

 **UNION CHAIN DIVISION - FOREST & PAPER INDUSTRY**

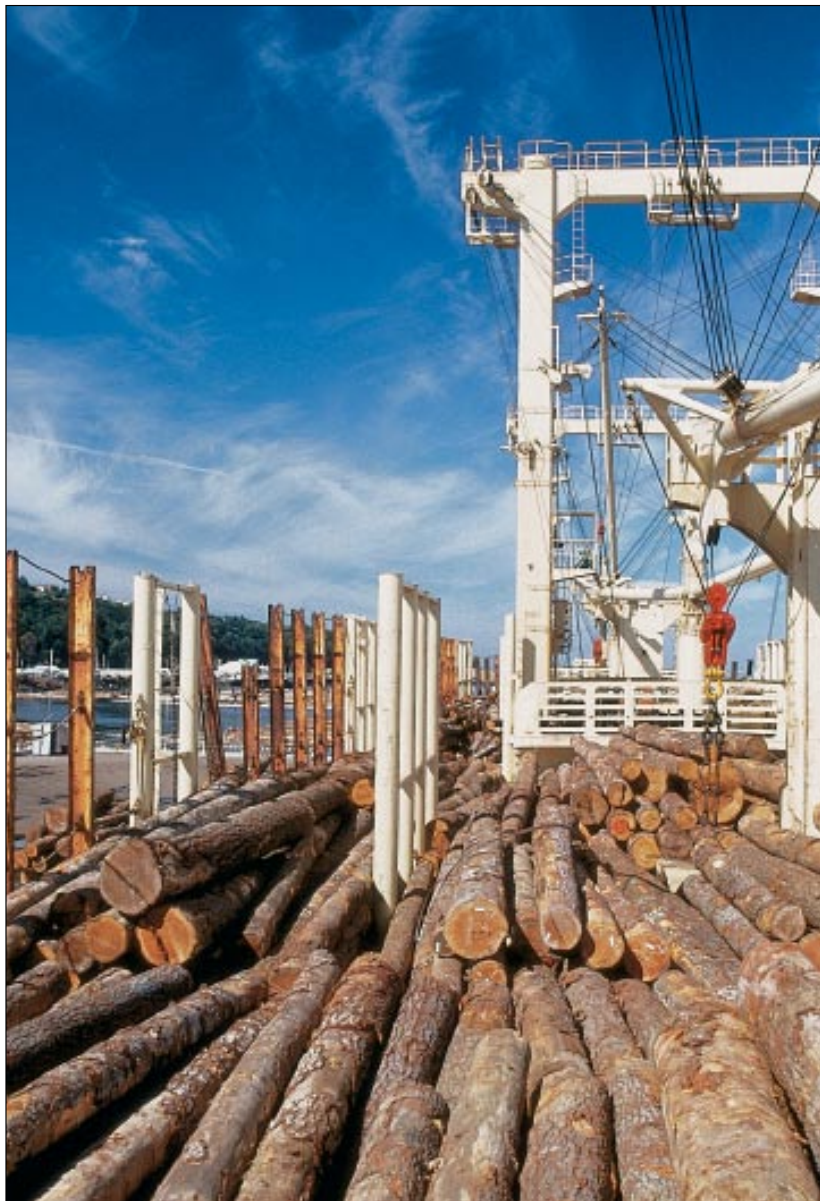
# Forest & Paper Industry

B - INDUSTRY APPLICATIONS

The Union Chain Division of U.S. Tsubaki Inc., supplies top quality conveying and power transmission chains to the forest products and paper processing industries throughout the world. In these industries, dependability is key. That's why you can rely on the Union Chain Division. We incorporate innovative engineering and proven manufacturing techniques to create every chain. Union chains stand up to the harshest environments, giving you economical service and combining greater strength and longer wear life with consistent dimensional accuracy, pitch after pitch.

## Union Chains for the Forest and Paper Industries

- Welded Steel Mill Chains and Attachments
- Welded Steel Drag Chains and Attachments
- Cast Combination Chains and Attachments
- Drop Forged Rivetless Chains
- Digester Chains
- Gull Wing Conveyor Chains

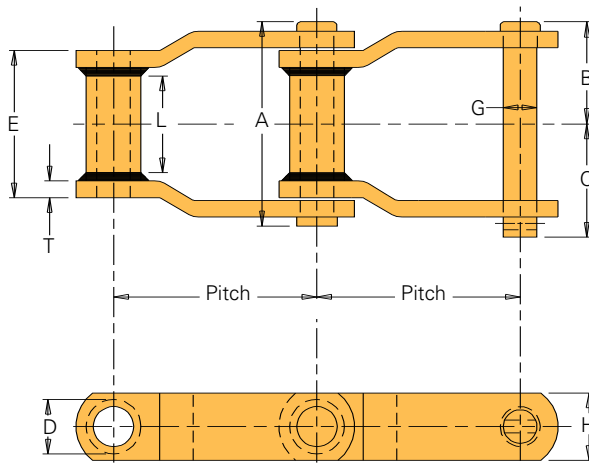


### Welded Steel Mill Chains and Attachments

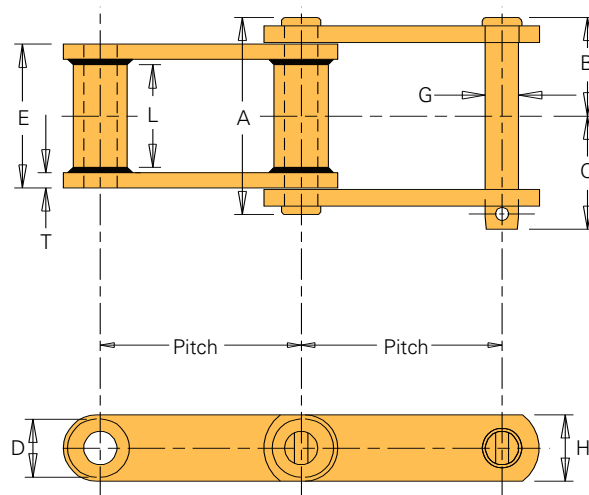
Welded Steel Mill Chains from the Union Chain Division are designed to efficiently convey wood chips, sawdust, ashes, garbage, and other bulk materials. Our chains combine greater strength, higher impact resistance, and longer wear-life to withstand the punishing shock loads and abrasive conditions in the forest products industry. For added convenience, the chains are ideally suited for welding in the field.



