



INDUSTRIES INC

Chain & Industrial Manufactured Solutions



# Heavy Industry CATALOGUE

# INTRODUCTION

CONNEXUS INDUSTRIES INC.

Conveyors and conveyor components for resource extraction and processing industries.

CXS

Since the 1940's CONNEXUS has been developing and producing conveyor components for severe service applications under the names I'Anco Products, Viking Chains and Lacey-Harmer. Today these brands have come together under their new name 'CONNEXUS Industries Inc.' (CXS). We actively service the Wood Processing, Pulp & Paper, Power Generation, Cement production and Mining Industries.

Our goal is to provide our clients with the best product at the best price for their specific application. Our experienced engineering staff combined with our production team work together to design products and systems that will outperform your expectations that can be built in an acceptable time frame for a competitive price.

Our extensive knowledge of materials, heat treating and their uses enables us to determine the best product for your application. Whether it is Hadfield Manganese for high impact areas, HN stainless Steel for high temperature or Alloy steels for abrasive applications we will design a solution suited to your conveying application.

In our continual effort to bring the best products to market, our ISO9001-2008 quality system is followed as an integral part of our daily operations. Continuous improvement plays an important part in the culture of our organization and the products we take to the marketplace.



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# ELEVATOR CHAINS

## CXS DURA LINK PLATINUM SERIES ELEVATOR CHAINS

CXS Dura Link Platinum Series Elevator Chains are designed to perform. Our Dura Link design and manufacturing processes create a durable chain with long life. For even greater life and reliability we offer our Dura Link Elevator Chains in a sealed joint configuration for your most severe applications.

Our Dura Link Platinum Series Elevator Chains are guaranteed to meet or exceed our competition in heat treat accuracy, surface hardness and our case hardened and induction hardened surfaces will have the greatest depth possible.

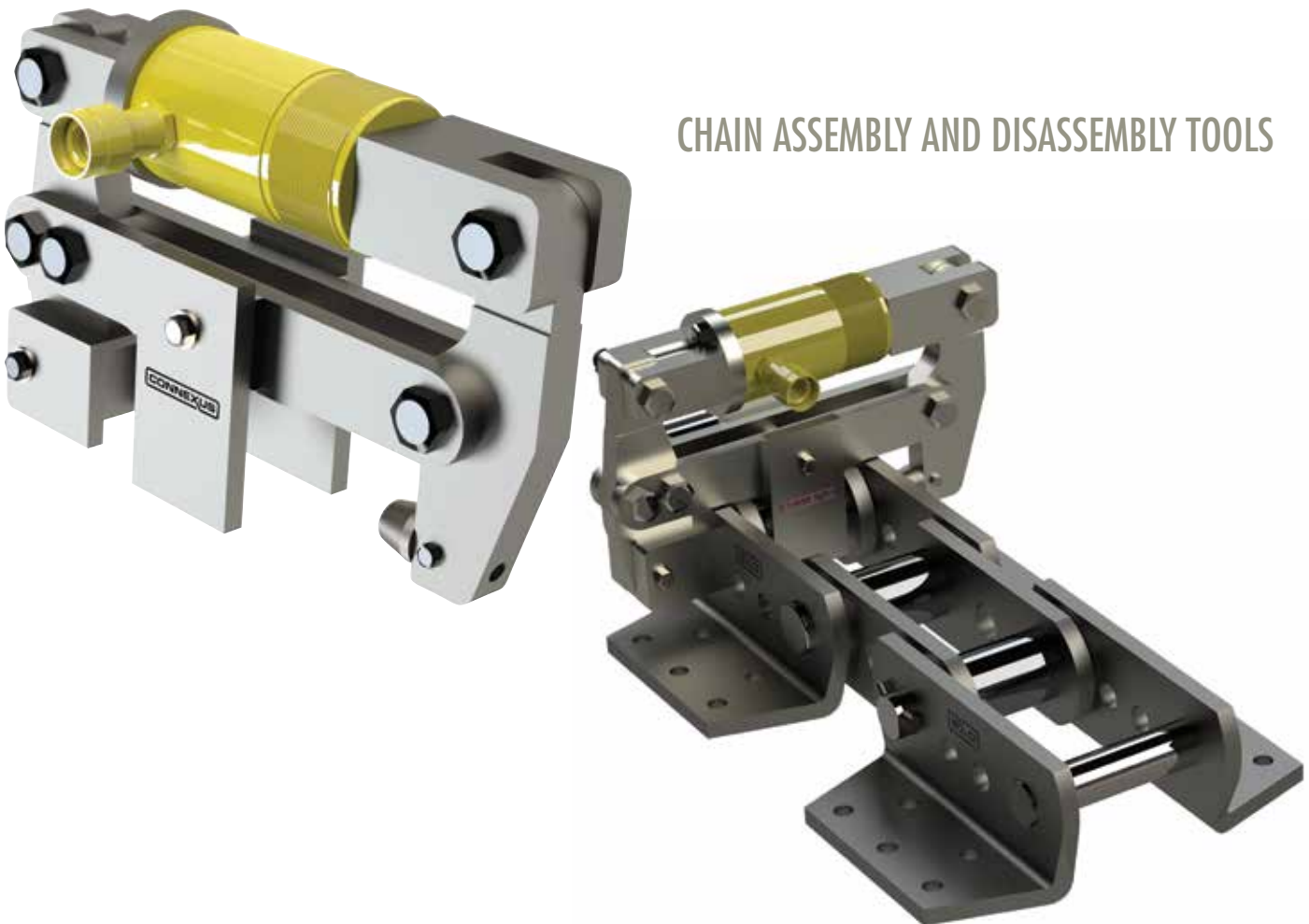
Only alloy steels are used in the construction of the Dura Link Platinum Series Chains. This leaves no doubt that you are getting the highest quality chain available on the market today.

### MATERIALS

- Side bars are manufactured from low alloy steel and are quenched and tempered to achieve a through hardened material
- Pins are machined from 4140 bar stock, quenched and tempered to achieve through hardening. The pin is then further induction hardened to provide extra wear resistance in the rotating components.
- Bushings are made from low carbon alloy steel to allow for a carburizing heat treatment process. This ensures both the interior and exterior surfaces achieve maximum hardness while retaining a tough core.

We also offer complete elevator manufacturing services for numerous applications. For more information, contact us at any of our locations.

### CHAIN ASSEMBLY AND DISASSEMBLY TOOLS



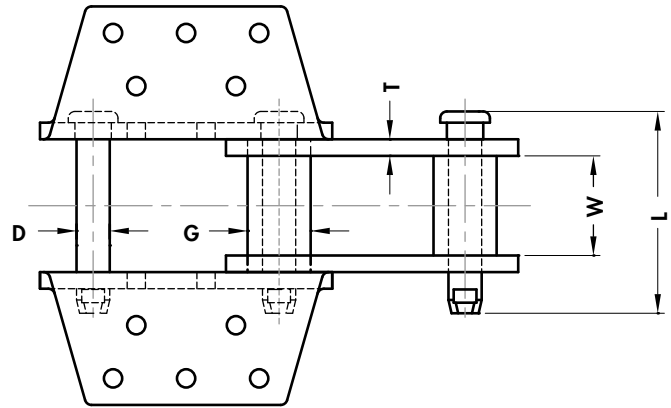
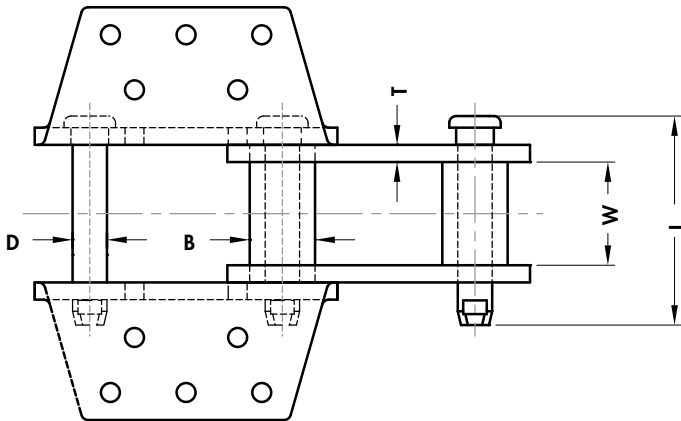
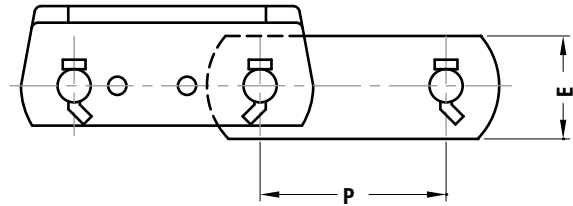
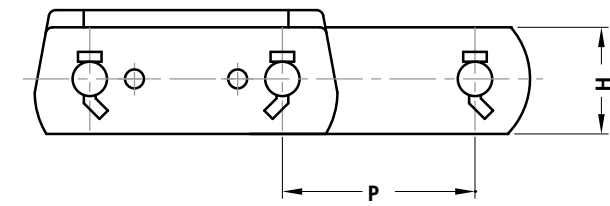


## ELEVATOR CHAIN SPECIFICATIONS HEAT TREATMENT & MATERIAL SPECIFICATIONS



Inner plate	Alloy Steel	Through Hardening
Attachment plates	Alloy Steel	Through Hardening
Pin	Alloy Steel	Through Hardening Induction Hardening
Bushing	Alloy Steel	Case Hardening
Retaining Ring and Seal	Alloy Steel	Case Hardening

