tsubaki Cableveyor outperforms conventional types:

- No damage will occur to the cables or hoses.
- Cables and hoses move in a circular motion and are protected by a supporter.
- The hoses and cables move smoothly in a circular motion. As a result, frequent movement will have no effect on oil pressure, nor will there be any breaks in the electrical current.
- Our Cableveyor conserves space and has the ability to simultaneously manage the supply of electric power, oil pressure and air, for example.

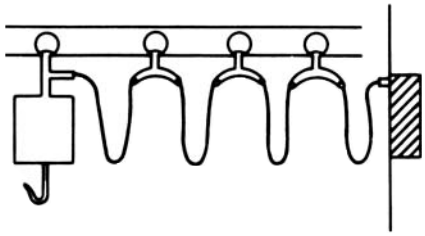
Conventional Cable Retrieval Systems



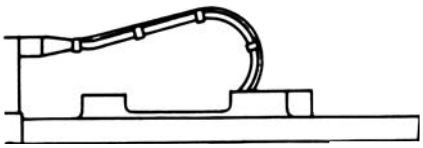
Unsupported Style



Roll-in Style



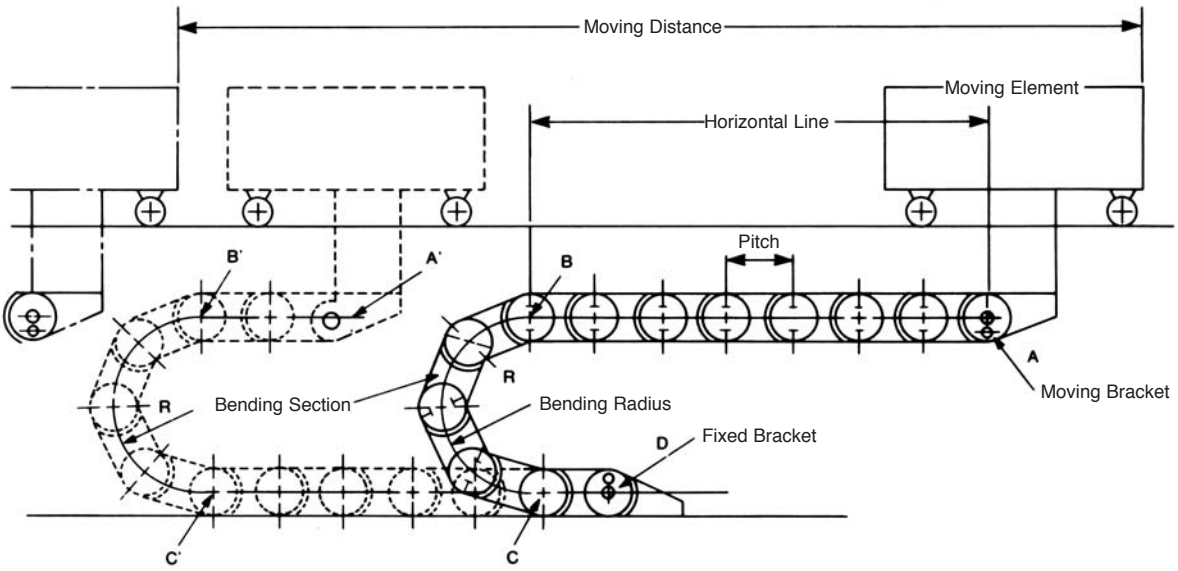
Curtain Style



Winder Style

Cableveyor is installed as shown in the picture below. Within the moving distance, it is able to move freely. The element to be moved is attached to one end of the Cableveyor (A) and the other end to where the cables or hoses are inserted (D). A horizontal axis is always maintained between (A) and (B). The bending radius of the Cableveyor remains constant even when in motion. The diagram below shows this as the Cableveyor moves from A to A' while bending evenly (R).

A constant bending radius with straight, horizontal movement provides efficiency and smooth operation.



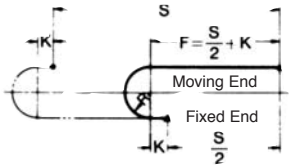
MOVING DISTANCE AND THE SUPPORT ROLLER

The straight distance normally traveled by the Cableveyor is referred to as the "freespan". The length of the freespan is determined by the weight of the cables or hoses. If half the distance the machine needs to move is over the freespan capacity, supporting equipment such as a support roller may be used to increase the length of travel. The support roller enables the freespan distance to be extended beyond the original distance.

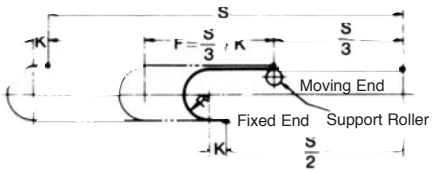
INSTALLATION

S: Moving stroke
K: Margin length
F: Freespan

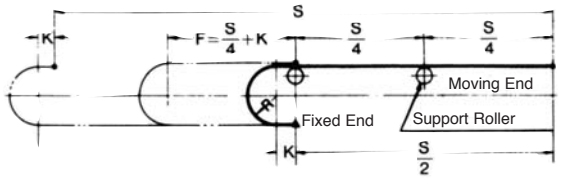
Without support roller



With one support roller, the allowable freespan can be increased up to three times the moving distance.



With two support rollers, the allowable freespan can be increased up to four times the moving distance.



Note: Use of three support rollers or more is not economical. For support roller dimensions please see page B-159 and B-160.