#### Offset Sidebar



#### WCH-Style Chain



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### Welded Steel Mill Chain Specifications

All dimensions are in inches unless otherwise indicated.

Chain No.	Pitch	Chain Width				Barrel		Pin	Sidebars		Avg. Ult. Strength (lbs.)	Max. Work Load (lbs.)	Approx. Weight (lbs./ft.)
		Overall	Pin Head to CL	Pin End to CL	Lgth. of Bearing			Dia.	Thick.	Height			
		A	B	C	E	D	L	G	T	H			
WH-78	2.609	3.00	1.44	1.56	2.00	.88	1.13	.50	.25	1.13	33,000	3,500	4.0
WH-82	3.075	3.25	1.56	1.69	2.25	1.06	1.25	.56	.25	1.25	36,000	4,400	4.8
WH-124 <sup>1</sup>	4.000	4.25	2.03	2.22	2.75	1.25	1.63	.75	.38	1.50	60,000	7,350	8.3
WH-124H	4.063	4.75	2.28	2.47	3.00	1.75	1.63	1.00	.50	2.00	100,000	10,500	14.7
WH-111	4.760	4.88	2.34	2.54	3.38	1.38	2.38	.75	.38	1.75	60,000	8,850	9.5
WH-106	6.000	4.25	2.03	2.31	2.75	1.25	1.63	.75	.38	1.50	60,000	7,200	7.0
WH-132 <sup>1</sup>	6.050	6.25	3.00	3.40	4.38	1.75	2.88	1.00	.50	2.00	100,000	15,300	14.2
WH-150	6.050	6.25	3.00	3.25	4.38	1.75	2.88	1.00	.50	2.50	100,000	15,300	16.8
WH-155	6.050	6.91	3.25	3.66	4.63	1.75	3.00	1.13	.63	2.50	184,000	20,000	20.0
WCH-132	6.050	6.25	3.00	3.25	4.38	1.75	2.88	1.00	.50	2.00	100,000	15,300	14.2

  Indicates this chain is normally stocked. All others are made-to-order.

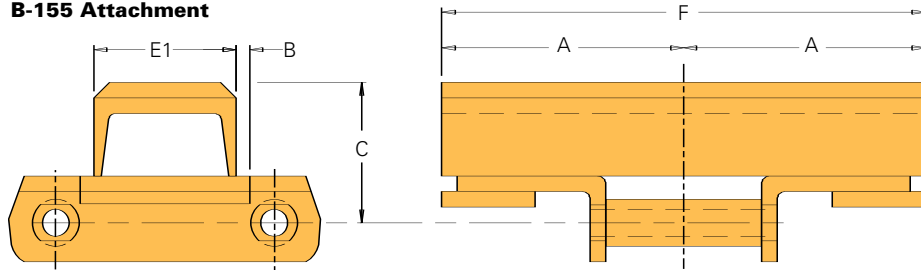
<sup>1</sup>Chain numbers WH-124 and WH-132 are also stocked in stainless steel with riveted and cotter construction.



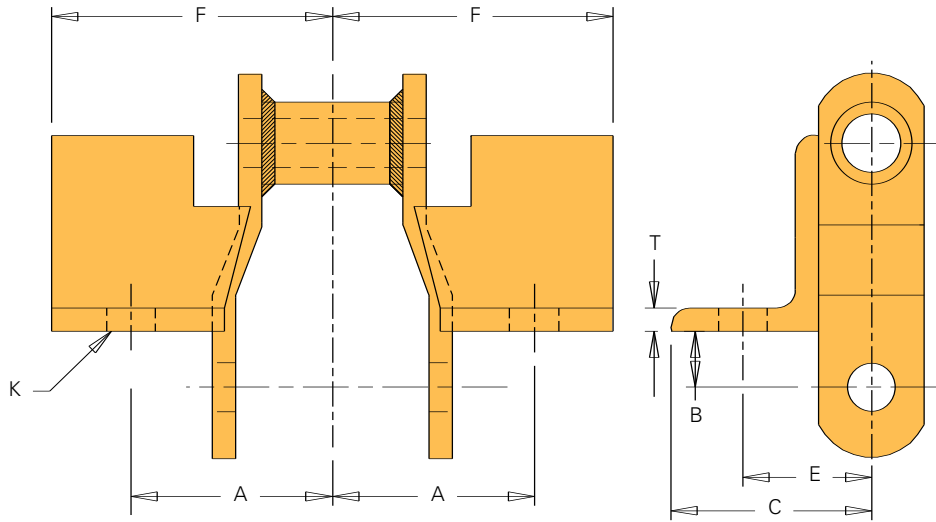
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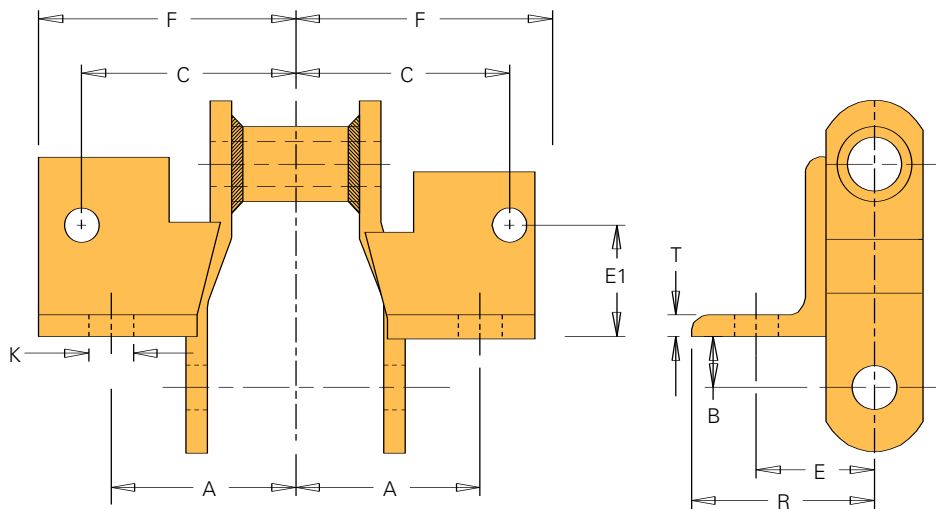
**B-155 Attachment**