# BUCKET ELEVATOR CHAINS



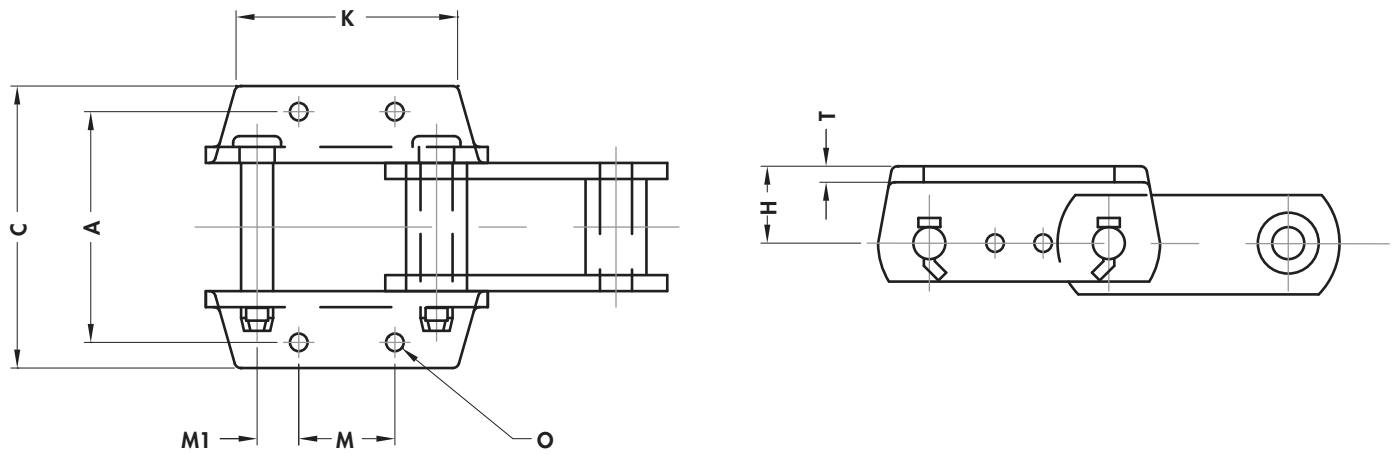
**STYLE A**

**STYLE B**

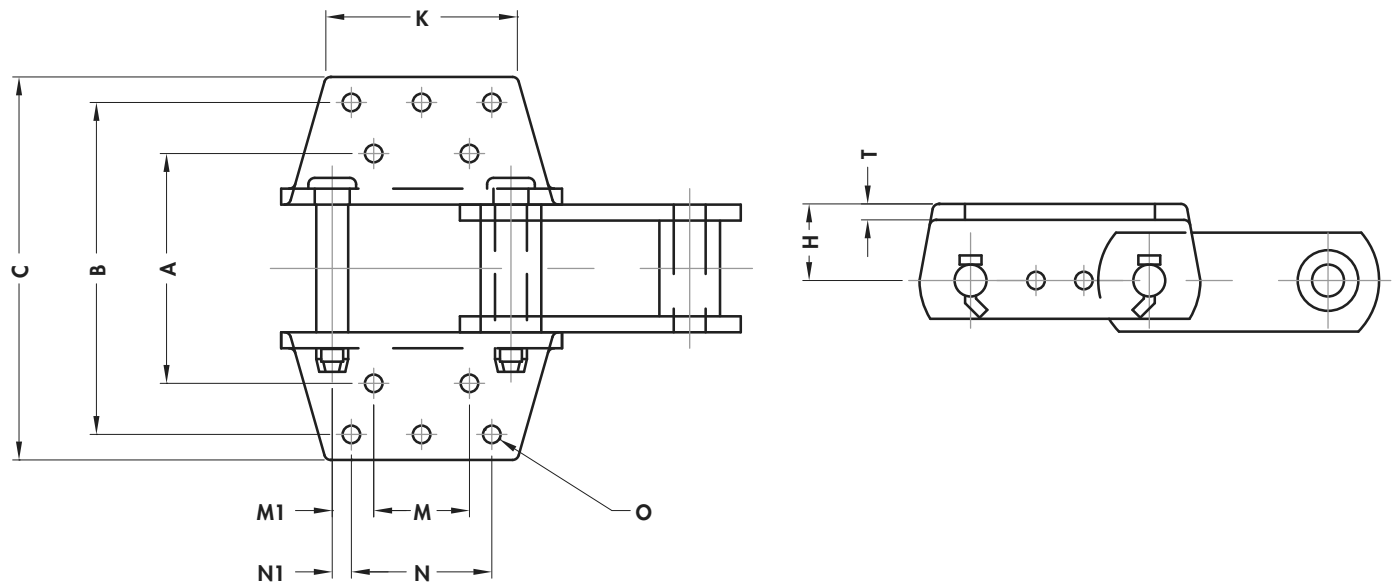
MATERIAL AND HEAT TREATMENT		
	MATERIAL	HEAT TREATMENT
<b>SIDEBARS</b>	Alloy Steel	Through Hardening
<b>PINS</b>	Alloy Steel	Through Hardening Induction Hardening
<b>BUSHING</b>	Alloy Steel	Carburizing

Chain	Pitch P	Style	Inner Width W	Pin Diameter D	Pin Length L	Barrel Diameter B	Sidebar Height H	Sidebar Thickness T	Minimum Ultimate Strength
CXS ER956	6"	A	3.000"	1.000"	6.437"	1.750"	3.000"	0.500"	97000 LBS
CXS ER857	6"	B	3.000"	1.000"	6.437"	1.750"	3.250"	0.500"	97000 LBS
CXS ER958	6"	A	3.000"	1.125"	6.437"	2.000"	3.250"	0.562"	97000 LBS
CXS ER859	6"	B	3.750"	1.250"	7.437"	2.375"	4.000"	0.625"	155000 LBS
CXS ER864	7"	B	3.750"	1.250"	7.437"	2.375"	4.000"	0.625"	155000 LBS
CXS ER984	7"	A	3.750"	1.375"	7.437"	2.500"	4.000"	0.625"	155000 LBS
CXS ER994	7"	A	3.750"	1.580"		2.500"	4.000"	0.630"	200000 LBS

## K24



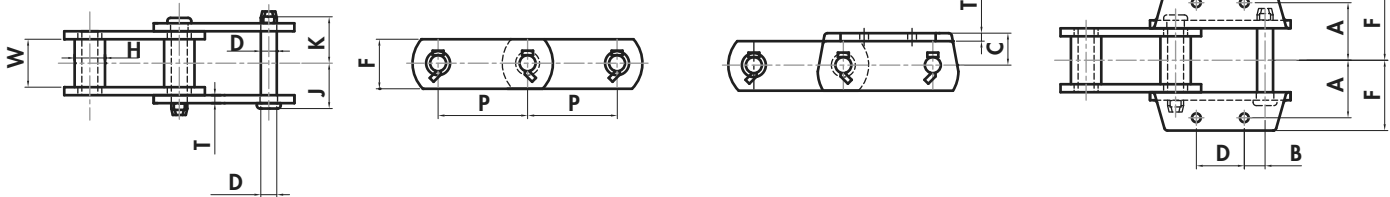
## K443



Chain	Attachment Style	A	B	C	H	T	K	M	M1	N	N1	O
CXS ER956	K24	7.250"	-	9.500"	1.875"	0.500"	6.909"	2.500"	1.750"	-	-	0.688"
CXS ER857	K44	7.000"	12.000"	14.000"	2.500"	0.500"	5.500"	3.500"	1.250"	3.500"	1.250"	0.562"
CXS ER958	K44	7.000"	12.000"	13.681"	2.500"	0.500"	5.750"	3.500"	1.250"	3.500"	1.250"	0.562"
CXS ER859	K44	9.000"	13.000"	15.000"	3.000"	0.625"	5.921"	2.750"	1.625"	4.500"	0.750"	0.688"
CXS ER864	K443	9.000"	13.000"	15.000"	3.000"	0.625"	7.000"	3.750"	1.625"	5.500"	0.750"	0.688"
CXS ER984	K443	9.000"	13.000"	14.875"	3.000"	0.625"	7.318"	3.750"	1.625"	5.500"	0.750"	0.688"
CXS ER994	K443	9.000"	13.000"	14.875"	3.000"	0.625"	7.318"	3.750"	1.625"	5.500"	0.750"	0.688"

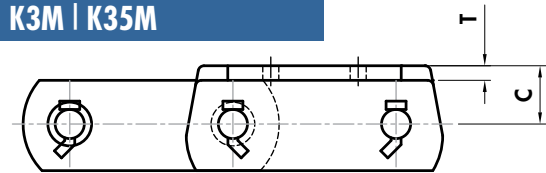
# CXS SEALED JOINT ELEVATOR CHAIN

## K2M | K24M

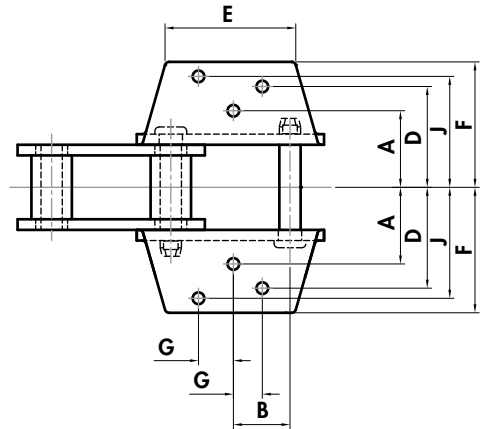


Chain	Average Pitch Inches	Average Links in 10 Feet	Average Weight per ft lbs	Average Ultimate Strength in lbs	Rated Working Load in lbs*	Sidebars		Width Between Sidebars F	Overall Width		Pins Diameter D	Bushings Outside Diameter H	Common Attachment Numbers
						Thk. T	Height F		To Cotter end	To Head or Rivet end			
TS856	6.000	20	16.2	150,000	14,000	1/2	2 1/2	3	3	2 27/32	1	1 3/4	K2M K3M K24M K35M
TS956	6.000	20	17.3	150,000	14,000	1/2	3	3	3	2 27/32	1	1 3/4	K2M K3M K24M K35M
TS857	6.000	20	21.0	150,000	14,000	1/2	3 1/4	3	3	2 27/32	1	1 3/4	K2M K44
TS859	6.000	20	34.0	250,000	21,875	5/8	4	3 3/4	3 25/32	3 15/32	1 1/4	2 3/8	K44
TS958	6.000	20	22.0	200,000	16,300	9/16	3 1/4	3	3 7/32	2 27/32	1 1/8	2	K44
TS864	7.000	17	32.0	250,000	21,875	5/8	4	3 3/4	3 25/32	3 15/32	1 1/4	2 3/8	K443
TS984	7.000	17	31.0	250,000	24,000	5/8	4	3 3/4	3 13/16	3 1/2	1 3/8	2 1/2	K443
TS994	7.000	17	31.0	250,000	24,000	5/8	4	3 3/4	3 13/16	3 1/2	1 3/8	2 1/2	K443