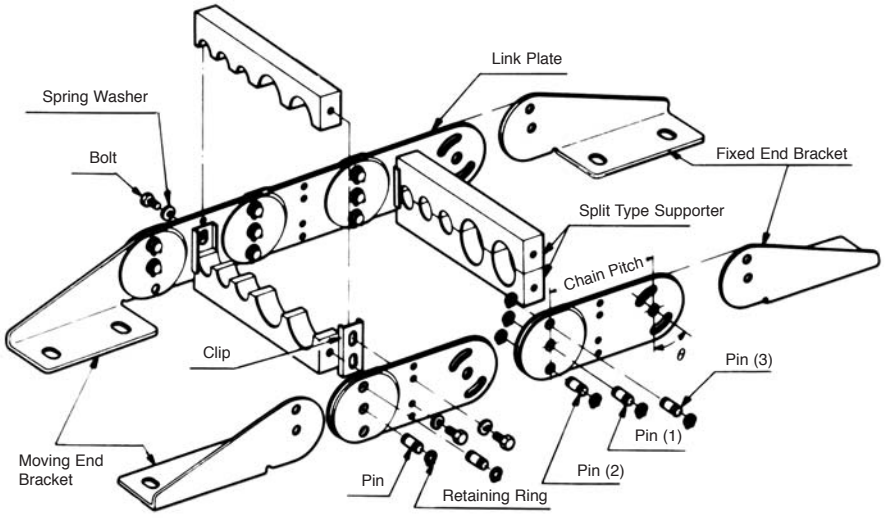
Cableveyor

		TK TYPE				H TYPE
Chain No.	Size	TK070	TK095	TK130	TK180	H250
	Bending Radius (R)	2.95 3.54 4.92 5.71	4.92 5.71 7.87 9.84 11.81	7.87 9.84 11.81 15.75	9.84 11.81 15.75 19.69 23.62 27.56	13.78 17.72 23.62 29.53
Chain Pitch (inch)		2.76	3.74	5.12	7.09	9.84
Maximum Distance of The Freespan (ft.)		11.48	14.76	19.68	26.25	37.73
Maximum Moving Stroke (ft.)	No Support Rollers	21.98	28.54	38.06	51.51	72.18
	Support Roller In One Position	33.14	42.65	57.09	77.10	108.27
	Support Roller In Two Positions	43.96	57.09	76.11	103.02	144.36
Maximum Cable/Hose (Diameter) (inch)		1.06	1.81	2.36	3.15	4.33
Maximum Cable/Hose Weight (lbs./ft.)		33.60	40.32	47.04	53.76	67.20
Maximum Chain Speed (ft./min.)		196.85				
Chain Weight (lbs./ft.)		4.03	5.38	11.42	14.11	26.88
Operating Temperature (°F)		-12° - 302°				
Operating Conditions		Indoor				
Material	Chain	Steel (with Zinc)				
	Supporter	Aluminum				
	Brackets	Steel (with Zinc)				

CONSTRUCTION AND FEATURES

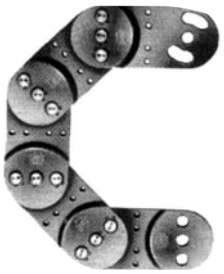
TK Cableveyor is constructed of steel chain with aluminum supporters to give high strength and durability for diverse applications. The holes of the supporters are made to fit the cables or hoses precisely. These cableveyors are very versatile and can fit most industrial machines.

TK Type



TK TYPE OVAL CABLEVEYOR

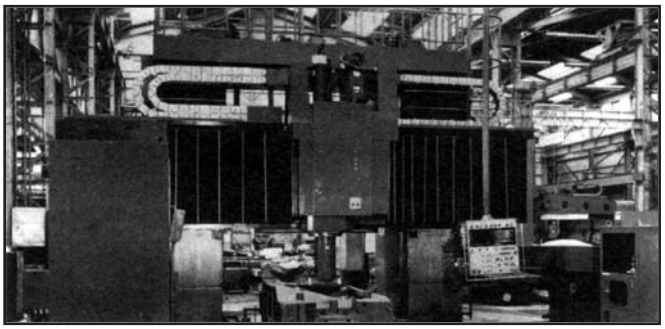
- TK-type Cableveyor has been designed to protect workers from accidents by utilizing specially shaped link plates. This link plate design has solved the problems that may occur due to crevices between link plates.



- All link plates are offset type. The pins at the moving connection are through hardened by an induction heat-treatment to provide high abrasion and deformation resistance. TK-type Cableveyor is also effective against side force damage.

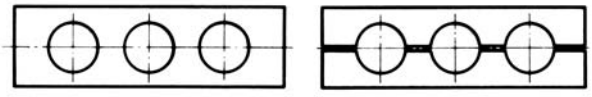
- Proper size holes will be made to your specifications. The holes on the stays are made to fit the diameter of the cables or hoses.

- By using the correct size holes in the stays, cables and holes will be very steady and well protected.



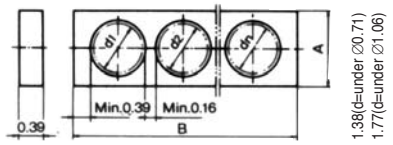
SUPPORTERS

There are two types of supporters for TK type Cableveyor, a one-piece supporter and a split supporter. The split supporter is very convenient for long moving strokes, if an odd shaped attachment is used on the cables or hoses, or if a large number of cables or hoses must be installed.