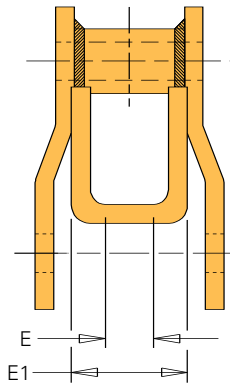
**F-2 Attachment**



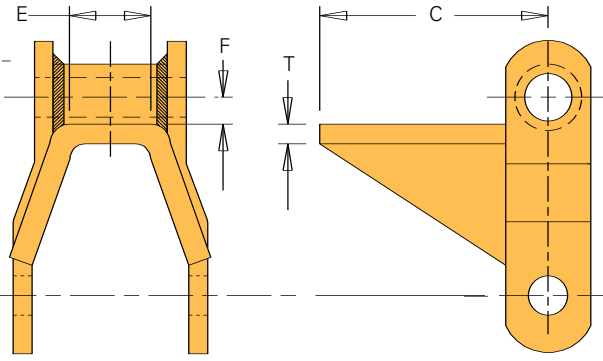
**F-4 Attachment**



**H-1 Attachment**



**H-2 Attachment**



**Welded Steel Mill Chain Attachments**

All dimensions are in inches unless otherwise indicated.

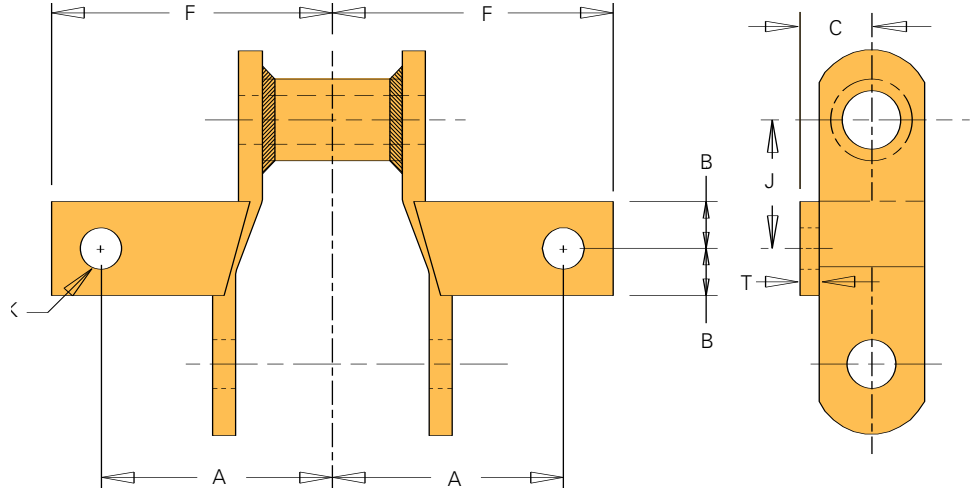
Attach. Number	Chain Number	A	B	C	E	E1	F	Bolt Diameter	K	T	R	Approx. Weight (lbs./ft.)
B-155	WH-132	7.00	1.03	4.25		4.00	14.00					49.6
	WH-150	7.00	1.03	4.50		4.00	14.00					54.6
	WH-155	7.00	1.03	4.50		4.00	14.00					56.6
F-2	WH-78	1.88	.69	2.06	1.44		2.69	.38		.25		6.0
F-4	WH-78	1.88	.69	2.25	1.44	1.25	2.75	.38		.25	2.06	6.1
	WH-82	2.06	.75	2.50	1.50	1.13	2.97	.38		.25	2.38	8.9
	WH-124	2.19	.88	2.63	2.06	1.44	3.09	.38		.39	2.75	11.6
H-1	WH-78			3.56	.88	1.75	.50			.25		8.3
	WH-82			3.63	1.13	2.00	.63			.25		9.9
H-2	WH-78			3.56	.81		.31			.25		7.5
	WH-82			3.63	1.03		.38			.25		8.8

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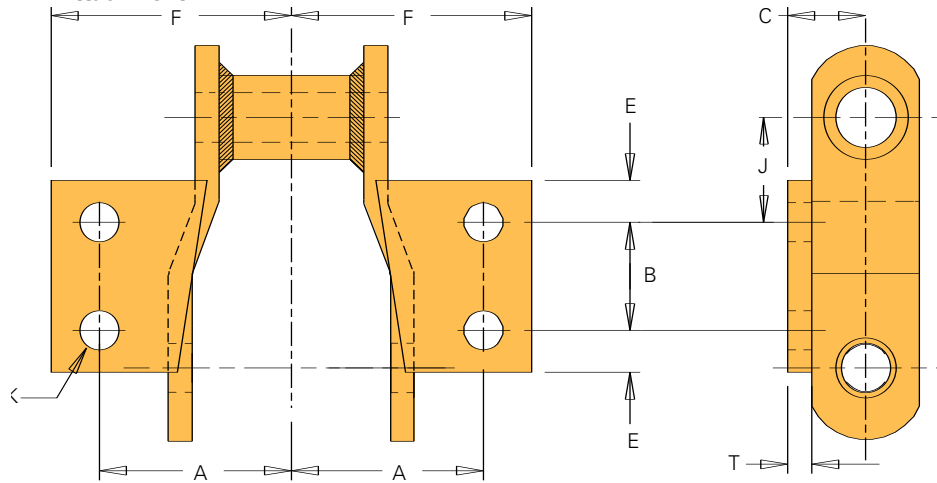
**UNION CHAIN DIVISION - FOREST & PAPER INDUSTRY**