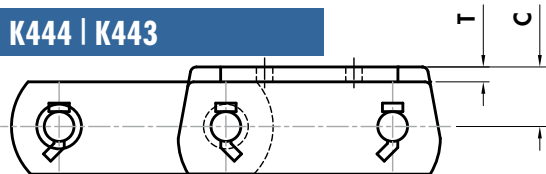
## K3M | K35M



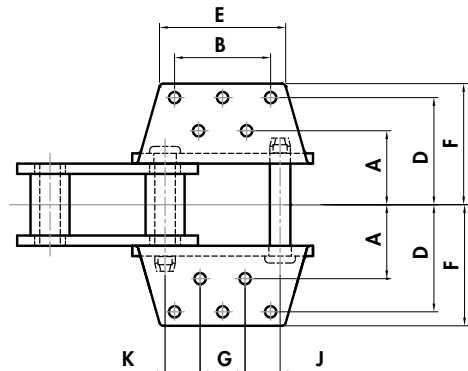
Chain	A	B	C	D	E	F Max	t	Weight per foot lbs	Bolt Size
TS856	3 5/32	1 7/8	1 7/8	2 1/4	7 1/2	4 3/4	1/2	22.0	1/2
TS857	3 13/16	1 5/8	2 1/2	2 3/4	7 1/4	4 5/8	1/2	21.0	5/8
TS956	3 5/32	1 7/8	1 7/8	2 1/4	7 1/2	4 3/4	1/2	23.1	1/2



## K444 | K443



Chain	A	B	C	D	E	F Max	t	Weight per foot lbs	Bolt Size
TS856	3 5/8	1 3/4	1 7/8	2 1/2	7 1/2	4 3/4	1/2	22.0	5/8
TS956	3 5/8	1 3/4	1 7/8	2 1/2	7 1/2	4 3/4	1/2	22.1	5/8





## CXS ELEVATOR BUCKETS FOR HEAVY INDUSTRY

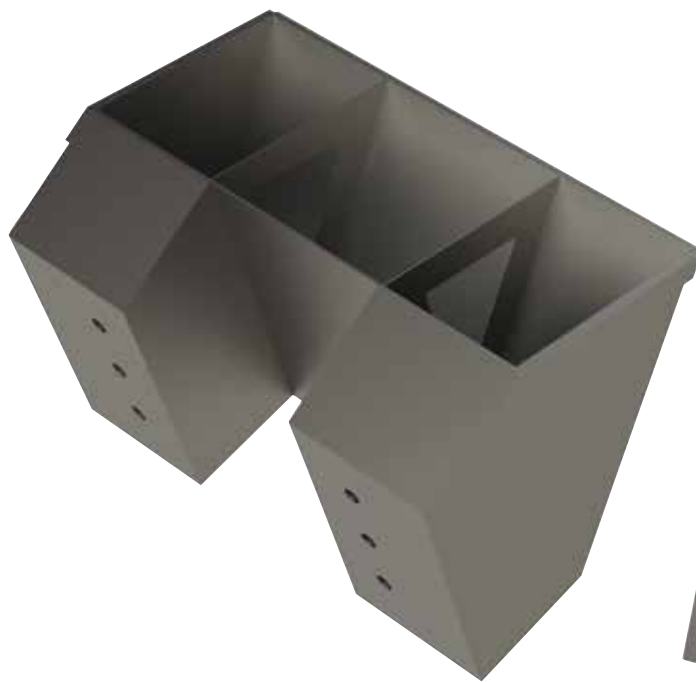
Connexus fabricated elevator buckets are available in several materials. The choice of material enables Connexus to match your application to the best suited material.

### Available Material:

- Mild Steel (standard)
- CHT360 (for abrasive materials)
- 304 or 316 stainless steel (for corrosive environments)
- 17-4Ph stainless steel (for corrosive and abrasive environments)

In addition to the base material choices offered by Connexus, several additional features are available on request:

- Hard-facing on the leading edge
- Double thick wear lips
- Extra heavy gauge material
- Bolt plates for added strength



### Standard Bucket Styles Available to suit chain style elevators

#### 1. AC Style

- a. Free flowing materials
- b. Centrifugal discharge
- c. High speed
- d. Heavy gauge steel is standard

#### 2. ACS Style

- a. Free flowing materials
- b. High capacity
- c. Extra strong design
- d. Heavy gauge steel is standard

#### 3. Super Capacity

- a. Highest design capacity
- b. Handles large product size
- c. Double strand chain design
- d. Flanged front provides a chute on discharge

#### 4. Continuous Style

- a. Handles heavy bulky materials
- b. Handles light free flowing materials
- c. Flanged front provides a chute on discharge
- d. Lower speeds required



## HOWITZER DRAG CHAINS

### THE CXS 'HOWITZER' SERIES OF DRAG CHAINS

The CXS Howitzer series of drag chain was developed with mill standardization in mind. The goal was to design a link that is extremely strong and could replace almost any drag chain in the plant. The link can be adapted to fit almost any existing conveyor profile.

The flights can be adjusted from as narrow as 10" wide to as much as 36" wide. The extra flexibility of adjusting the height of the flight from as low as 1" to a maximum of 12" ensures your required capacity will be met.

A high paddle design is ideal for handling the fluid like finished cement product. The positive carrying ability of the tall flights ensures the product moves along with no flow-back. This style of chain also makes it possible to construct dust tight conveyors with multiple inlets or outlets helping to keep the plant clean.

The Howitzer links are available in quenched and tempered alloy steel or Hadfield Manganese steel. The alloy steel links provide a tough yet very abrasion resistant link for high load and high abrasive service while the manganese material provides a very tough material ideally suited to high impact conveying applications.

As with all of our drag chains, hard-facing is available on all sliding surfaces.



Hard Surfacing on request

For more information,  
contact your local Connexus location

## CXS FORGED ELEVATOR CHAINS FOR HIGH CAPACITY HEAVY DUTY APPLICATIONS

CXS Forged Elevator chains are manufactured using precision dies in the hot forming technique. The advantage of forged links is the final product has a uniform grain structure with no retained stress lines. Further heat treating of the components ensures consistent hardness and structure from the surface through to the core of the material.

The side bars of our CXS Forged Elevator chains are produced in 4140 alloy steel quenched and tempered to 380 BHN. This material provides the best tensile strength and abrasion resistance in its class. The pin and bushing holes are machined to extremely tight tolerances to ensure every press fit connection is within specification.

Bushings are precision machined and case hardened producing a consistent part with accurate hardness on every piece. The case hardness and depth will meet or exceed that of our competitors. Pins are machined from 4140 bar stock that is heat treated and stress relieved. They are then further induction hardened producing a very tough yet wear resistant part.

## TECHNICAL DATA

Connexus common series chains are a forged and machined product with case-hardened heat treatment. The links are supplied as low alloy steel with the following typical properties: 0.400" case depth, 60HRC surface hardness, and 300-400 BHN-core hardness. The physical tolerances on this product are tighter than most other manufacturers. This ensures the correct pitch and force loads as well as the prevention of premature failure. All of Connexus specifications meet or exceed all other manufacturers of this chain. Due to the high hardness of these products, they are excellent where abrasion-resistance is required. If impact or misalignment is a factor Connexus manufactures chains to meet these needs. Connexus puts all our products through a rigorous quality assurance system to ensure you receive the best chain possible. Connexus also calculates its working load with a safety factor of 5.5:1 from the ultimate strength of the chain. When designing a new conveyor, the motor should be sized so that it does not exceed 2.5 times the working load of the chain under overload conditions.



## DROP FORGED CHAIN & DOUBLE STRAND



### COMMON AND DOUBLE SERIES CHAIN

Chain	Ultimate Strength	Working Load	Weight	Link Height	Link Width	Male-end Thickness	Body Thickness	Hole Diameter	Attachment Width	☞ to Outer Lug	Attachment Edge	Recommended Sprocket Type
142STD	73,000lbs 33,180kg	13,000lbs 5,910kg	2.45lbs 1.11kg	1.97" 50mm	1.65" 42mm	.75" 19mm	.47" 12mm	.98" 25mm	-	-	-	Symmetrical
142HVV	99,000lbs 45,000kg	18,000lbs 8,182kg	3.74lbs 1.7kg	1.97" 50mm	2.44" 62mm	1.14" 29mm	.63" 16mm	.98" 25mm	- -	- -	- -	Symmetrical Non-Symmetrical
260STD	150,000lbs 68,180kg	27,270lbs 12,390kg	14.0lbs 6.4 kg	2.95" 75mm	2.76" 70mm	1.18" 30mm	.79" 20mm	1.26" 32mm	-	-	-	Non-Symmetrical
142STD/DBL	73,000lbs 33,180kg	13,000lbs 5,910kg	3.41lbs 1.55kg	1.97" 50mm	1.65" 42mm	.75" 19mm	.47" 12mm	.98" 25mm	3.11" 79mm	1.30" 33mm	1.41" 35mm	Non-Symmetrical

### DOUBLE SERIES FLIGHTS

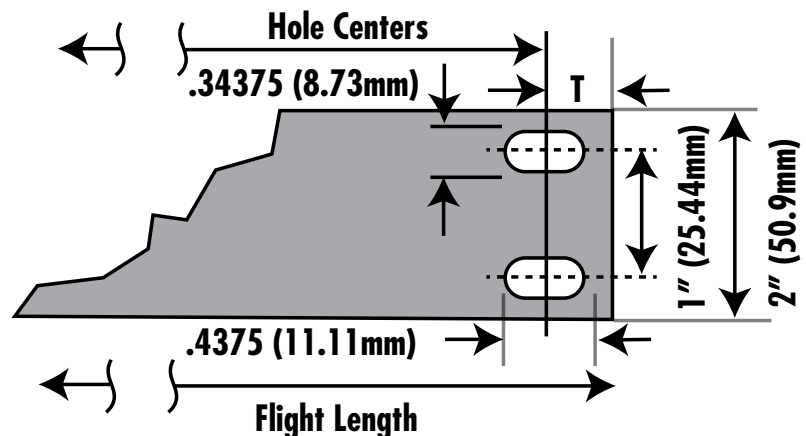
The double series flights require some movement; this is to ensure that the forces applied to both strands of chain do not cause misalignment or bending moments on the chain. This flexibility is achieved through slotted holes in the flights and a slight tolerance in the holding knuckle to allow some differential stretch between the two chains. For optimum performance of double stranded chain, please ensure that the chains are loaded in the center, thus evenly applying the load. If possible, periodically flip the chain. This will help compensate for any wear differential. Ultimately, Connexus recommends that this flight be used only on distribution conveyors.