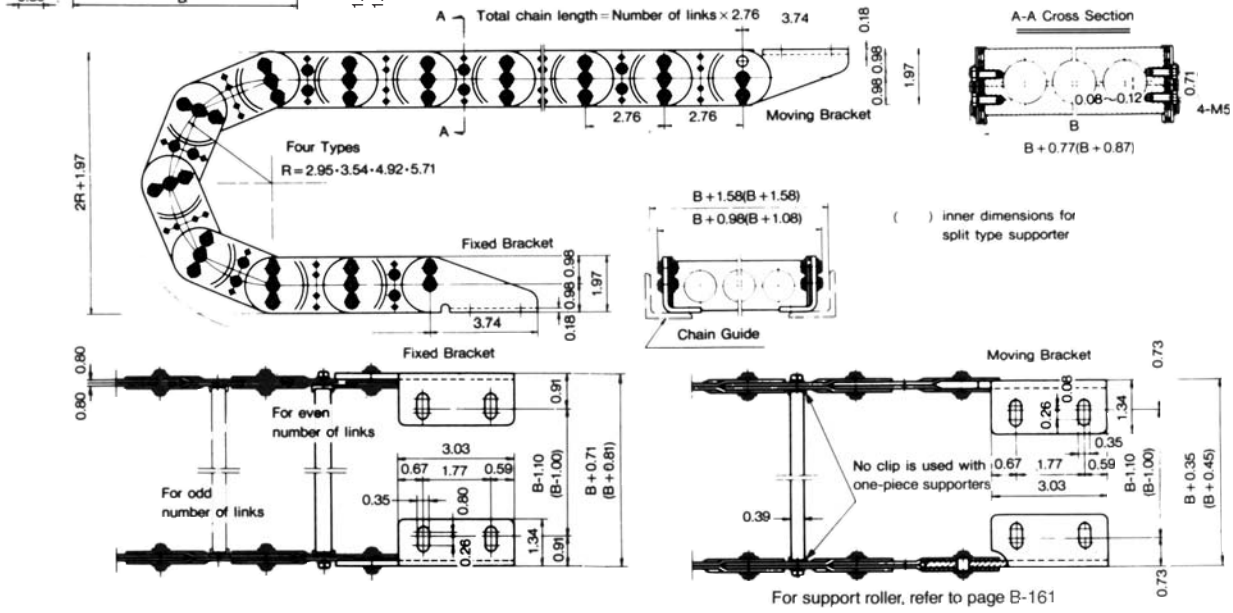


One-piece supporter Split Supporter

TK070



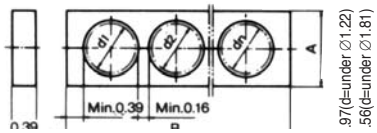
Cable/hose Maximum Outer Diameter	Dimension A	Dimension B								
		2.36	3.15	3.94	4.92	5.91	7.87	9.84	11.81	13.78
Ø0.71	1.38	○	○	○	○	○	○	○	—	—
Ø1.06	1.77	○	○	○	○	○	○	○	○	○



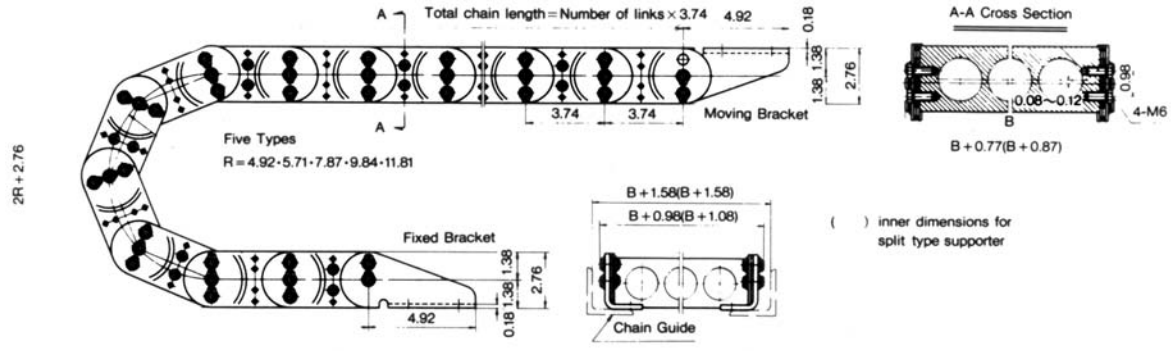
For support roller, refer to page B-161

TK095

DIMENSIONS FOR STANDARD SUPPORTER

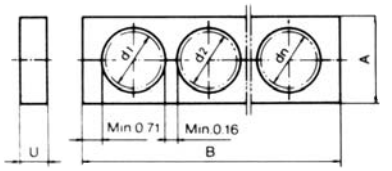


Cable/hose Maximum Outer Diameter	Dimension A	Dimension B										
		3.15	3.94	4.92	5.91	7.87	9.84	11.81	13.78	15.75	17.72	19.67
Ø1.22	1.97	○	○	○	○	○	○	○	○	○	—	—
Ø1.81	2.56	—	○	○	○	○	○	○	○	○	○	○



For support roller, refer to page B-161

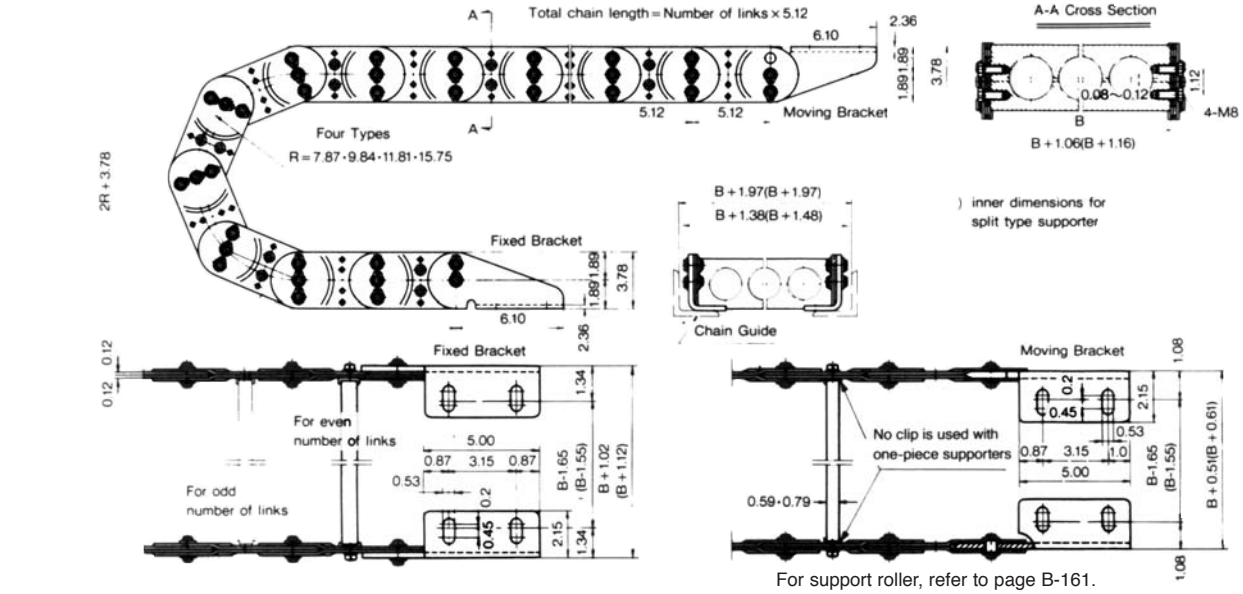
TK130



2.56(d=under ∅1.81)
2.95(d=under ∅2.17)
3.54(d=under ∅2.36)

Cable/hose Maximum Outer Diameter	Dimension A	Dimension B											
		3.94	4.92	5.91	7.87	9.84	11.81	13.78	15.75	17.72	19.69	21.65	23.62
∅1.81	2.56	○	○	○	○	○	○	○	○	○	○	—	—
∅2.17	2.95	○	○	○	○	○	○	○	○	◎	◎	—	—
∅2.36	3.54	—	○	○	○	○	○	○	○	◎	◎	◎	◎

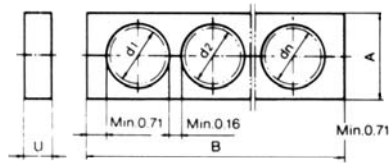
○ ...U=0.59 ◎ ...U=0.78



For support roller, refer to page B-161.