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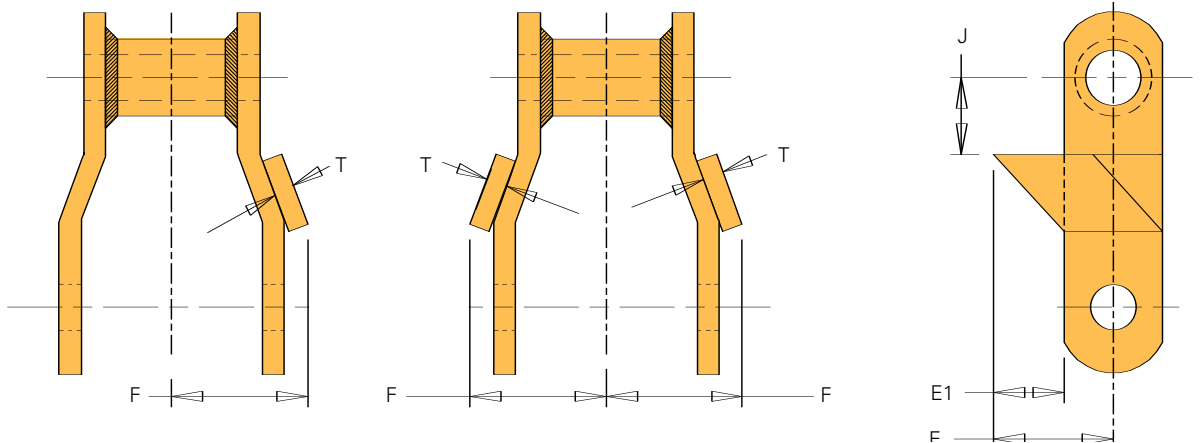
**K-1 Attachment**



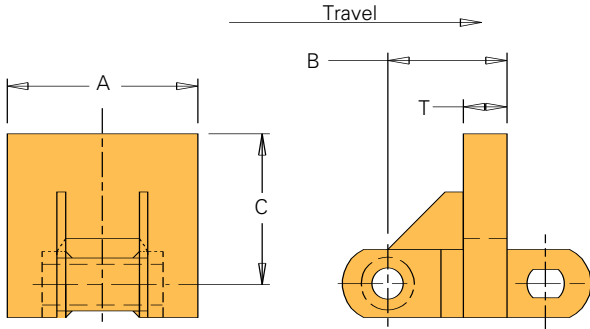
**K-2 Attachment**



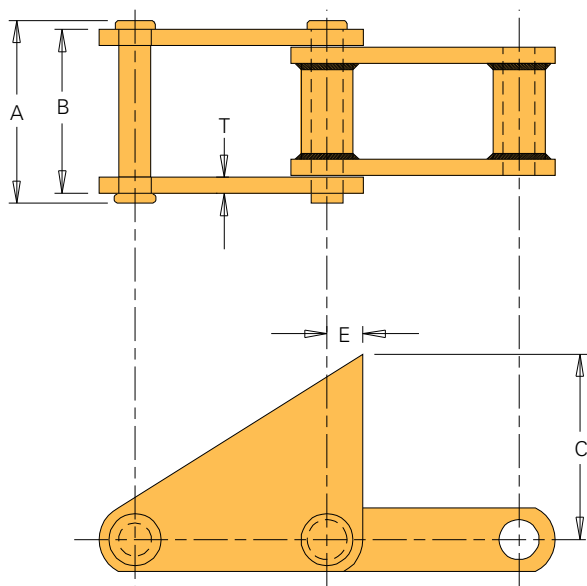
**R-1, R-1-1/2, RR Attachment**



**RF-12 Attachment**



**S-1 Attachment**



B - INDUSTRY APPLICATIONS

**Welded Steel Mill Chain Attachments (Continued)**

All dimensions are in inches unless otherwise indicated.

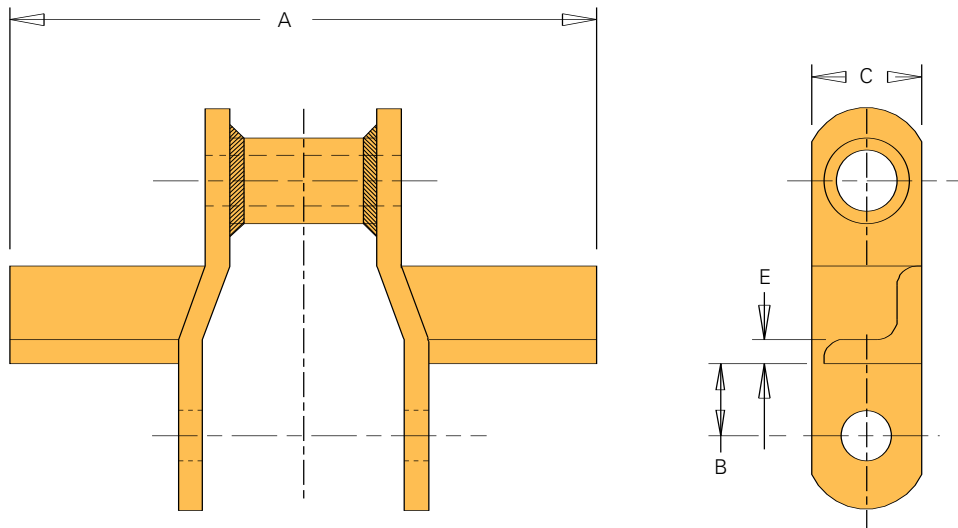
Attach. Number	Chain Number	A	B	C	E	E1	F	Bolt Diameter	K	J	T	Approx. Weight (lbs./ft.)
K-1	WH-78	2.00	.63	.81			2.50	.38	1.38	.25	5.5	
	WH-82	2.13	.88	.88			2.75	.38	1.56	.25	7.2	
K-2	WH-78	2.00	1.13	.81	.43		2.50	.38	1.09	.25	6.3	
	WH-82	2.13	1.31	.88	.47		2.75	.38		.25	7.6	
	WH-124	2.63	1.94	1.13	.53		3.50	.38		.38	11.7	
	WH-124H	2.63	1.94	1.50	.53		3.50	.50		.50	18.4	
	WH-132	3.75	2.75	1.38	.63		4.38	.50	1.66	.50	18.0	
	WCH-132	3.75	2.75	1.38	.63		4.38	.50	1.66	.50	18.0	
	WH-150	3.75	2.75	1.63	.63		4.38	.50	1.66	.50	20.0	
R-1	WH-78				1.56	1.00	1.56		.75	.25	4.7	
	WH-82				1.88	1.25	1.69		.88	.25	6.1	
	WH-124				1.88	1.13	2.16		1.28	.38	9.4	
R-1-1/2	WH-78				2.06	1.50	1.56		.75	.25	4.9	
RR	WH-78				1.56	1.00	3.13		.75	.25	5.2	
	WH-82				1.88	1.25	3.38		.88	.25	6.7	
	WH-124				1.88	1.13	4.25		1.25	.38	10.4	
	WH-124H				2.13	1.13	4.88		1.25	.50	17.6	
RF-12	WH-132	12.00	4.56	5.25						1.00	55.0	
	WH-150	12.00	4.56	5.50						1.00	58.0	
	WH-155	12.00	4.56	5.50						1.00	63.0	
S-1	WCH-132	6.00	5.44	5.00	1.28					.50	18.1	