### FLIGHT CALCULATION CONSTANTS

Chain	Z	Q	S	T
142STD/DBL	2.60" 66mm	4.39" 111mm	1.06" 26.8mm	.53" 13.4mm
142HVV/DBL	3.38" 86mm	5.95" 151mm	.87" 22mm	.43" 11mm

#### To Calculate

**Sprocket Centers:** Subtract **Z** from the overall width  
**Flight Length:** Subtract **Q** from the overall chain width  
**Hole Centers:** Subtract **S** from the overall length



## FLIGHT TYPES

The flight types shown in the illustrations are some of the most common configurations found in the marketplace. In addition, Connexus manufactures a full range of custom flight styles to meet your needs. Flight selection is based on the material being conveyed and the incline of the conveyor. Listed beside each illustration is the typical incline the flight style operates within. The finer material being conveyed, the more frequent the flight spacing needs to be. The same rule holds true as the incline increases, but in addition, the surface area and height of the flight need to increase in order to prevent roll back. These flights are all welded to the case-hardened link; therefore, the welding should be performed only in a controlled environment with pre and post-heat conditions. The flights are typically supplied in mild steel but are also available in a variety of materials and hardness to address your specific needs.



142STD-001-11 3



142STD-0001-11 2



142STD-T1-11 2



142STD-U1-11 2

### 142 STANDARD SERIES FLIGHTS

Conveyor Size	A	B	C	D	Weight (flight only)					
					T	BT	U	O	OO	OOO
11" 280mm	10.94" 278mm	5.88" 149.5mm	4.75" 120.7mm	2.00" 50mm	1.41lbs .64kg	2.36lbs 1.07kg	3.10lbs 1.41kg	3.62lbs 1.65kg	4.40lbs 2.0kg	5.62lbs 2.55kg
15" 380mm	14.88" 378mm	7.56" 192mm	5.50" 139.7mm	2.00" 50mm	2.04lbs .93kg	3.41lbs 1.55kg	4.30lbs 1.95kg	5.45lbs 2.48kg	6.80lbs 3.09kg	9.38lbs 4.26kg
19" 480mm	18.81" 478mm	10.0" 254mm	6.25" 158.7mm	2.00" 50mm	2.72lbs 1.24kg	4.45lbs 2.02kg	5.65lbs 2.59kg	7.16lbs 3.25kg	9.27lbs 4.21kg	14.07lbs 6.40kg
25" 63mm	24.69" 627mm	10.0" 254mm	6.25" 158.7mm	2.00" 50mm	3.60lbs 1.64kg	6.01lbs 2.73kg	6.60lbs 3.0kg	9.07lbs 4.12kg	11.25lbs 5.11kg	18.19lbs 8.27kg
30" 762mm	29.81" 757.2mm	10.0" 254mm	6.25" 158mm	2.00" 50mm	4.43lbs 2.01kg	7.39lbs 3.36mm	7.44lbs 3.38mm	10.66lbs 4.85kg	12.90lbs 5.86kg	21.67lbs 9.85kg

## FORGED PIN TYPES

### PIN TYPES

Connexus chain pins (bolts) are made from low alloy steel and are case-hardened. The core hardness of the pin is typically 300-400BHN with an outer surface hardness of 62HRC for an effective depth of 0.030"-0.040".

At your request, Connexus can supply clamp washers in mild steel or stainless steel. We can offer pins in martensitic or precipitation hardened alloys such as AISI420 and 17-4PH stainless steel. Stainless steel bolts and clamp washers should be considered in any wet ash or hog-fuel applications.

#### F142 STANDARD SERIES

Bolt Type	Overall Width	Distance Between Grooves	Groove Width	Color Thickness	Spring Pin	Bolt Diameter	Bolt Weight Diameter (N)
A2.56"	1.77"	.197"	-	-	.984"	.492lbs	
	65mm	45mm	5mm	-	-	25mm	.224kg
B	2.48"	1.77"	.197"	-	-	.984"	.567lbs
	63mm	45mm	5mm	-	-	25mm	.258kg
C	2.68"	1.77"	.157"	.591"	.236"	.984"	.624lbs
	68mm	45mm	4mm	15mm	6mm	25mm	.284kg
D	2.953"	1.77"	-	.591"	.236"	.984"	.592lbs
	75mm	45mm	-	15mm	6mm	25mm	.269kg



#### F142 HEAVY SERIES

A3.55"	2.56"	.197"	-	-	.984"	.656lbs	
	85mm	65mm	5mm	-	-	25mm	.298kg
B	3.27"	2.56"	.197"	-	-	.984"	.740lbs
	83mm	65mm	5mm	-	-	25mm	.336kg
C	3.465"	2.56"	.157"	.591"	.236"	.984"	.785lbs
	88v	65mm	4mm	15mm	6mm	25mm	.357kg
D	3.74"	2.56"	-	.591"	.236"	.984"	.770lbs
	95mm	65mm	-	15mm	6mm	25mm	.350kg

#### 260 STANDARD SERIES

A3.55"	2.56"	.197"	-	-	.984"	.656lbs	
	85mm	65mm	5mm	-	-	25mm	.298kg

### THE FASTENING TOOL

For manually fastening clamp-washer, the best tool to use is a standard 8 - 12" cutting nipper that has 18 - 24" tube extensions for increased leverage. This tool is available from Connexus.



### BOLT TYPES

- A** The most widely used bolt; fastened using one clamp-washer at each end.
- B** Features an integral head (\*8mm) at one end and a clamp-washer groove at the other.
- C** Features an integral (\*8mm) at one end and uses a flat washer/cotter 'S' pin r collar/spring pin combination on the other end.
- D (Ring Bolt)** This is secured using one collar and spring pin at each end.



## SPROCKETS

Connexus produces sprocket 'A' plates from abrasion-resistant plate and post-heat treatment to a desired hardness of a typical 450BHN. Connexus can also manufacture these sprockets in stainless steel for corrosive applications upon request. We machine, face and spigot to ensure a correct itch design and minimal run-out. This helps prevent misalignment.

Connexus also manufactures the 'A' plate in symmetrical and non-symmetrical tooth profiles for extra life and for your convenience. The 142mm standard and heavy-double series are unavailable in symmetrical profiles. When an attachment is present, it may interfere with the symmetrical tooth design. All sprocket plates come in four piece designs and the symmetrical sprockets can be flipped for additional service.

### F142 STANDARD SERIES SYMMETRICAL 'A' PLATES

Tooth Bolt	P.D.	O.D.	Chain O.D.	A	B
6TS/6B	11.18"	11.8"	13.25"	1.97"	.67"
	284mm	300mm	337mm	50mm	17mm
7TS/7B	12.88"	13.5"	15.0"	1.97"	.67"
	327mm	343mm	381mm	50mm	17mm
8TS/8B	14.6"	15.25"	16.69"	1.97"	.67"
	371mm	387mm	424mm	50mm	17mm
9TS/9B	16.35"	17.0"	18.43"	1.97"	.67"
	415mm	432mm	468mm	50mm	17mm
10TS/10B	18.09"	19.25"	20.19"	1.97"	.67"
	459mm	489mm	513mm	50mm	17mm
11TS/11B	19.84"	21.06"	21.94"	1.97"	.67"
	504mm	535mm	557mm	50mm	17mm
14TS/14B	25.12"	26.37"	27.24"	1.97"	.67"
	638mm	670mm	692mm	50mm	17mm



SYMMETRICAL

### F142 HEAVY SERIES SYMMETRICAL 'A' PLATES

Tooth Bolt	P.D.	O.D.	Chain O.D.	A	B
7TS/7B	12.88"	13.5"	15.0"	2.75"	.75"
	327mm	343mm	381mm	70mm	19.05mm
8TS/8B	14.6"	15.25"	16.69"	2.75"	.75"
	371mm	387mm	424mm	70mm	19.05mm
9TS/9B	16.35"	17.0"	18.43"	2.75"	.75"
	415mm	432mm	468mm	70mm	19.05mm
10TS/10B	18.09"	19.25"	20.19"	2.75"	.75"
	459mm	489mm	513mm	70mm	19.05mm
11TS/11B	19.84"	21.06"	21.94"	2.75"	.75"
	504mm	535mm	557mm	70mm	19.05mm
14TS/14B	25.12"	26.37"	27.24"	2.75"	.75"
	638mm	670mm	692mm	70mm	19.05mm



NON-SYMMETRICAL

# DROP FORGED CHAIN APPLICATIONS

## HIGH TEMPERATURE APPLICATIONS

Connexus is able to supply this chain in a full range of materials for high temperature applications. We offer the standard and heavy 142mm chain as well as the 260mm in a cast form for specialty steels. The standard case-hardened alloy steel these chains are manufactured in are sensitive to prolonged exposure to temperatures above 300F. The effectiveness of the case-hardened surface steadily declines as it approaches 600F, whereupon the case hardness is lost and the core hardness of the material begins to reduce. When this material has prolonged exposure at 900F, the hardness will drop below 30HRC. If we look at a tool steel, such as H13, it will achieve 56HRC and retain its hardness at temperatures up to 950F. If we were to approach a temperature of 1800F, we would consider a heavier chain design using a HN stainless steel. This stainless steel has a very low hardness 160-240BHN. However, HN stainless steel has excellent resistance to creep rupture failures and sigma phase embrittlement. Through our process, an alloy can be created specifically for your application.

