



ANSI AND BRITISH STANDARD
ATTACHMENT CHAIN GUIDE

Every Calling is Great, When Greatly Pursued.

OLIVER WENDELL HOLMES



At the Diamond Chain Company, the calling to design and manufacture the world's highest-performing roller chain is greatly pursued every day by teams of passionate technical experts who have made your success their life's work. It's that intensity of focus that some of the world's greatest inventors trusted to provide the drive chains they needed to transform the world. From the Wright Brothers, to Henry Ford, to the global leaders of our time, Diamond® chain is the roller chain most trusted to perform, when performance matters most.



STANDARD ATTACHMENT ROLLER CHAIN

STANDARD ATTACHMENTS:

Diamond Chain stocks over 100 standard roller chain attachments for single pitch chain including bent plate, straight plate, and extended pins. An infinite number of custom-made attachment configurations are available, contact your Diamond representative for more information. All Diamond Chain products feature Class I length matching, Class II length matching is available upon request.

EXTENDED PINS:

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

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

ATTACHMENT HOLE SIZES:

Diamond’s attachment hole sizes are designed to accommodate most common screw sizes. If your application requires a different attachment hole size than shown here, please contact Diamond for assistance at +44-191-414-8822.

Dimensions in mm

ISO/BS Number	Hole Diameter mm
06B	3.5
08B	4.5
10B	5.3
12B	6.4
16B	6.4
20B	8.4
24B	10.5

IMPORTANT FEATURES FOR PARALLEL OPERATIONS

MANUFACTURING LENGTH TOLERANCE

ISO 606 defines the permissible length of an assembled section of roller chain. The allowable length tolerances depend on the chain’s construction, i.e. with or without attachments.

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

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

EXAMPLE—

The assembled length tolerance for an British Standard 1 inch pitch chain (16B)

- Without attachments, tolerance is +1.5mm/-0mm per meter
- With attachments, tolerance expands to +3.0mm/-0mm per meter

This means that a section of 16B chain 39 pitches long (990.6mm nominal) can measure as long as 992.1mm but no less than 990.6mm. The same section of chain assembled with bent, straight, or extended pin attachments could measure as long as 993.6mm but again, no less than 990.6mm.

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

LENGTH MATCHING OF ROLLER CHAINS

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

Class I—A Class I match assures that the longest and the shortest chain in a given set will not vary in overall length by more than 500 microns/meter. Using 16B chain as an example, the length of two 118 pitch long chains which are Class I matched will not vary by more than 1.5mm in overall length (3m x .5mm/m = 1.5mm). So in this example the difference between the longest and the shortest chain in the matched set is no more than 1.5mm. Class I matching is most often accomplished by assembling the chains from selected lots of component parts.

Class II—A Class II match is much more stringent and assures that the longest and the shortest chain in a given set will not vary in overall length by more than 167 microns/meter. Applying this new tolerance to the above example, the lengths of two 16B chains 118 pitches long will not vary in overall length by more than 0.5mm (3m x 0.167mm/m. = 0.5mm). Class II matching is quite difficult and requires some very unique procedures.

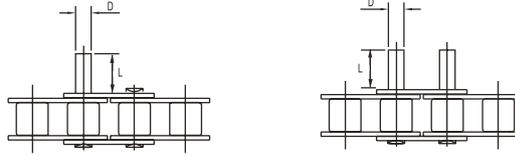
DIFFERENCES— It is important to remember that matched chains must still meet the overall chain length limitations imposed by either ISO 606 or the manufacturer, whichever is more stringent. Matching **does not** assure the user of chains with a finite overall length, only that the chains in the matched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

**BRITISH STANDARD EXTENDED PIN SERIES CHAINS
DOUBLE-PITCH CONVEYOR CHAIN**

**EXTENDED PIN
DIMENSIONS**

Dimensions in mm

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



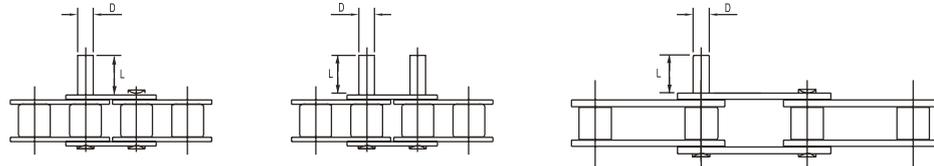
ISO/BS Number	Pitch mm	$D \pm .0005''$	$L \pm .010''$
06B	9.525	3.28	9.50
08B	12.700	4.45	9.50
10B	15.875	5.08	11.90
12B	19.050	5.72	14.30
16B	25.400	8.28	19.10
20B	31.750	10.19	23.80
24B	38.100	14.63	28.60