TK180

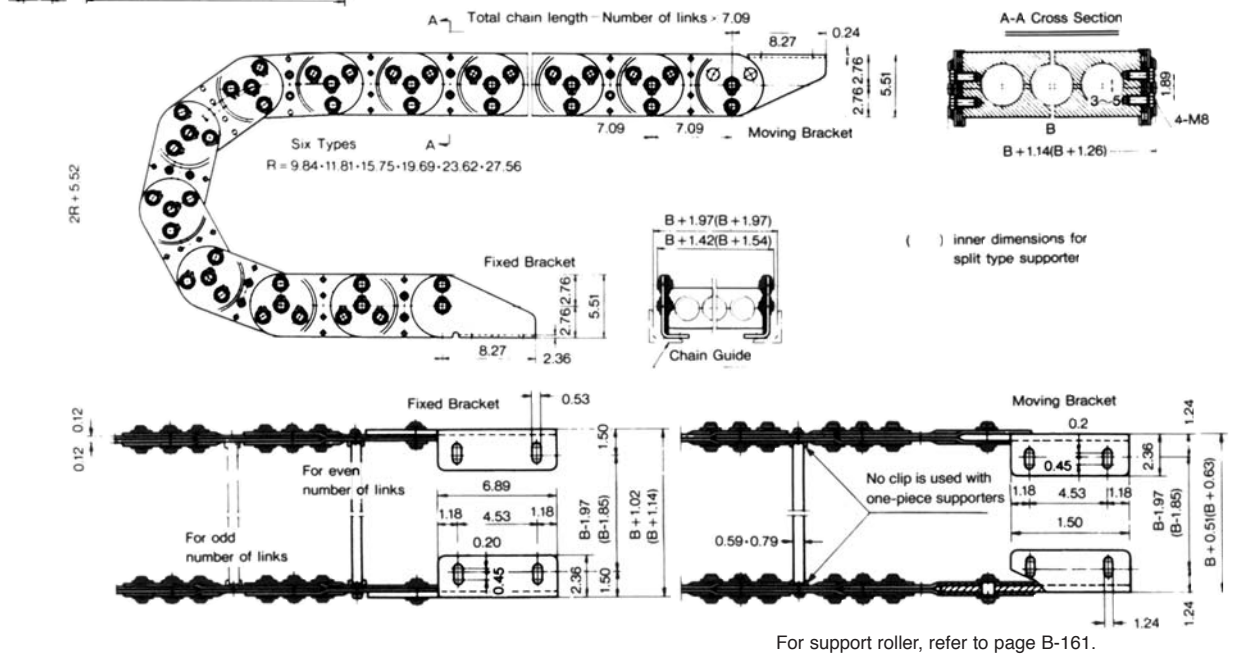
DIMENSIONS FOR STANDARD SUPPORTER



2.95(d=under ∅2.17)
3.54(d=under ∅2.36)
4.33(d=under ∅3.15)

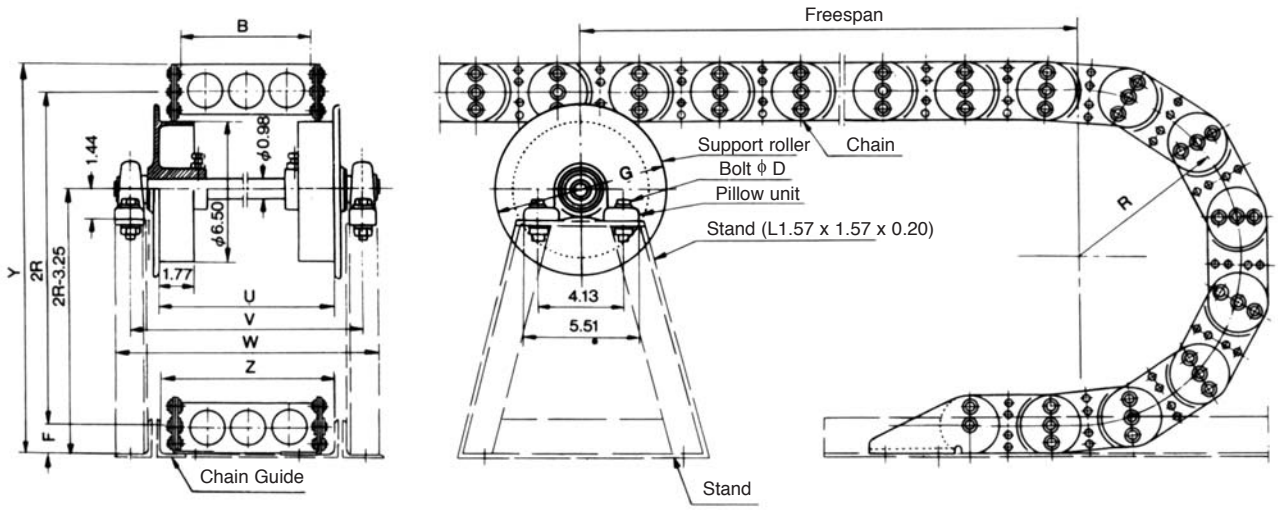
Cable/hose Maximum Outer Diameter	Dimension A	Dimension B											
		3.94	4.92	5.91	7.87	9.84	11.81	13.78	15.75	17.72	19.69	21.65	23.62
∅2.17	2.95	○	○	○	○	○	○	○	○	◎	◎	—	—
∅2.36	3.54	—	○	○	○	○	○	○	○	◎	◎	◎	◎
∅3.15	4.33	—	—	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

○ ...U=0.59 ◎ ...U=0.79



For support roller, refer to page B-161.