## OPTIONS

Standard chains are offered with various flight designs and materials. Though the standard material for flights is mild steel, many alloys are available, including stainless steel and synthetics. Standard flight information can be found on page 13. All these chains are offered with 316 stainless steel or mild steel clamp washers, depending on the corrosive nature of the matter being conveyed. We also offer these chains with stainless steel or tool steel pins in the following alloys: 316, 416, 17-4PH, H13, 310, or 2205. All of these options give Connexus the flexibility to supply you with a chain that lasts in the unique aspect of your application.

## SPROCKET INSTALLATION

The sprocket should be aligned perpendicular to the chain. On the standard hub styles, the key configuration is specifically designed to ensure that the sprocket does not have lateral movement. Lateral movement can cause misalignment and ultimately lead to failure. To prevent this from occurring the sprocket and the bearings must be fixed.



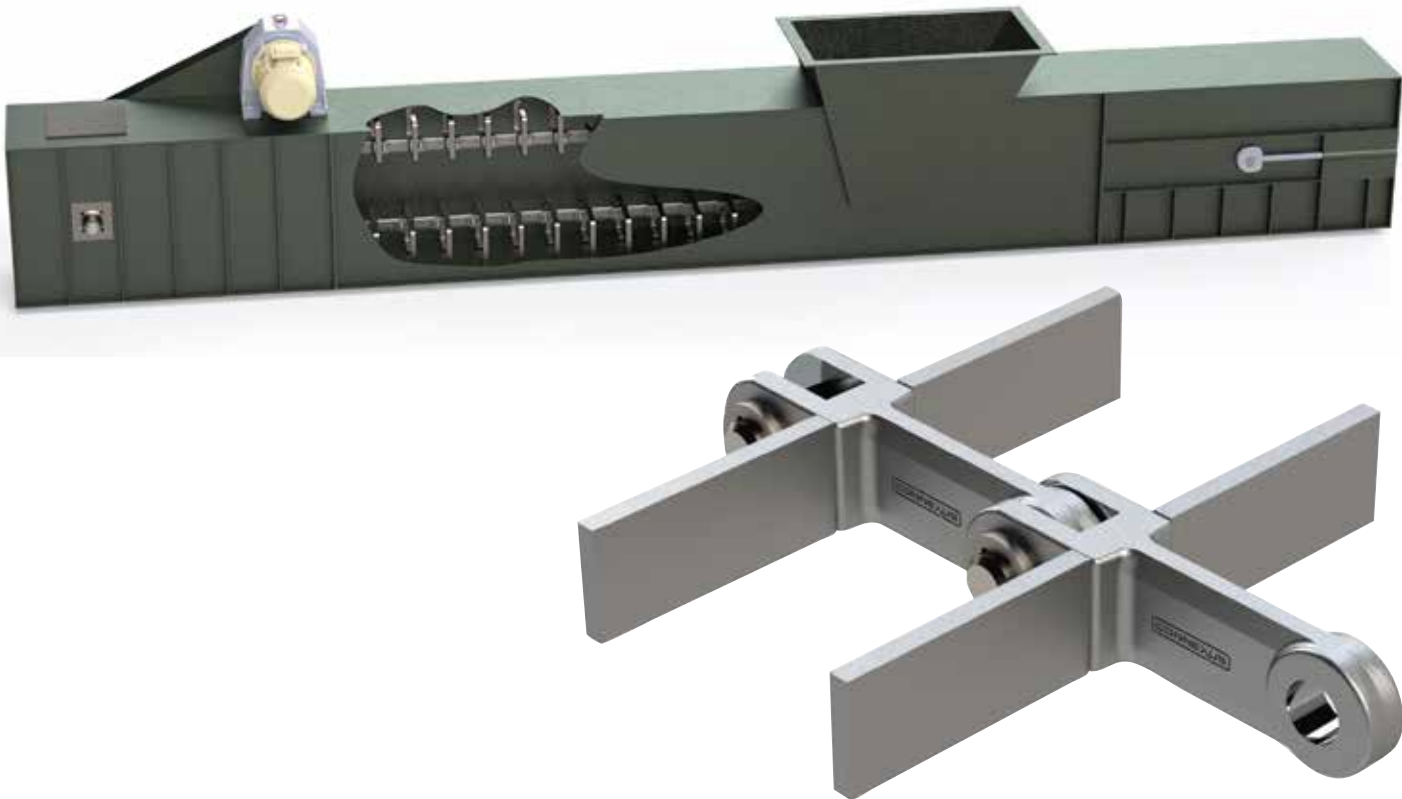
ADVANTAGES OF EN-MASSE CONVEYING AND DROP FORGED CHAIN

The En-Masse conveyor with the drop forged chain in a skeletal shape provides one of the tightest conveyor configurations on the market. This type of conveyor chain excels at moving fine powder or granular matter on any angle. The conveyors allow you to change angles or go vertical and horizontal in the same conveyor whereas other styles of chain and belts require two conveyors. There are many features to this type of conveyor, including a totally enclosed design that has easily replaceable wear components and is gas and water tight. These conveyors are assembled and made to order, allowing Connexus to address your unique application concerns.

This particular chain is designed to move highly abrasive fine matter, En-Masse. It is also designed to be lightweight and extremely hard, thus reducing horsepower per ton of material conveyed ratio. Due to it's small bearing surface from pin-to-barrel and horizontal wear areas, this style of chain operates best with relatively low loads and low speed. Material conveyed will be limited to relatively low volume or density over a relatively long distance. This type of chain and conveyor excels in ash, slash, grain and lime dust to name a few.

EN-MASSE BENEFITS . . . . . The Results

- Totally enclosed and safe design . . . . . No additional safety equipment needed
- Highest conveying efficiency . . . . . Best in smallest area vs capacity
- Lower horsepower needs . . . . . Only belt conveying is better
- Combination of conveying directions . . . . . Only pneumatic conveying is better
- High capacities over long distances . . . . . Only belt conveying is better
- Reduced structural supports . . . . . Only pneumatic conveying is better
- Minimal degradation of production . . . . . Best in reduced product contrast
- Able to handle extremely hostile products . . . . . Best at abrasive, high temperatures
- Dust and weather tight . . . . . No additional equipment needed
- Dual direction conveying. . . . . Allows for multiple discharge points



## CAST DRAG CHAIN

### EUROPEAN AND AMERICAN STANDARD CAST DRAG CHAINS

CXS Cast Drag Chains are manufactured to exacting material specifications. The chemical composition of each batch of links is recorded and stored along with the hardness certification in our production data base. Strict inspection protocols are followed for every production run culminating in a final proof load of twice the rated working load of every cast drag chain produced.

All of the CXS cast links are available in quenched and tempered alloy steel or Hadfield Manganese steel. The alloy steel links provide a tough yet very abrasion resistant link for high load and high abrasive service while the manganese material provides a very tough material ideally suited to high impact conveying applications.

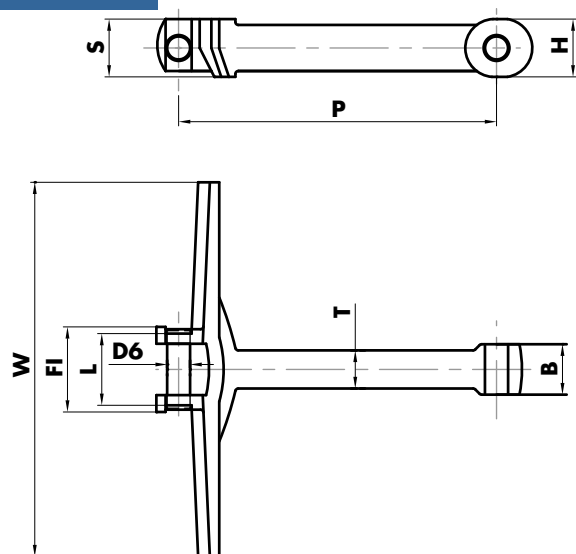
Pins are manufactured in 4140 alloy steel, through hardened and then further induction hardened to provide the best combination of toughness and abrasion resistance available.

Hard-facing is available on all sliding surfaces to help fight wear due to abrasion.