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

**EXTENDED PIN
DIMENSIONS**

Dimensions in mm

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



ASME/ANSI #	Pitch mm	$D \pm .0005''$ mm	$L \pm .010''$ mm
35	9.53	3.581	9.525
40	12.70	3.962	9.728
41	12.70	3.581	9.525
50	15.88	5.080	11.887
60	19.05	5.944	14.275
80	25.40	7.925	19.050
100	31.75	9.525	23.800
120	38.10	11.100	28.575
140	44.45	12.700	33.325
160	50.80	14.275	38.100

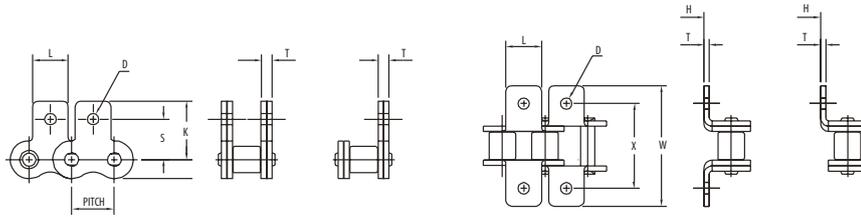
ASME/ANSI #	Pitch mm	$D \pm .0005''$ mm	$L \pm .010''$ mm
C-2040, C-2042	25.40	3.962	9.525
C-2050, C-2052	31.75	5.080	11.887
C-2060H, C-2062H	38.10	5.944	14.275
C-2080H, C-2082H	50.80	7.925	19.050
C-2100, C-2102H	63.50	9.525	23.800
C-2120H, C-2122H	76.20	11.100	28.575
C-2160H, C-2162H	101.60	14.275	38.100

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

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

CHAIN DESCRIPTIONS AND DIMENSIONS

BRITISH STANDARD STRAIGHT & BENT ATTACHMENT CHAIN



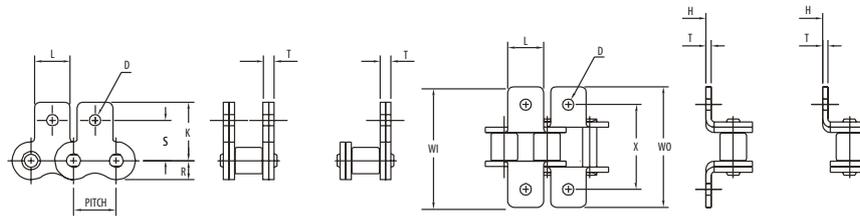
Dimensions in mm

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

European Standard	Diamond
A1	B1 (one hole)
K1	B2 (one hole)

ISO /BS Number	Pitch mm	D mm	H mm	K mm	L mm	S mm	T mm	W mm	X mm
06B	9.525	3.50	6.50	13.50	8.00	9.52	1.30	27.00	19.04
08B	12.700	4.50	8.90	18.90	9.50	13.35	1.60	36.40	25.40
10B	15.875	5.30	10.31	22.95	14.30	16.50	1.70	44.60	31.96
12B	19.050	6.40	13.46	28.60	16.00	21.45	1.85	52.20	39.10
16B	25.400	6.40	15.88	34.00	19.10	23.15	3.10	72.60	50.80
20B	31.750	8.40	19.80	45.70	25.00	30.50	3.50	85.50	64.30
24B	38.100	10.50	26.70	69.55	30.00	36.00	4.80	108.40	76.20

ASME/ANSI STANDARD STRAIGHT & BENT ATTACHMENT CHAIN



Dimensions in mm

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

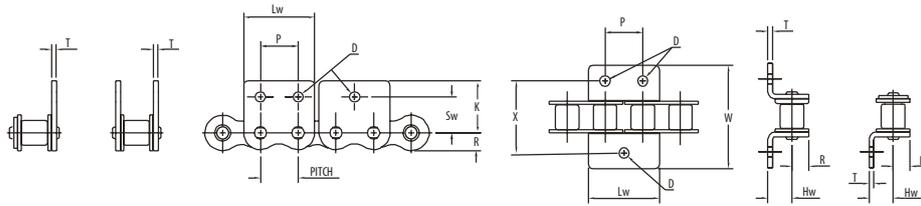
European Standard	Diamond
A1	B1 (one hole)
K1	B2 (one hole)