TK TYPE SUPPORT ROLLER DIMENSIONS



Dimensions in inches

Appropriate Chain Size	Minimum Supporter Width B	Minimum Bending Radius R	d	G	M	N	U	V	W
TK070	3.15	4.92	0.98	8.07	5.51	4.13	B+1.77	B+4.53	B+6.02
TK095									
TK130	3.94	7.87		11.22			B+2.17	B+4.92	B+6.42
TK180	4.92	9.84							

Dimensions in inches

Appropriate Chain Size	L	F	X	Y	Z	Bolt Size D
TK070	1.77	0.98	1.44	2R+1.20	B+1.57	M0.47
TK095		1.38		2R+2.76		
TK130		1.89		2R+3.78	B+1.97	
TK180		2.76		2R+5.51		

1. Support rollers are available for TK070 with R75 and R90. Your order will be custom made.
2. The location of the stand for the Cableveyor depends on its usage. When ordering a stand, please advise us accordingly.
3. In order to determine space requirements for installation of the Cableveyor, please refer to page B-165.
4. When setting up the support roller, be careful to ensure that the roller's flanges are parallel.

Cableveyor Selection Procedure

STEP 1. Specifications

When selecting the correct Cableveyor, several things must be taken into consideration. The following data must be known for proper selection.

1. Application conditions.
2. Moving stroke (ft.)
3. Moving speed (ft./min.)
4. Number and external diameters of the cables/hoses to be installed.
5. Total weight of the cable/hoses. (lbs./ft.)
   (In the case of hoses, the weight of the carrying element such as oil, water, etc., should be included.)
6. Allowable bending radius of cables and hoses (inch).
   This is determined from the intended function.

STEP 2. Determining the moving stroke and bending radius

The tentative selection of Cableveyor and the support roller is made as follows. Determine the approximate radius with the capability graph (page B-163). This graph is based on the distance of the moving stroke and the weight of the cables and hoses.

1. Estimate the distance of the moving stroke when a support roller is not being used. If the moving stroke is too long, use a support roller. Note that in some cases, it is more efficient not to install one.
2. Determine the bending radius of the cables or hoses.

Allowable bending radius (Actual bending radius) < Standard chain bending radius (R).

Regarding the bending radius of the cables or hoses, refer to the calculations below.

In the case of cables,
Allowable bending radius ≧ external diameter X 6

In the case of hoses,
Allowable bending radius ≧ external diameter X 9

STEP 3. Adjusting the moving stroke

The length of moving stroke must be adjusted if used under the circumstances listed in the Service Factor Table below.

Length of moving stroke X service factor = adjusted moving stroke

For selection purposes, use the adjusted moving stroke length with the capability graph.

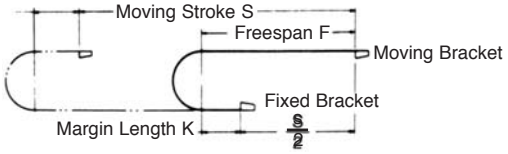
Service Factor Table

Operating Conditions	Installation suggestion	Service Factor
Frequent starting and stopping	Sometimes support rollers or guides are needed to prevent the chain from falling.	1.5
Sudden starts and stops with large vibrations	Use a large bending radius to decrease frequent vibrations caused by multiple-angle movements of the chain.	2

STEP 4. Calculation of the number of chain links

$$l = \frac{\frac{S}{2} + \pi R + 2K}{P}$$

Margin length for each chain size (K)



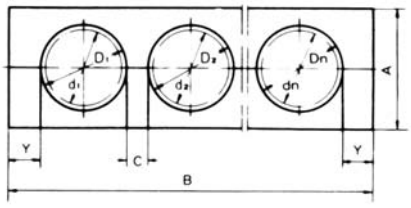
Chain Size	K (at least)
TK070	4.13
TK095	5.71
TK130	7.68
TK180	10.63

STEP 5. Standard Supporter Selection

1. TK TYPE

1. Dimension (A): The size of the supporter may be chosen from the reference table for each chain size. (maximum cable/hose diameter)
   $B' = Y + D_1 + C + D_2 + C + \ldots\ldots D_n + Y$
   $B \geqq B'$
2. Dimension (B): B' = Calculated maximum supporter width
   B = Standard supporter width as chosen from the table
   D = d x 1.1, but D-d ≧ 0.08 inch
   C ≧ 0.16 inch
   Y = Refer to the below table
3. Number of supporters (N): Supporters should be installed at every 2nd pitch.
   When chain link number (l')
   is even, number of supporters is, $n = \frac{\ell'}{2}$
   When chain link number (l')
   is odd, number of supporters is, $n = \frac{\ell' - 1}{2}$