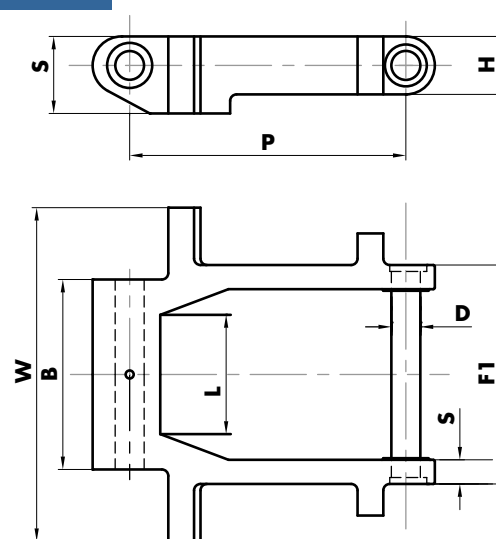


# EUROPEAN STANDARD CAST LINK

## T SERIES

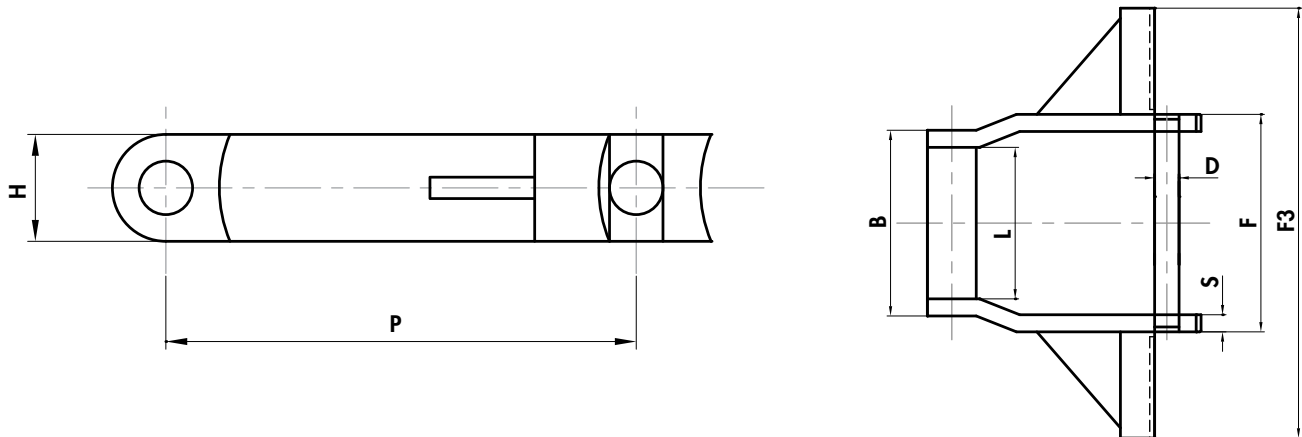


## D SERIES

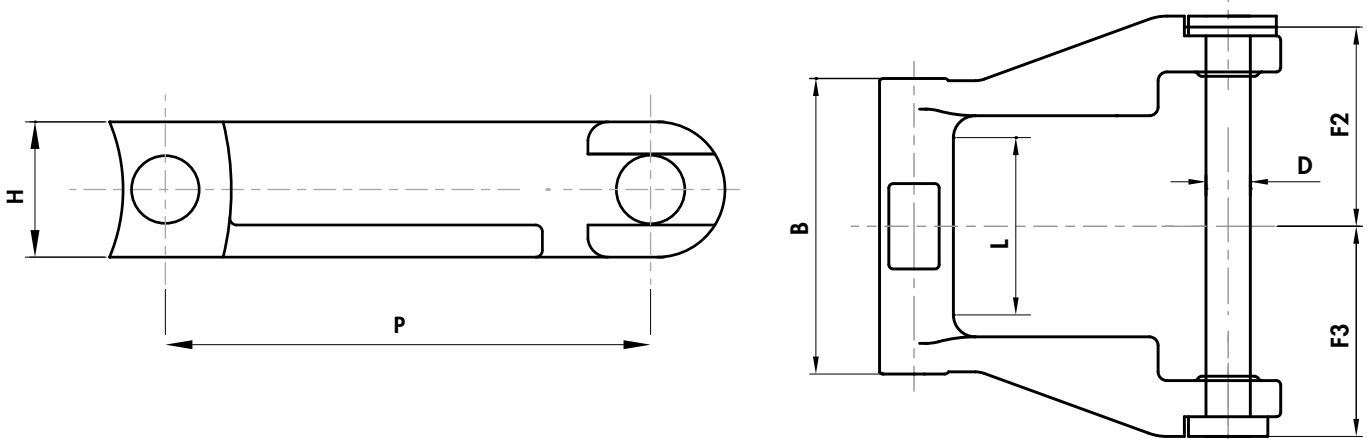


Chain	Pitch P	Width F1	Width Over Flight W	Bearing Length B	Sidebar Thickness T	Sidebar Height H	Overall Height S	Pin Diameter D	Sprocket Width L	Average Weight	Ultimate Tensile Strength
mm										Kg/m	KN
CXST 150/40/Tx125	150	86	125	40	15	40	50	18	64	13.2	250
CXST 200/50/Tx200	200	100	200	49	20	40	44	18	76	13.3	250
CXST 200/50/Tx300	200	100	300	49	20	40	44	18	76	18.3	250
CXST 225/50/Tx250	225	122	250	50	25	60	60	25	87	35.8	550
CXSD 200/180/Tx250	200	222	250	180	15	40	55	19	96	21.7	250
CXSD 203/180/Tx302	203.2	222	302	180	17	40	52	20	127	24.5	275
CXSD 200/180/T300	200	222	300	180	20	40	55	18	96	23.4	250
CXSD 200/180/Tx315	200	225	315	180	16	40	53	18	106	26.5	250
CXSD 200/180/Tx600	200	232	600	180	15	40	55	19	110	37	250
CXSD 200/220/Tx450	200	285	450	220	20	50	60	25	154	51	550
CXSD 200/220/Tx500	203.2	290	504	222	21	48	61	25.4	163	59.3	550
CXSD 200/285/Tx650	203.2	375	650	285	26	60	80	30	410	82.2	750
CXSD 200/200/Tx345	215	254	345	196	18	42	42	25	123	30	550
CXSD 230/220/Tx320	230	320	320	216	30	60	60	28	156	36.3	700
CXSD 230/320/Tx460	228.6	457	457	320	25.4	63.5	63.5	31.75	246	64	800
CXSD 230/340/Tx405	228	405	405	341	18	66	73	PINLESS	235	51.8	1250
CXSD 250/230/Tx450	250	312	450	228	22	90	90	36	152	78	1250
CXSD 270/380/Tx650	271	506	650	380	37	90	105	50	290	146.5	1500
CXSD 400/578/Tx800	400	690	800	578	45	104	135	46	415	190	1500
CXSD 400/580/Tx800	400	690	800	580	33	90	104	45	468	145	1500

# AMERICAN STANDARD SD TYPE CAST



Chain	Pitch P	Width F	Overall Flight F3	Bearing Length B	Sidebar Thickness S	Sidebar Height H	Pin Diameter D	Sprocket Width L	Minimum Ultimate Strength	Working Load	Average Weight/ foot
Inches									Lbs		
S 5157	6.06	6.81	8.14	4.63	0.63	2.50	1.13	2.25	144.60	18200	25.31
S 5121	9.00	9.75	10.30	6.31	1.13	2.50	1.25	3.63	218.45	27600	40.47
S 6121	9.00	9.75	10.31	6.31	1.13	2.50	1.25	3.63	218.45	27600	40.47
S 6067	9.00	8.50	10.26	5.56	1.13	2.50	1.25	3.63	178.80	24320	29.43



Chain	Pitch P	End Pin To C/L F2	Head Pin To C/L F3	Bearing Length B	Height H	Pin Diameter D	Sprocket Width L	Minimum Ultimate Strength	Working Load	Average Weight
Inches								Lbs		
SD21	9.00	8.31	8.06	12.44	3.50	1.25	9.50	182.30	23.400	46.80
SD23	9.00	6.00	6.00	8.44	2.50	1.25	5.75	172.80	23.400	41.80
SD27	9.00	5.06	4.81	6.87	2.50	1.13	4.25	160.50	20.100	30.70
SD28	9.00	8.13	8.00	12.81	2.13	0.88	10.13	139.40	17.600	26.00
SD29	9.00	6.13	6.00	8.81	2.13	0.88	6.75	139.40	17.600	20.80



## WHX DRAG CHAINS

CXS Drag chains are designed and constructed for severe service applications. This series of chain has several options available to meet the specific demands of your application.

### 1) Fabricated Low Alloy Steel

- a) Side bars, barrels and wings in low alloy steel fully quenched and tempered through hardened
- b) Pins are produced from 4140 bar stock through hardened and further induction hardened

### 2) Cast Low Alloy Steel

- a) Link material is low alloy steel quenched and tempered through hardened
- b) Pins are produced from 4140 bar stock through hardened and further induction hardened

### 3) Cast Hadfield Manganese Steel

- a) Link Material is ASTM A128 Gr A – surface hardened prior to assembly
- b) Pins are produced from 4140 bar stock through hardened and further induction hardened

**Note:** additional materials are available for specific applications

Hard-Facing is available on all sliding surfaces.

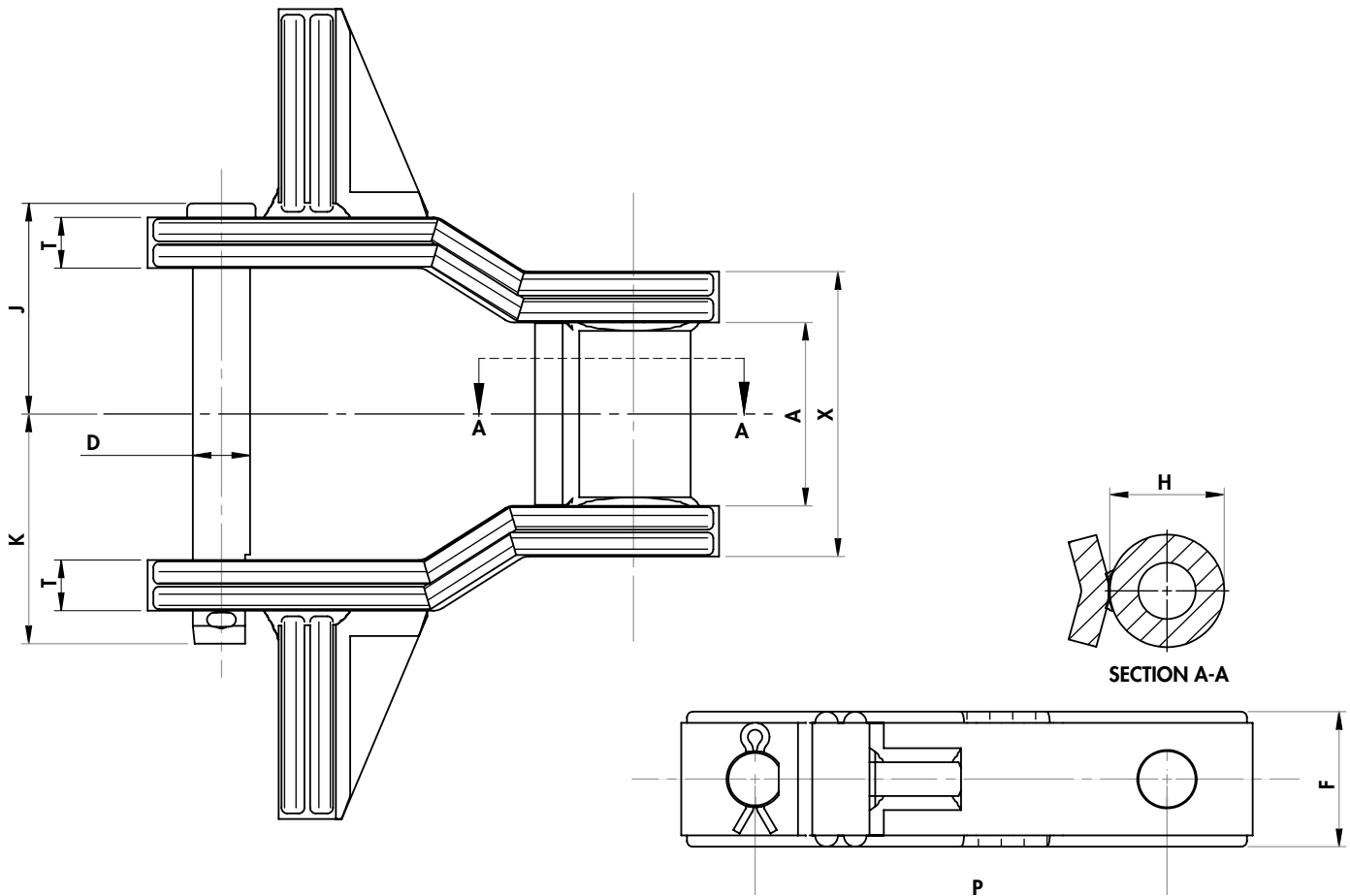
CAST STEEL



FABRICATED



# WHX DRAG CHAIN SPECIFICATIONS



Chain	Average Pitch Inches P	Approx Links/10'	Avg Weight/Ft Lbs Plain Chain	Avg Ultimate Strength In lbs	Rated Working Load In lbs	General Dimensions		
						Length of Bearing X	☐ to Cotter End K	☐ to Head or Rivet End J
WHX5157HF	6.050	20.000	28.500	117,000	18,200	4.625	3.625	3.375
WHX6067HF	9.000	13.333	28.000	195,000	24,000	5.500	4.375	3.9375
WHX6121HF	9.000	13.333	37.000	205,000	27,600	6.3125	4.968	4.718
WHX5121HF	9.000	13.333	37.000	205,000	27,600	6.3125	4.968	4.718