ASME/ANSI Number	Pitch mm	D mm	H mm	K mm	L mm	R Max. mm	S mm	T mm	W mm	W0 mm	X mm
25	6.350	3.175	4.572	11.455	5.537	3.023	7.823	0.762	19.837	21.412	14.275
35	9.525	2.591	6.350	14.656	7.925	4.521	9.830	1.270	28.575	28.575	19.050
40	12.700	3.581	7.925	17.374	9.525	6.045	12.421	1.524	35.306	35.306	25.400
41	12.700	3.581	7.163	17.729	9.525	4.877	12.243	1.270	34.925	34.925	23.800
50	15.875	5.156	10.312	22.733	12.700	7.544	15.697	2.032	46.025	46.025	31.750
60	19.050	5.156	12.141	26.365	15.875	9.042	18.186	2.388	54.229	54.229	38.100
80	25.400	6.756	15.875	34.011	19.050	12.065	24.587	3.175	69.850	69.850	50.800
100	31.750	8.712	19.914	43.078	25.400	15.088	31.318	3.962	78.156	86.512	63.500
120	38.100	9.804	23.292	51.410	28.575	18.110	36.170	4.750	97.561	107.671	76.073
140	44.450	11.379	28.626	62.103	34.925	21.107	44.450	5.588	110.769	122.580	88.900
160	50.800	13.106	31.750	70.002	38.100	24.130	50.978	6.350	128.981	142.469	101.600

NOTE: Above attachments available for multiple strand chain.

NOTE: These attachments are available in additional materials, including stainless steel.
Contact Diamond Chain for more information at +44-191-414-8822.

BRITISH STANDARD WIDE CONTOUR BENT & STRAIGHT ATTACHMENT CHAIN

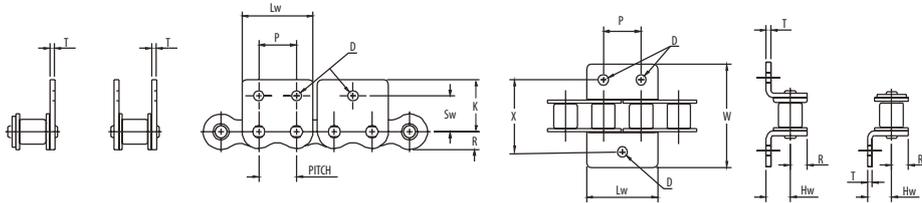


Dimensions in mm

European Standard	Diamond						
WM-35	WCS1 (one hole)	WM-1	WCS2 (one hole)	W A-1	WCB1 (one hole)	WK-1	WCB2 (one hole)
WM-35-2	WCS1 (two holes)	WM-2	WCS2 (two holes)	W A-2, A2	WCB1 (two holes)	WK-2, K2	WCB2 (two holes)

ISO/BS Number	Pitch mm	D mm	Hw mm	K mm	Lw mm	Sw mm	T mm	W mm	X mm
06B	9.525	3.50	6.50	13.50	17.72	1.30	1.30	27.00	19.04
08B	12.700	4.50	8.90	18.90	23.30	1.60	1.60	36.40	25.40
10B	15.875	5.30	10.31	22.95	29.58	1.70	1.70	44.60	31.96
12B	19.050	6.40	13.46	28.60	34.05	1.85	1.85	52.20	39.10
16B	25.400	6.40	15.88	34.00	46.40	3.10	3.10	72.60	50.80
20B	31.750	8.40	19.80	45.70	58.10	3.50	3.50	85.50	64.30
24B	38.100	10.50	26.70	69.55	71.40	4.80	4.80	108.40	76.20

ASME/ANSI WIDE CONTOUR STRAIGHT & BENT ATTACHMENT CHAIN



Dimensions in mm

European Standard	Diamond						
WM-35	WCS1 (one hole)	WM-1	WCS2 (one hole)	W A-1	WCB1 (one hole)	WK-1	WCB2 (one hole)
WM-35-2	WCS1 (two holes)	WM-2	WCS2 (two holes)	W A-2, A2	WCB1 (two holes)	WK-2, K2	WCB2 (two holes)