SUPPORTER CHOICE TABLE



Chain Size	min (Y)
TK070	0.39
TK095	0.59
TK130	0.71
TK180	0.71
H250	0.98

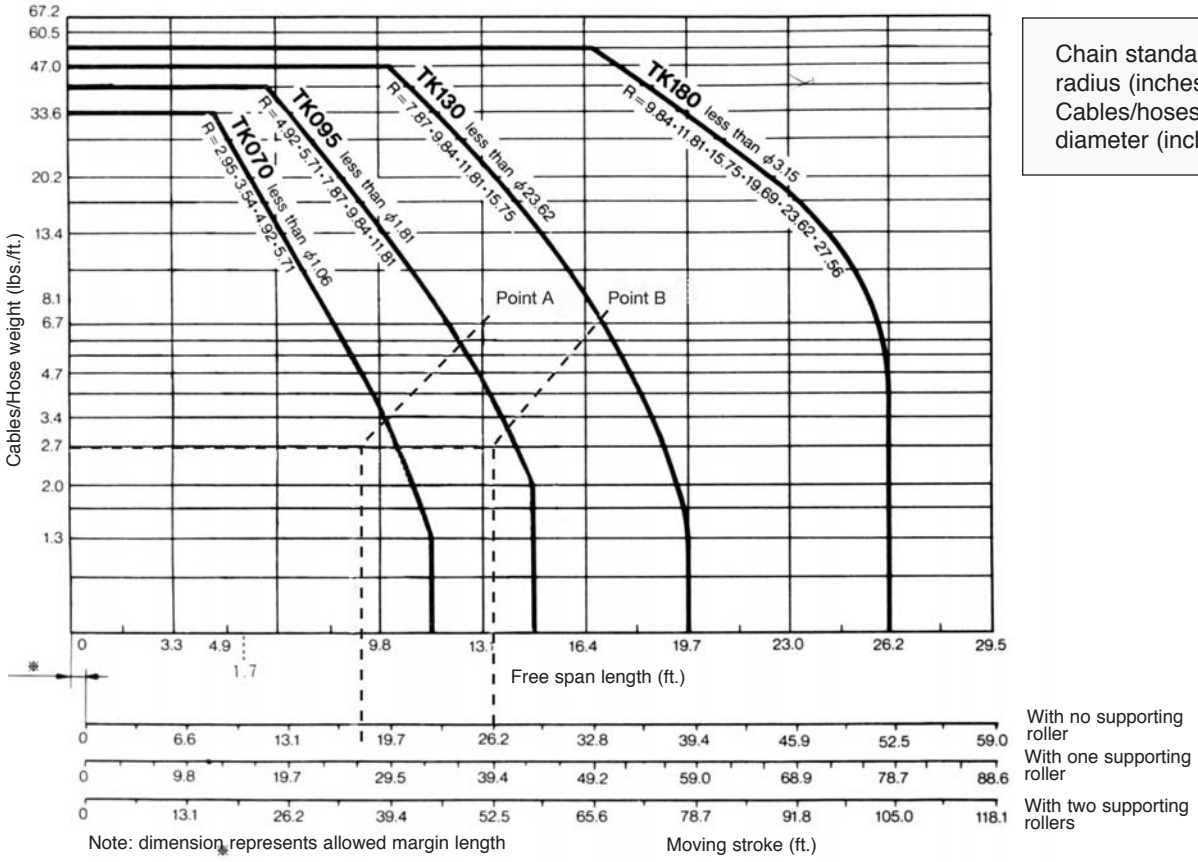
STEP 6. Freespan confirmation

$$K' = \frac{P \times l' - \left(\frac{S}{2} + \pi R\right)}{2}$$

Freespan without support roller	$F_0 = \frac{S}{2} + K'$
Freespan with one support roller	$F_1 = \frac{S}{3} + K'$
Freespan with two support rollers	$F_2 = \frac{S}{4} + K'$

The values of F_0· F_1· F_2· must not exceed the maximum freespan from the capability graph below. If it does, a larger chain size must be chosen or more support rollers added, but only up to a maximum of two.

Capability Graph



Chain standard bending radius (inches)
Cables/hoses outside diameter (inches)

How to use the capability graph

For the TK095, if the weight of the cables or hoses is 4.03 lbs./ft., the moving strokes are:

25.6 ft. with no support roller
38.4 ft. with one support roller
51.2 ft. with two support rollers

There are five different bending radii of the chain standardized at 4.92, 5.71, 7.87, 9.84, 11.81 inches. Maximum hole diameter is 1.81 inches.

Example

Weight of the cables or hoses: 2.69 lbs./ft.
Allowable bending radius of cables or hoses: 7.48 inches
External diameter of the biggest cable or hose: ø 11.81 inches.
Moving stroke: 26.25 ft.

With no support roller:
The intersection of the cable weight axis (2.75 lbs./ft.) and the freespan length axis (26.25 ft.) at point A is within the range of TK095. Therefore, it can use a bending radius within 78.74 inch and satisfy the diameter of the cable or hose.

With one support roller:
The intersection at point B is within the range of TK070, but the allowable bending radius of cables or hoses is more than the allowable bending radius of the cableveyor. The diameter of the hoses or cables is bigger than that which is on the chart. Therefore, it does not satisfy the requirement.

Cableveyor Selection Procedure

TSUBAKI

SAMPLE SELECTION

Example

1. Situation . . . . . .Indoor, normal temperatures
2. Moving stroke . . . . . .29.5 ft.
3. Number and external diameter of the cables or hoses . . . . . .cables ø 1.73 X 2, oil hoses ø 1.42 X 2
4. Weight at installation . . . . .cables 2.01 lbs./ft. X 2, oil hoses . . . . . .1.34 lbs./ft. X 2, total weight 6.7 lbs./ft.
5. Allowable bending radius . . . . . .cable 10.63 inches, oil hoses 10.24 inches
6. The cables or hoses will be set horizontally on one line.
7. The fixed bracket will be in the middle of the length of travel.
8. Speed of travel . . . . . .100 ft./min.
9. Vibrations . . . . . .none

STEP 1. Specifications

See STEP 1 of the SELECTION outline (page B-162).

STEP 2. Tentative selection

From the capability graph on page B-163, TK130 would satisfy what is required since it has no supporting roller, and since the moving stroke is 29.5 ft. (length of travel) and 6.7 lbs./ft/ for cable and hose weight.

STEP 3. Selection of the bending radius

R11.81 and R15.35 will satisfy the requirement for a larger than allowable bending radius (10.63 inches).

STEP 4. Calculation of the number of chain links

Once the chain size has tentatively been referred to, the number of chain links may be calculated according to the following equation.

$$\ell = \frac{\frac{S}{2} + \pi R + 15.35}{5.12} = \frac{\frac{354}{2} + 11.81\pi + 15.35}{5.12} = 44.9 \text{ links}$$

The fraction is rounded off to $\ell' = 45$ Links

STEP 5. Freespan confirmation

Freespan F (without support rollers) is confirmed by adding the margin length (K') + S/2).

$$K' = \frac{130 \text{ X } 45 \text{ links} - (\frac{354}{2} + 300\ \pi)}{2} = 8.03 \text{ inches}$$

$$F_0 = \frac{S}{2} + K' + \frac{354}{2} + 8.03 = 85.20 \text{ inches}$$

From the capability graph on page B-163 a freespan of up to 17.22 ft. is approved for a cable/hose weight of 6.72 lbs./ft. Since F_0 = 15.43 ft. is less than 17.22 ft., the TK130, R11.81 chain size is the most suitable. If $F_0 > 17.22$ ft., a larger chain size should be used - TK180, R11.81, for example.