Chain	Pins			Sidebars			Barrels		Maximum Sprocket Width A	Common Attachment Number
	Diameter D	Style	Material	Thickness T	Height F	Material	Outside Diameter H	Material		
WHX5157HF	1.125	F	ALY.I.H	0.625	2.500	M.C.H.T.	2.500	M.C.H.T.	2.500	WING
WHX6067HF	1.250	F	ALY.I.H.	2.500	2.500	M.C.H.T.	2.500	M.C.H.T.	3.250	WING
WHX6121HF	1.250	F	ALY.I.H.	1.125	2.500	M.C.H.T.	2.500	M.C.H.T.	3.250	WING
WHX5121HF	1.250	F	ALY.I.H.	1.125	2.500	M.C.H.T.	2.500	M.C.H.T.	3.250	WING



## STEEL BUSHED ROLLER CHAIN

### CXS STEEL BUSHED ROLLER CHAINS FOR DOUBLE STRAND ELEVATORS

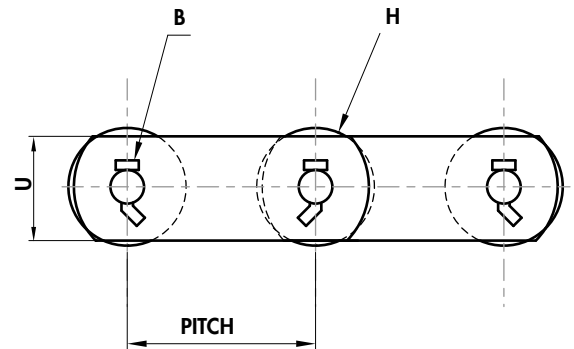
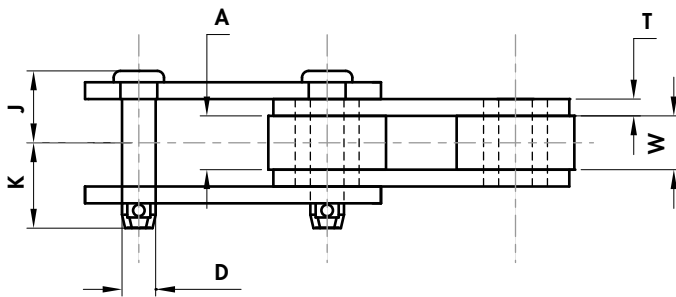
CXS Steel Bushed Roller Chains are constructed using alloy steels and are fully heat treated to ensure the best operational performance possible. SBR Chains are constructed using press fits on the bushings and pins. The chain is constructed using cotter pin type locking mechanisms.

#### MATERIALS

- Side bars are manufactured from low alloy steel and are quenched and tempered to achieve a through hardened material
- Pins are machined from 4140 bar stock, quenched and tempered to achieve through hardening. The pin is then further induction hardened to provide extra wear resistance in the rotating components.
- Bushings are made from low carbon alloy steel to allow for a carburizing heat treatment process. This ensures both the interior and exterior surfaces achieve maximum hardness while retaining a tough core.
- Rollers are manufactured in alloy steel and are quenched and tempered to produce a consistent high hardness value through to the core of the material. This will ensure the longest life possible.



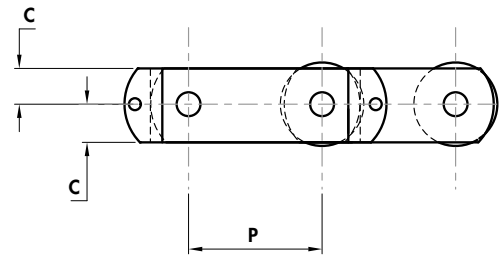
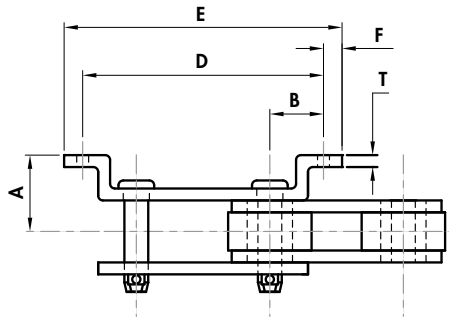
# STEEL BUSHED ROLLER CHAIN



Chain	Avg Pitch Inches	Approx Links In 10'	Average Weight Per Ft Lbs	Average Ultimate Strength Lbs	Rated Work Load Lbs	Sidebars		Width Between Sidebars W	Overall Width		Pin Diameter D	Bushings Outside Diameter B	Rollers		Common Attach Numbers
						Thickness T	Height U		To Cottrd End K	To Head J			Tread Diameter H	Tread Width A	
S4009	9.000	13.333	14.700	81,200	9,200	0.375	2.500	2.250	2.469	2.188	0.875	1.250	3.000	2.063	G5
S4004	9.000	13.333	18.500	85,000	12,700	0.500	2.500	2.625	2.844	2.656	1.000	1.500	3.000	2.438	G5, G6
S4065	9.000	13.333	38.000	150,000	18,900	0.625	3.500	3.0625	3.437	3.125	1.250	2.000	4.500	2.938	G5, G6
S4037	9.000	13.333	48.000	253,000	27,000	0.625	4.000	3.250	3.531	3.219	1.500	2.375	4.500	3.125	G6
S4251	12.000	10.000	12.000	90,000	9,000	0.500	2.000	1.9375	2.500	2.250	0.875	1.250	1.750	11.188	G117/118

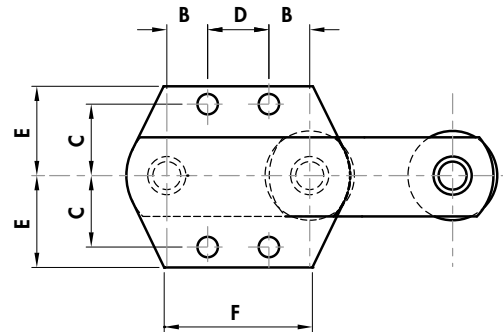
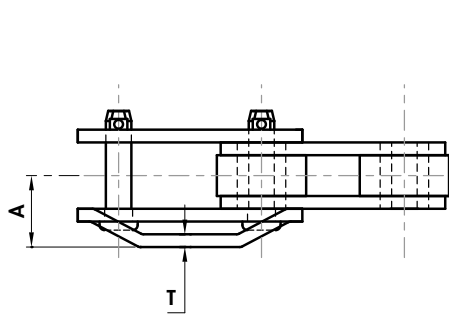


# STEEL BUSHED ROLLER CHAIN



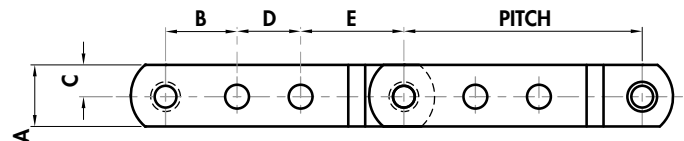
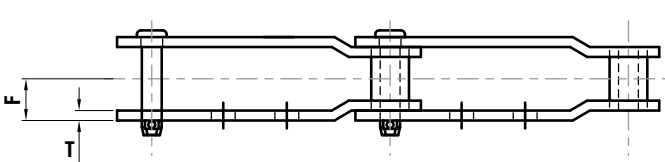
## G5

Chain	A	B	C	D	E	F	T	Weight per Foot	Bolt Size
S4009	3.344	2.500	1.250	14.000	16.500	3.750	0.375	15.3	0.625
S4004	3.344	2.500	1.250	14.000	16.500	3.750	0.500	19.7	0.625
S4065	3.344	2.500	1.250	14.000	16.500	3.750	0.625	40.0	0.625



## G6

Chain	A	B	C	D	E	F	T	Weight per Foot	Bolt Size
S4004	3.344	2.750	3.000	3.500	4.250	5.750	0.500	24.200	0.625
S4065	3.344	2.750	3.000	3.500	4.250	7.000	0.625	44.700	0.625
S4037	3.344	1.500	3.000	6.000	4.250	7.000	0.625	54.200	0.750