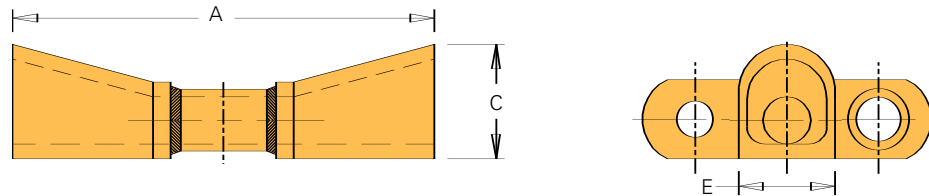
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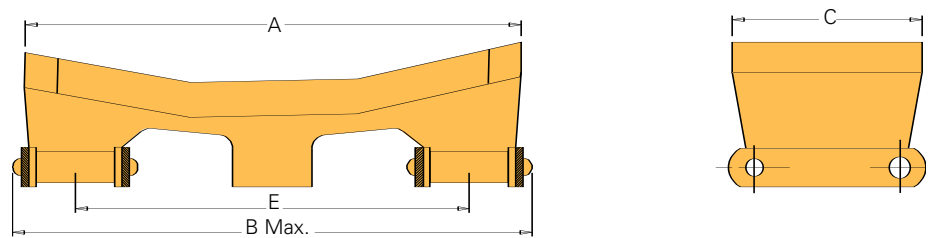
**Wing**



**Log Cradle**



**Double Strand Log Cradle**





**Welded Steel Mill Chain Attachments (Continued)**

All dimensions are in inches unless otherwise indicated.

Attachment Number	Chain Number	A	B	C	E	Approximate Weight (lbs./ft.)
Wing	WH-78	6.00	.75	1.00	.25	7.3
	WH-82	6.50	.81	1.25	.25	8.6
	WH-124	8.50	1.19	1.50	.25	14.2
	WH-132	12.38	1.44	2.00	.38	21.0
	WCH-132	12.38	1.44	2.00	.38	21.0
	WH-124H	8.50	1.38	2.00	.50	19.1
Log Cradle	WH-132	11.13		3.00	3.50	29.2
	WH-132	13.00		3.00	3.50	32.2
	WCH-132	11.13		3.00	3.50	29.2
	WCH-132	13.00		3.00	3.50	32.2
Double Strand Log Cradle	WH-132	16.00	17.50	6.00	12.00	96.0
	WCH-132	16.00	17.50	6.00	12.00	96.0

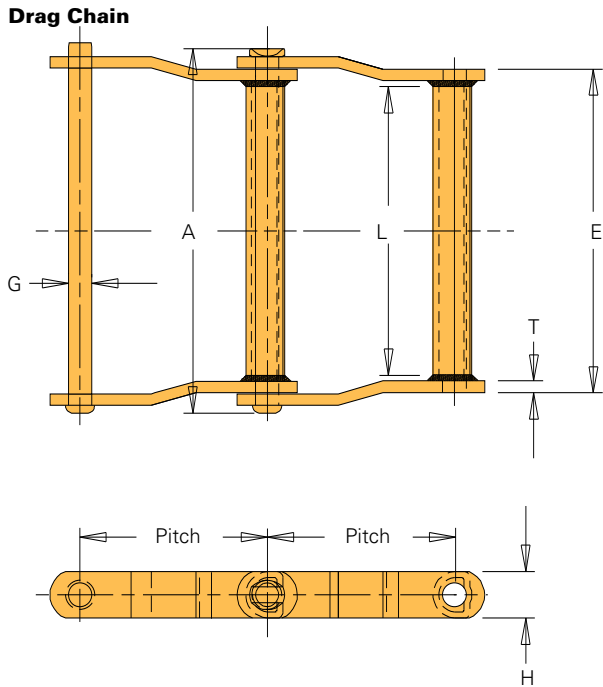
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## UNION CHAIN DIVISION - FOREST & PAPER INDUSTRY

### Welded Steel Drag Chains and Attachments

Welded Steel Drag Chains move very heavy loads. Like Welded Steel Mill Chains, Drag Chains combine strength, precision, impact resistance, and wear resistance. This versatile and economical chain is built to withstand punishing shock loads and abrasive conditions to provide longer wear life in your operation.