STEP 6. Standard supporter selection

Supporter hole diameter may be calculated by the following equation, where D ≧ 1.1d and where D is rounded off to the nearest even whole number, making the diameter ∅1.89 X 2, ∅1.58 X 2.

The supporter length B' is –

B' = ΣD + ΣC + Min.36 (C = Min.1.42)

B' = {(1.89 X 2) + (1.58 X 2)} + (0.16 X 3) + 1.42 = 8.82 inch.

The supporter dimension table shows that a supporter of this size fits cables/hoses of 1.73 inches the best. When deciding on the supporter dimensions, the next largest size appearing on the table must be chosen when the calculated figure does not appear. For example, a value of 8.82 would take the next bigger figure on the table, or 0.98. As the supporter length B' becomes greater the spaces between holes (C) must also increase to maintain balance.

STEP 7. Amount of supporters needed.

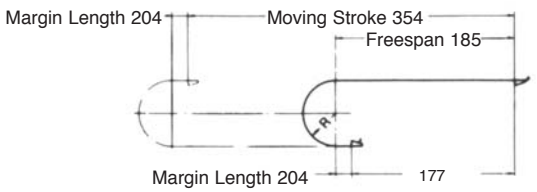
$$n = \frac{\ell' - 1}{2} = \frac{45 - 1}{2} = 22 \text{ pieces}$$

Where: ℓ' = Number of chain links
n = Number of supporters

STEP 8. Cableveyor choice

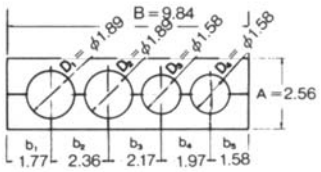
Chain: TK130, R11.81
Assembly: 45 links + brackets at both ends
Supporter size: 2.56 X 9.84 (split type)
Supporter hole diameter: D_1 = ø1.89, D_2 = ø1.89, D_3 = ø1.58 D_4 = ø1.58
Supporter hole pitch: b_1 = 1.77, b_2 = 2.36, b_3 = 2.17, b_4 = 1.97, b_5 = 1.58

SAMPLE LAYOUT



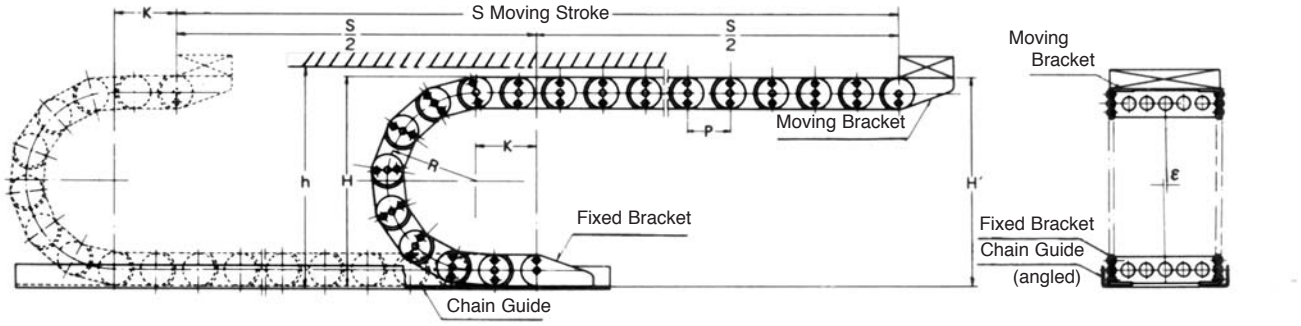
SUPPORTER CHOICE TABLE

Hole Diameter	D_1	D_2	D_3	D_4	
	1.89	1.89	1.58	1.58	
Hole Pitch	b_1	b_2	b_3	b_4	b_5
	1.77	2.36	2.17	1.97	1.58



Cableveyor Selection Procedure

INSTRUCTIONS FOR HANDLING AND ORDERING CABLEVEYOR



(1) A chain guide is necessary for Cableveyor. An angled steel plate is best.

(2) Installation height of the moving bracket (H') and tolerance for the center of the fixed and moving brackets (ε) should be set according to the table below.

Dimension in inches

Chain Size	ε (max.)	H'
TK070	0.16	H + 0.40
TK095	0.24	
TK130	0.31	
TK180	0.39	

(3) Under normal circumstances, lubrication is not necessary. However, for corrosive conditions, a lubricant should be used for protection.

(4) Since the TK types do not bend at the bracket chain joint, a minimum extension margin of 1.5 pitches (K on the diagram above) should be adhered to. If this extension margin is difficult to comply with, only one pin should be used in the center of the moving bracket. In addition, if the unit is operated at speeds of 65 ft./min. or more, the location of the moving bracket and fixed bracket should be switched. Two pins should be used with the moving bracket and only one pin (in the center) with the fixed bracket.

(5) If the TK split-type supporter must be detached, care should be taken to reassemble the supporter in the same way with the corresponding marks on each half of the supporter properly aligned with each other.

(6) When detaching and reassembling supporters, make sure that the chain is kept horizontal. If not, the chain will not move in a straight line.

(7) Check that bolts and other hardware are tight when assembling and when operating, since they may become loose through operational vibration.

(8) Do not put heavy objects or allow people to sit on the chain, as this will result in chain damage.

(9) Note that the chain will sag in its unloaded condition as it is designed to straighten out by its own weight when attached.

Notes on Fitting Cables or Hose into the Cableveyor

(1) The end of the cable/hose should have an extension margin to insure that no damage occurs between the cable/hose and its attachment. Usually, this amounts to six times the hose diameter.

(2) The minimum cable/hose length necessary is given by the following equation:

L = {(chain pitch X link number) + cable/hose length from chain to its attachment} X 1.015.

Note, however, that the hose's internal pressure causes a slight reduction in hose length. This should be considered when attaching hoses.