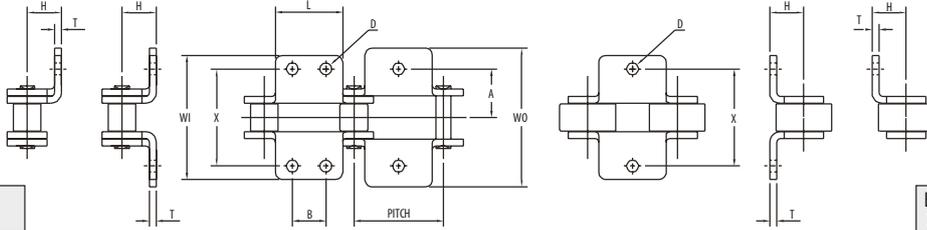
ASME/ANSI Number	Pitch mm	D mm	Hw mm	K mm	Lw mm	P mm	R Max. mm	Sw mm	T mm	W mm	X mm
35	9.525	3.175	6.655	14.656	18.466	9.525	4.521	10.135	1.270	28.067	19.050
40	12.700	3.581	8.280	17.374	24.028	12.700	6.045	12.776	1.524	34.696	25.400
41	12.700	3.581	7.163	17.729	22.301	12.700	4.877	12.243	1.270	34.849	23.800
50	15.875	5.156	10.312	22.733	30.759	15.875	7.544	15.697	2.032	45.898	31.750
60	19.050	5.156	12.141	26.365	36.068	19.050	9.042	18.186	2.388	54.229	38.100
80	25.400	6.756	15.875	34.011	47.879	25.400	12.065	24.562	3.175	69.850	50.800
100	31.750	8.712	19.914	43.078	59.995	31.750	15.088	31.318	3.962	86.563	63.500
120	38.100	9.804	23.292	51.410	72.034	38.100	18.110	36.170	4.750	107.671	76.073

NOTE: Attachments available on pin link plate only.

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

CHAIN DESCRIPTIONS AND DIMENSIONS

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



European Standard	Diamond
A1	B1 (one hole)
A2	B1 (two holes)

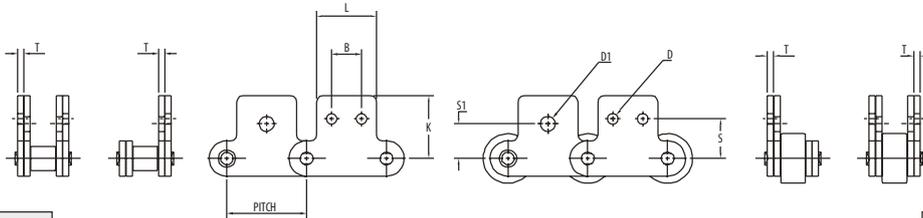
European Standard	Diamond
K1	B2 (one hole)
K2	B2 (two holes)

Dimensions in mm

Standard Roller		Pitch mm	A mm	B mm	D mm	H mm	L mm	T mm	WI mm	WO mm	X mm	Oversized Roller	
ASME/ANSI #	Roller Diam.											ASME/ANSI #	Roller Diam.
C2040	7.925	25.400	12.700	9.525	3.581	9.119	19.050	1.524	34.290	37.668	25.400	C2042	15.875
C2050	10.160	31.750	15.875	11.913	5.156	11.506	23.800	2.032	42.977	47.320	31.750	C2052	19.050
C2060H	11.913	38.100	21.438	14.275	5.156	14.681	28.575	3.175	55.143	62.128	42.875	C2062H	22.225
C2080H	15.875	50.800	27.788	19.050	6.756	19.456	38.100	3.962	70.917	79.375	55.575	C2082H	28.575
C2100H	19.050	63.500	33.325	23.800	8.331	23.419	47.625	4.750	90.272	100.355	66.675	C2102H	39.675
C2120H	22.225	76.200	39.675	28.575	9.931	27.813	57.150	5.563	109.677	121.463	79.375	C2122H	44.450
C2160H	28.575	101.600	52.400	38.100	13.106	36.525	76.200	7.137	140.208	155.346	104.775	C2162H	57.150

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

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



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

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

Dimensions in mm

Standard Roller		Pitch mm	With Two Attachment Holes			K mm	L mm	T mm	With One Attachment Hole		Oversized Roller	
ASME/ANSI #	Roller Diam.		B mm	D mm	S mm				D1 mm	S1 mm	ASME/ANSI #	Roller Diam.
C2040	7.925	25.400	9.525	3.581	13.487	19.634	19.050	1.524	4.572	11.125	C2042	15.875
C2050	10.160	31.750	11.913	5.156	15.875	24.663	23.800	2.032	6.350	14.300	C2052	19.050
C2060H	11.913	38.100	14.275	5.156	19.050	30.556	28.575	3.175	8.357	17.475	C2062H	22.225
C2080H	15.875	50.800	19.050	6.756	25.400	40.386	38.100	3.962	9.525	22.225	C2082H	28.575
C2100H	19.050	63.500	23.800	8.331	31.750	50.343	47.625	4.750	13.106	28.575	C2102H	39.675
C2120H	22.225	76.200	28.575	9.931	37.313	60.122	57.150	5.563	14.300	33.325	C2122H	44.450
C2160H	28.575	101.600	38.100	13.106	50.800	78.486	76.200	7.137	19.050	44.450	C2162H	57.150