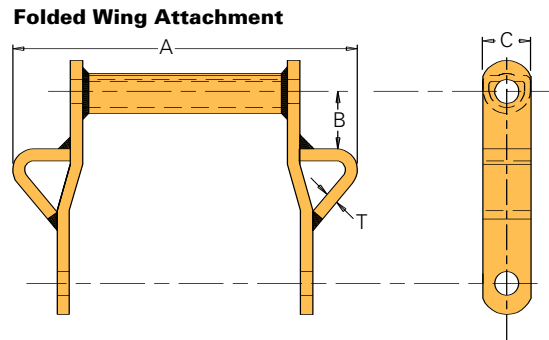
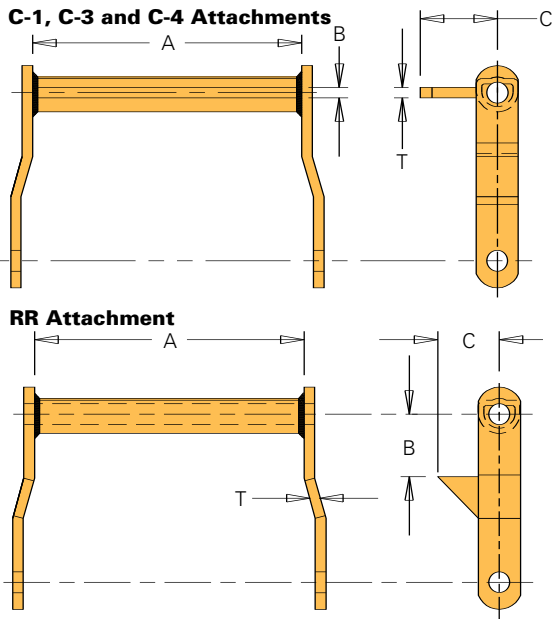
B - INDUSTRY APPLICATIONS

### Welded Steel Drag Chain

All dimensions are in inches unless otherwise indicated.

Chain Number	Pitch	Chain Width		Barrel Length L	Pin Diameter G	Sidebars		Avg. Ult. Strength (lbs.)	Max. Work Load (lbs.)	Approx. Weight (lbs./ft.)
		Overall A	Length of Bearing E			Thickness T	Height H			
WDH-102	5.000	9.25	7.75	6.38	.75	.38	1.50	60,000	10,000	11.8
WDH-104	6.000	6.88	5.38	4.13	.75	.38	1.50	60,000	10,000	8.7
WDH-110	6.000	11.88	10.38	9.00	.75	.38	1.50	60,000	10,000	12.0
WDH-113	6.000	12.50	10.63	9.00	.88	.50	1.50	68,000	11,700	15.0
WDH-112	8.000	11.88	10.38	9.00	.75	.38	1.50	60,000	10,000	9.8
WDH-116	8.000	15.38	14.13	12.75	.75	.38	1.75	80,000	11,500	14.5
WDH-480	8.000	14.63	12.75	11.00	.88	.50	2.00	90,000	15,000	18.1

Indicates this chain is normally stocked. All others are made-to-order.



B - INDUSTRY APPLICATIONS

**Welded Steel Drag Chain Attachments**

All dimensions are in inches unless otherwise indicated.

Attachment Number	Chain Number					Approx. Weight (lbs./ft.)
		A	B	C	T	
C-1	WDH-102	7.00	.38	2.38	.38	14.4
	WDH-104	5.00	.38	2.38	.38	10.1
	WDH-110	10.00	.38	2.38	.38	15.5
	WDH-112	10.00	.38	2.38	.38	12.6
	WDH-116	13.00	.38	2.56	.38	18.4
C-3	WDH-113	10.00	.50	2.25	.50	17.3
	WDH-480	12.00	.50	3.00	.50	25.8
Folded Wing	WDH-102	14.25	1.75	1.50	.38	17.1
	WDH-104	11.50	2.75	1.50	.38	12.5
	WDH-110	17.00	2.63	1.50	.38	17.8
	WDH-112	17.00	3.25	1.50	.38	14.6
	WDH-113	17.00	2.25	1.50	.50	22.2
	WDH-116	22.00	3.25	1.75	.38	21.2
C-4	WDH-480	22.00	3.25	2.00	.50	29.0
	WDH-102	7.00	.38	3.75	.38	17.1
	WDH-104	5.00	.38	3.75	.38	11.7
	WDH-110	10.00	.38	3.75	.38	18.7
	WDH-112	10.00	.38	3.75	.38	15.1
RR	WDH-113	10.00	.50	4.75	.50	20.9
	WDH-116	13.00	.38	4.81	.38	23.5
	WDH-480	12.00	.50	5.00	.50	32.4
	WDH-102	8.50	1.75	2.50	.38	12.0
	WDH-104	6.25	3.00	2.50	.38	8.9
	WDH-112	11.25	3.00	2.50	.38	10.3
	WDH-113	11.63	2.25	2.50	.38	16.0
	WDH-116	14.88	3.25	3.00	.38	15.2
	WDH-480	13.75	3.00	3.25	.50	20.8

To locate compatible sprockets for your chain, refer to the Product Cross-Reference in Section D.

Note: Dimensions are subject to change. Contact Union Chain to obtain certified prints for design and construction.

**UNION CHAIN DIVISION - FOREST & PAPER INDUSTRY**

U.S. TSUBAKI

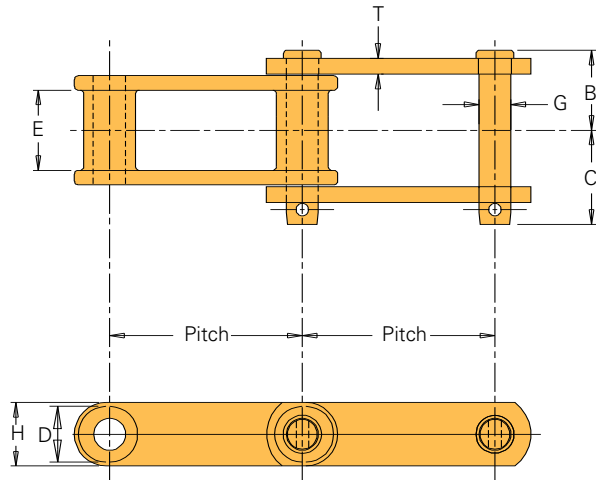
B - INDUSTRY APPLICATIONS



**Cast Combination Chains and Attachments**

Cast Combination Chain offers additional corrosion resistance because the block links are constructed from malleable cast iron. You get strong, long-lasting chain that stands up to the most rigorous environments.