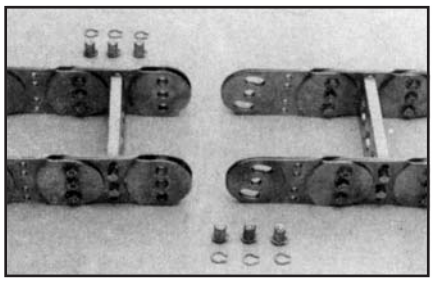
Instructions for Handling and Ordering Cableveyor

TSUBAKI

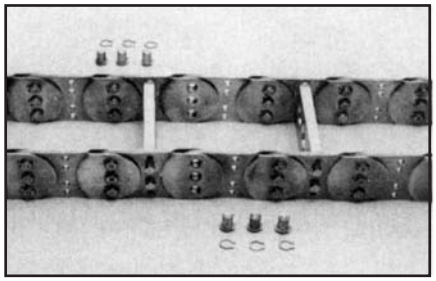
TK Type is packed and shipped in pre-fixed lengths for convenience, secure packing and easy transportation. Assembly is easy and can be done quickly without special tools.

ASSEMBLY AND CHAIN CONNECTION

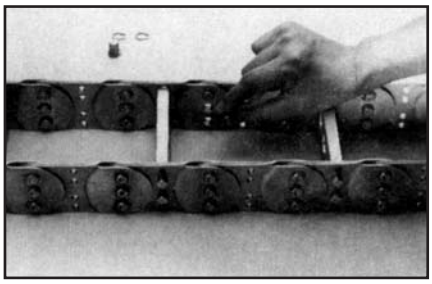
TK Type



Lay the outer side of the chain facing down.



Align the holes on both sides of the chain.

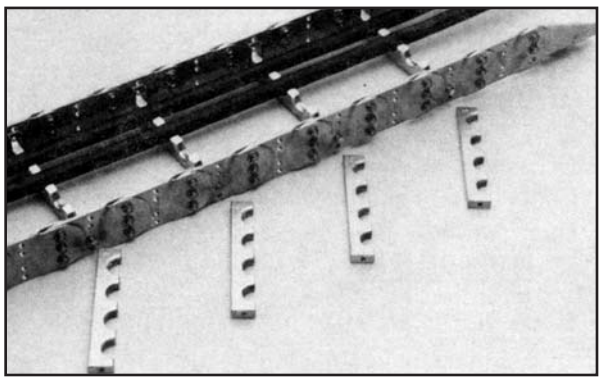


Insert the pin and lock in place with the retaining ring.

INSERTING THE CABLES AND HOSES

TK split supporter

Take off the inner side of the supporter. If the supporter is difficult to remove, loosen the side bolts of the other supporter. Next, place the cables/hoses on the grooves. The inner supporter can then be put back and the supporter bolts loosely tightened. Do not firmly tighten the bolts until all the supporters have been reattached and the Cableveyor has been placed according to the photo for adjusting and final assembly.



TK one-piece supporter

The cables/hoses may be inserted from the moving or fixed end. After the cables or hoses have been inserted and the supporters replaced, tighten the supporter bolts completely. Be careful that the Cableveyor chain is not twisted. Tighten bolts evenly, keeping the Cableveyor straight. Check that the bolts have not come loose during handling and assembly.

Instructions for Handling and Ordering Cableveyor

Let us know your specifications according to the tables below. We will manufacture a suitable chain, custom made for your needs. For easier assessment, fill out this table at the places marked.

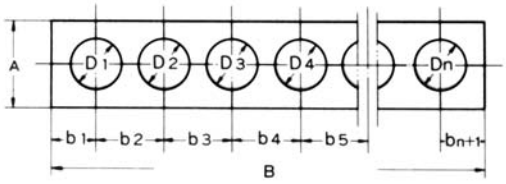
Specification Information Table

Machine to be used		
Moving Stroke (S)		inches
Movement speed		ft./min.
Frequency of use		times/day
Cable + Hose weight		lbs./ft.
Cable + Hose allowable bending radius		inches
Operating conditions (atmosphere, etc.)		

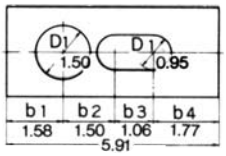
Chain size	TK		R	
Moving or fixed bracket type				
Chain length		(Links + Brackets) X		Sets
Kind of supporter if TK Type		(split or one piece)		
Supporter width		X		
Supporter hole diameter	Refer to the table below.			
Number of supporters				

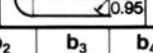
Information about TK Type Supporter Holes

Supporter Hole Diameter and Pitch



Example



Hole Diameter	D_1	D_2	D_3	D_4	
	1.50				
Hole Pitch	b_1	b_2	b_3	b_4	b_5
	1.58	1.50	1.06	1.77	

TK-Type A-A Cross Section (For A-A cross section, please refer to chain dimensions.)

Hole Diameter	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9	D_{10}	D_{11}	D_{12}	D_{13}	D_{14}	
Hole Pitch	b_1	b_2	b_3	b_4	b_5	b_6	b_7	b_8	b_9	b_{10}	b_{12}	b_{13}	b_{14}	b_{15}	

⚠ WARNING

USE CARE TO PREVENT INJURY
COMPLY WITH THE FOLLOWING
TO AVOID SERIOUS PERSONAL INJURY

1. Guards must be provided on all chain and sprocket installations in accordance with provisions of ANSI/ASME B15.1 – 1996 “Safety Standards for Mechanical Power Transmission Apparatus,” and ANSI/ASME B20.1 – 1996 “Safety Standards for Conveyors and Related Equipment,” or other applicable safety standards. When revisions of these standards are published, the updated edition shall apply.

2. Always lock out power switch before installing, removing, lubricating or servicing a chain system.

3. When connecting or disconnecting chain:
   a. Eye protection is required. Wear safety glasses, protective clothing, gloves and safety shoes.
   b. Support the chain to prevent uncontrolled movement of chain and parts.
   c. Use of pressing equipment is recommended. Tools must be in good condition and properly used.
   d. Determine correct direction for pin/rivet removal or insertion.

Revision 5/94