ATTACHMENT CROSS REFERENCE

ISO / British Standard Roller Chain Sizes: 06B, 08B, 10B, 12B, 16B, 20B, 24B --- ASME / ANSI Single Pitch Roller Chain Sizes: 25, 35, 40, 41, 50, 60, 80, 100, 120

Product Image	Product Description		Tsubaki Hitachi	Renold Rexnord	Wippermann	Iwis	Other
	Bent Plate One Side / One Hole Pin or Roller Link Plate	B-1 One Hole	A-1	A-1	Type A	202.1	BA-1
	Bent Plate Two Sides / One Hole Pin or Roller Link Plate	B-2 One Hole	K-1	K-1	Type B	202.1	BK-1
	Wide Contour Bent Plate One Side / One Hole Pin Link Plate	WCB-1 One Hole	WA-1	WA-1	—	203.1	WB-1
	Wide Contour Bent Plate Two Sides / One Hole Pin Link Plate	WCB-2 One Hole	WK-1	WK-1	—	203.1	WBK-1
	Wide Contour Bent Plate One Side / Two Holes Pin Link Plate	WCB-1 Two Holes	WA-2	WA-2	Type A2	203.2	WBA-2 W B-1 Two Holes A-2
	Wide Contour Bent Plate Two Sides / Two Holes Pin Link Plate	WCB-2 Two Holes	WK-2	WK-2	Type B2	203.2	WBA-2 W B-2 Two Holes K-2
	Straight Plate One Side / One Hole Pin or Roller Link Plate	S-1 One Hole	SA-1	M-35	Type D	102.1	M-1
	Straight Plate Two Sides / One Hole Pin or Roller Link Plate	S-2 One Hole	SK-1	M-1	Type E	102.1	MM-1
	Wide Contour Straight Plate One Side / One Hole Pin Link Plate	WCS-1 One Hole	WSA-1	WM-35	—	103.1	W S-1 One Hole
	Wide Contour Straight Plate Two Sides / One Hole Pin Link Plate	WCS-2 One Hole	WSK-1	WM-1	—	103.1	W S-2 One Hole
	Wide Contour Straight Plate One Side / Two Holes Pin Link Plate	WCS-1 Two Holes	WSA-2	WM-35-2	Type D2	103.2	SA-2 W S-1 Two Holes
	Wide Contour Straight Plate Two Sides / Two Holes Pin Link Plate	WCS-2 Two Holes	WSK-2	WM-2	Type E2	103.2	SK-2 W S-2 Two Holes
	One Extended Pin	E-1	D-1	D-1	Type D	Type A	—
	Two Extended Pins	E-2	D-3	D-3	Type D2	Type A2	—



Scan the QR code for additional information on Diamond Chain's attachment product selection.

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402 Kentucky Avenue, Indianapolis, Indiana USA 46225
Phone 1-800-872-4246 Fax 317-613-2243
www.diamondchain.com

United Kingdom
Unit 7 – 9, Blaydon Industrial Park, Chainbridge Road
Blaydon on Tyne, NE21 5AB
PH: +44-191-414-8822
www.diamondchain.co.uk

NOTES

Autorisierter Händler | Distributeur autorisé | Distributore autorizzato | Authorized distributor



H. FRÖHLICH AG | INDUSTRIE TECHNIK

Widenholzstrasse 1
CH-8304 Wallisellen
Tel. +41 44 527 20 00
Fax +41 44 527 20 19
info@hfag.ch | www.hfag.ch

DIAMOND[®] CHAIN COMPANY

Americas

Corporate Headquarters
402 Kentucky Avenue
Indianapolis, Indiana 46225
PH: 1-800-872-4246
Fax: 1-317-613-2243
sales@diamondchain.com

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

Sacramento Service Center
1331 Terminal St.
West Sacramento, California 95691
PH: 1-800-872-4246
Fax: 1-916-372-5801

sales@diamondchain.com

Canada/Mexico
PH: 1-317-638-6431
www.diamondchain.com

United Kingdom

Unit 7 – 9
Blaydon Industrial Park
Chainbridge Road
Blaydon on Tyne
NE21 5AB
PH: +44-191-414-8822
sales@diamondchain.co.uk
www.diamondchain.co.uk

Asia

Xinghong International Building, Room 2009
No. 225 Suhong Middle Road
SIP, Suzhou, China 215021
PH: +86-512-6265-3075
salescn@diamondchain.com