**Cast Combination Chain**

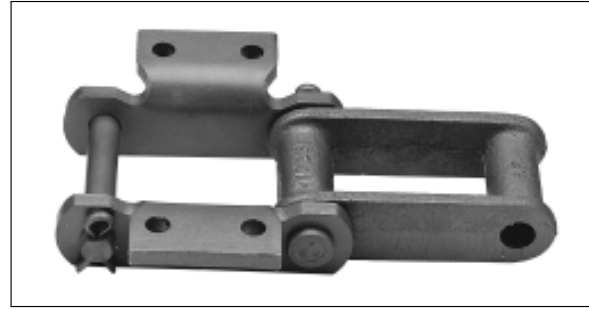
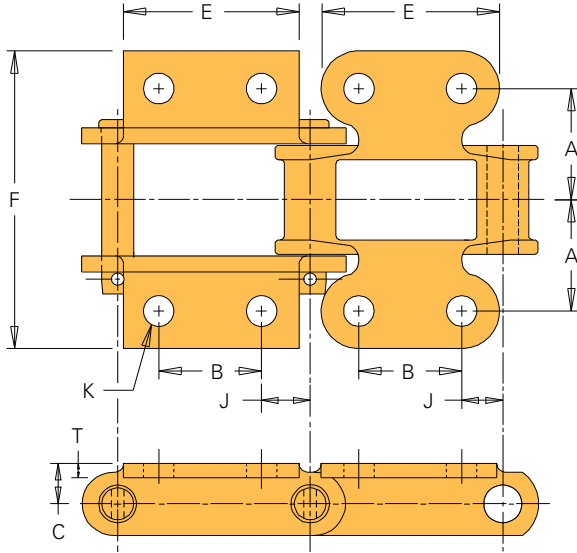


**Cast Combination Chain Specifications**

All dimensions are in inches unless otherwise indicated.

Chain Number	Average Ultimate Strength	Working Load	Pitch	Links in Approx. 10 ft.	Dimensions							Approx. Weight (lbs./ft.)
					Pin Head to CL	Pin End to CL	Maximum Allowable Sprocket Face	Pin Dia.	Sidebar Height	Sidebar Thick.	Barrel Dia. Size	
					<b>B</b>	<b>C</b>	<b>E</b>	<b>G</b>	<b>H</b>	<b>T</b>	<b>D</b>	
C-188	17,500	2,340	2.609	46	1.34	1.44	.94	.50	1.13	.25	.88	3.6
C-131	30,000	3,750	3.075	40	1.81	1.88	1.13	.63	1.50	.38	1.25	6.5
C-102B	30,000	5,000	4.000	30	2.19	2.30	2.00	.63	1.50	.38	1.00	6.8
C-111	45,000	7,500	4.760	26	2.59	2.66	2.38	.75	1.75	.38	1.44	9.8
C-110	30,000	5,000	6.000	20	2.19	2.30	1.94	.63	1.50	.38	1.25	6.0
C-132	62,500	10,400	6.050	20	3.22	3.16	3.13	1.00	2.00	.50	1.75	14.5

**K-2 Attachment**



**B - INDUSTRY APPLICATIONS**

**Specifications with K-2 Attachments**

All dimensions are in inches unless otherwise indicated.

Chain Number	Pitch	Dimensions								Approx. Weight <sup>1</sup> (lbs./ft.)
		A	J	E <sup>2</sup>	B	C	F <sup>2</sup>	T	Bolt Diameter K	
C-188	2.609	2.09	.69	2.13	1.25	.81	5.06	.25	.31	4.3/5.4
C-131	3.075	2.06	.78	2.63	1.50	1.06	5.50	.31	.50	7.4/8.7
C-102B	4.000	2.66	1.13	2.75	1.75	1.06	6.63	.25	.38	7.8/9.1
C-111	4.760	3.13	1.22	3.63	2.31	1.13	7.50	.31	.50	11.3/12.7
C-110	6.000	2.66	2.13	3.00	1.75	1.06	6.50	.25	.38	7.3/8.4
C-132	6.050	3.75	1.66	4.13	2.75	1.25	9.06	.38	.50	16.1/17.9

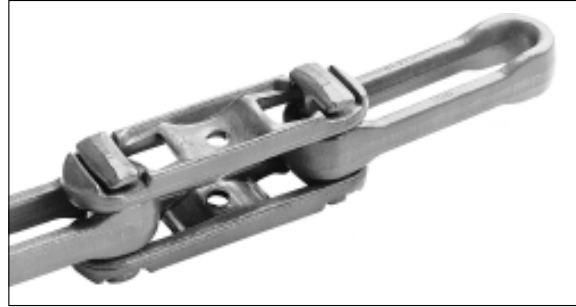
<sup>1</sup>Figure on left represents weight for chain with attachment on sidebar only.  
Figure on right represents weight for chain with attachment on sidebar and center block.  
<sup>2</sup>Block link attachment dimensions.



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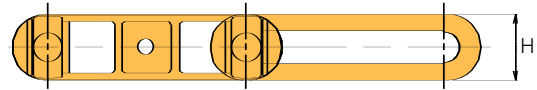
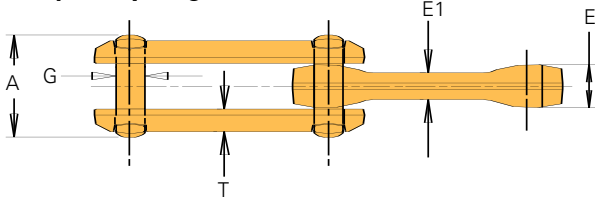
### Drop Forged Rivetless Chains

Union Drop Forged Rivetless Chains serve many functions in the forest and paper processing industries. You'll find our chain in overhead conveyors, ash handling applications, and various scraper conveyors—anywhere tough, dependable material handling is required.

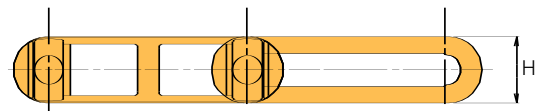
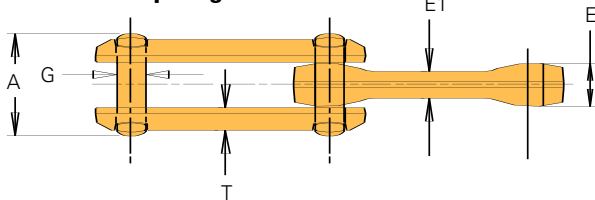


B - INDUSTRY APPLICATIONS

#### X-Style Drop Forged Rivetless Chain



#### Standard Drop Forged Rivetless Chain



#### X-Style and Standard Drop Forged Rivetless Chain

All dimensions are in inches unless otherwise indicated.

Chain Number	Pitch	Chain Width			Pin	Sidebar		Average Ultimate Strength (lbs.)		Maximum Work Load (lbs.)		Avg. Pitches (ft.)	Approx. Weight (lbs./ft.)
		Overall	Inside		Diameter	Thick.	Height	Alloy Heat-Treated <sup>1</sup>	Heat-Treated	Normal	Freq. Flex.		
			A	E									
X-348 <sup>2</sup>	3.015	1.73	.75	.50	.50	.41	1.09		24,000	2,600	1,200	3.95	2.2
X-458 <sup>2</sup>	4.031	2.19	1.00	.63	.63	.47	1.38	60,000	48,000	4,000	1,900	2.98	3.2
468	4.031	3.19	1.59	1.13	.75	.41	1.88		70,000			2.98	7.5
X-658 <sup>2</sup>	6.031	2.19	1.00	.63	.63	.47	1.38		48,000			1.99	2.7
X-678 <sup>2</sup>	6.031	3.03	1.28	.81	.88	.72	2.00	100,000	85,000	7,100	3,300	1.99	6.7
698	6.031	3.75	1.56	1.00	1.13	.56	2.56	150,000	130,000	10,800	5,200	1.99	11.4
998	9.031	3.75	1.56	1.00	1.13	.63	2.53	150,000	130,000	10,800	5,200	1.33	9.0

Indicates this chain is normally stocked. All others are made-to-order.

Note: Magna-flux inspected chain is available.

Component hardness: BHN 344 (Nom.) = Carbon steel chains; BHN 380 (Nom.) = Alloy steel chains.

<sup>1</sup>ANSI/SAE 8642

<sup>2</sup>The prefix "X" designates a design proportioned to flex transversely on a shorter radius. The outside bars are made with a mid-pitch panel that strengthens the sidebar and prevents material from falling through the link. X-Styles are used on overhead conveyors and other special applications.

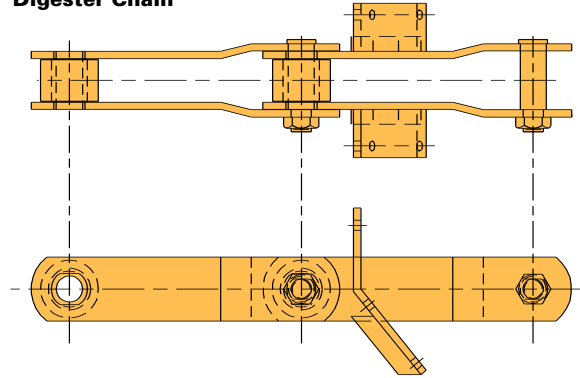
To locate compatible sprockets for your chain, refer to the Product Cross-Reference in Section D.

Note: Dimensions are subject to change. Contact Union Chain to obtain certified prints for design and construction.

### Digester Chains

We offer chains with 12" to 20" pitch for digester applications. Because these chains have direct exposure to an alkaline slurry of paper fibers, we follow rigid specifications for special corrosion resistance. Digester Chains are carefully manufactured on a made-to-order basis to meet your specifications. Contact Union Engineering for your specific requirements.

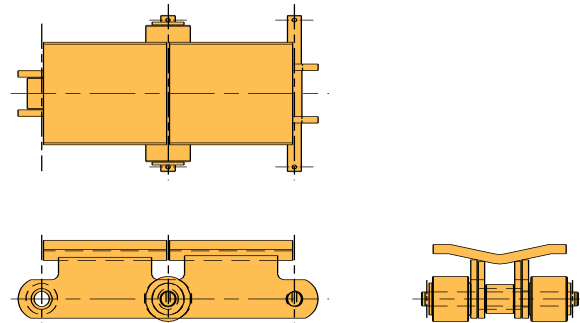
**Digester Chain**



### Gull Wing Conveyor Chains

We have two styles of Gull Wing Conveyor Chains. Gull Wing Chain with a single, centered strand of chain, is ideal for moving paper rolls. Any pitch size can be produced with a variety of working loads. Gull Wing Chain with Outboard Rollers are an excellent way to customize your application. We offer rollers and bearings with a variety of materials and heat-treating possibilities to stand up to extreme conditions and load requirements.

**Gull Wing Chain**



**B - INDUSTRY APPLICATIONS**

### Make In-Line Inspections Easy

Put machinery access at your fingertips. ONE-TOUCH INSPECTION DOOR® is a dust- and rain-tight inspection and service door for conveyors, as well as processing and handling equipment. These pre-fabricated units are in-stock and ready-to-go for easy installation at the job site. Once in place, ONE-TOUCH INSPECTION DOOR allows for quick and simple inspection without the need for special tools: just lift the lever! No bolts to loosen and no covers to misplace. One touch is all it takes...it's that simple. For more information, see the ONE-TOUCH INSPECTION DOOR description in Section C.

### THE UNION SOLUTION

- **High strength**
- **Dependable service**
- **Long wear life**
- **Abrasion resistance**
- **Anticorrosion properties**
- **Consistent dimensional accuracy**