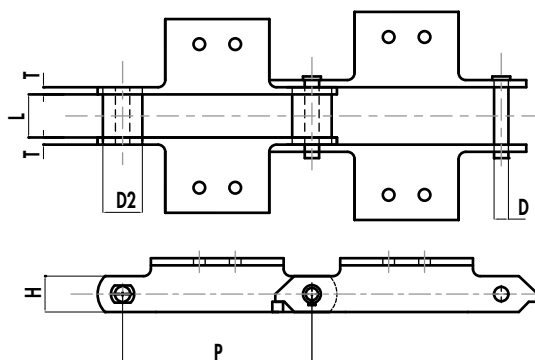
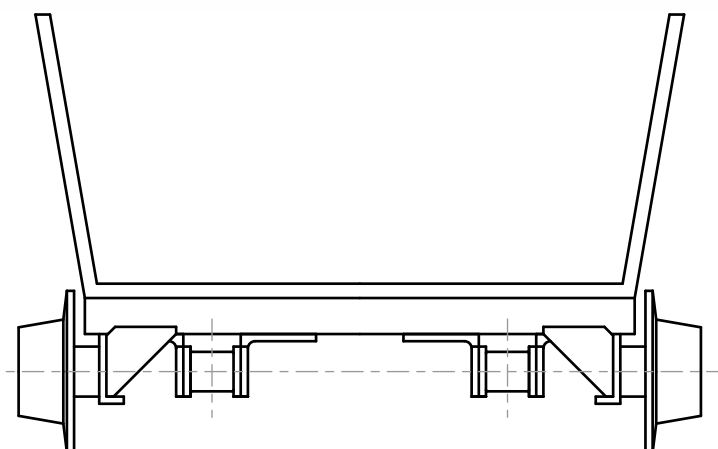
## G117

Chain	A	B	C	D	E	F	T	Weight per Foot	Bolt Size
S1251	2.000	3.000	1.000	4.000	5.000	2.000	0.500	12.000	0.500
S4251	2.000	3.000	1.000	4.000	5.000	2.000	0.500	12.000	0.500

## G118

Chain	A	B	C	D	E	F	T	Weight per Foot	Bolt Size
S4251	2.000	3.000	1.000	4.000	5.000	2.000	0.500	12.000	0.750





Chain	Pitch P	L	D2	D	H	T
mm						
AM200150	200	35	26	18	45	6
AM250250	250	40	32	20	60	8
AM250350	250	45	36	25	65	10
AM252400	250	45	40	26	70	10
AM250450	250	50	42	30	70	10
AM250500	250	60	44	30	80	10
AM250650	250	60	44	30	80	12
AM250850	250	60	54	36	100	12

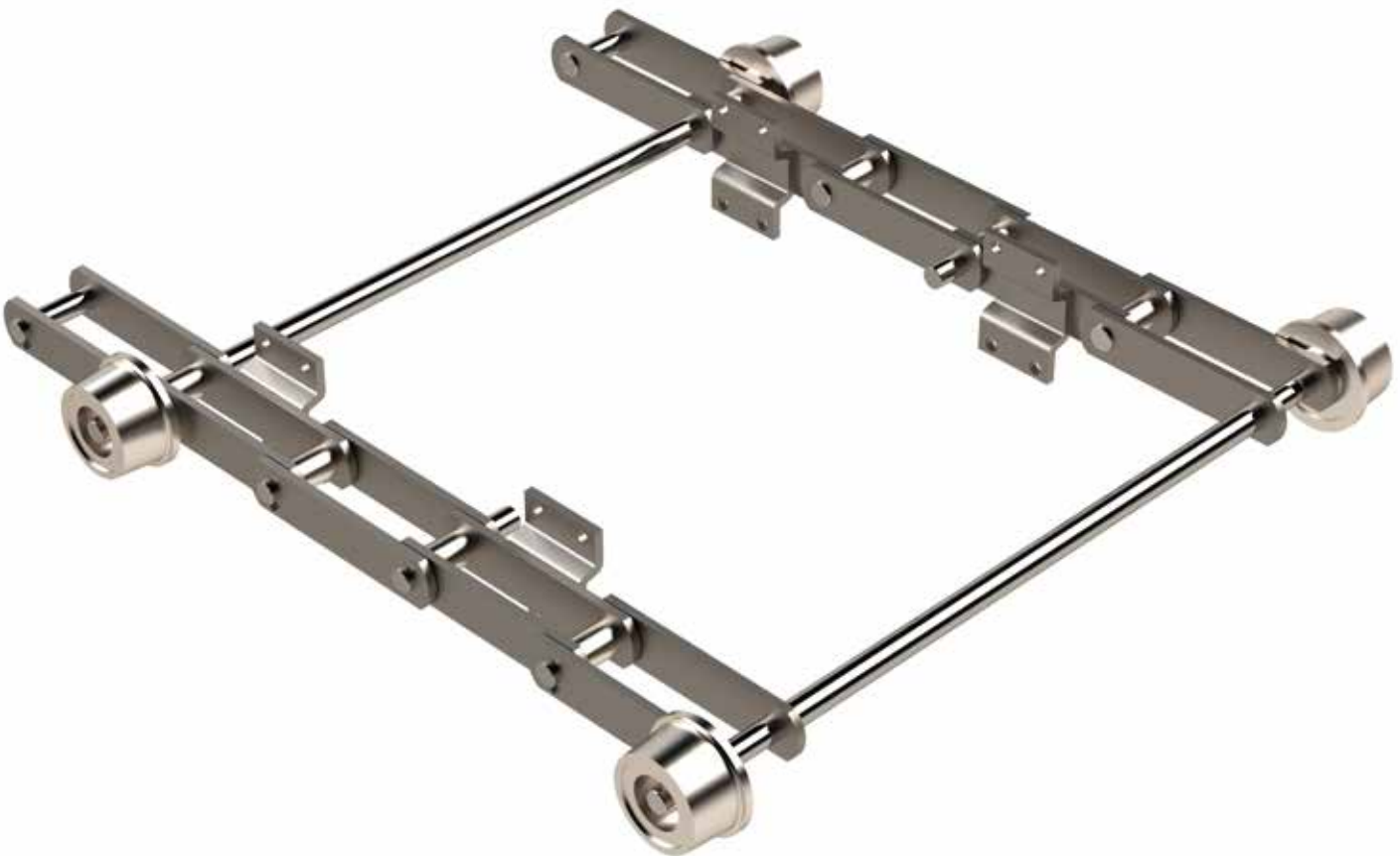
# STACKER & RECLAIMER CHAINS

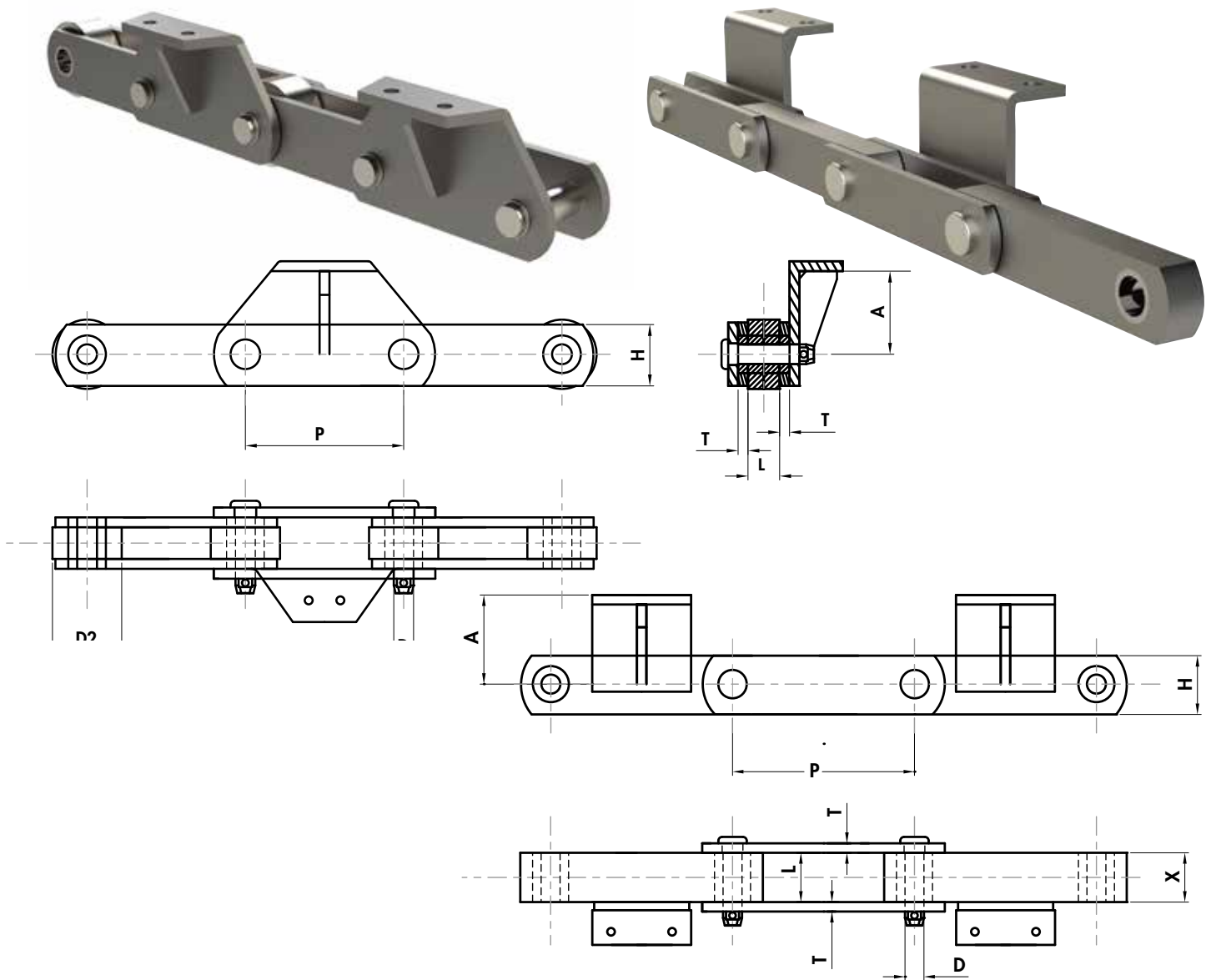
## STACKER & RECLAIMER CHAINS

CXS Stacker and Re-claimer chains are manufactured to meet the demanding conditions found in stacker/re-claimers handling heavy abrasive materials. There are many configurations found in these applications and Connexus Industries is able to adapt to your particular system. Chains can be supplied with or without rollers. Outboard style rollers can be furnished in flat, single flange and double flange styles with or without bearings.

### MATERIALS

- Side bars are manufactured from low alloy steel and are quenched and tempered to achieve a through hardened material
- Pins are machined from 4140 bar stock, quenched and tempered to achieve through hardening. The pin is then further induction hardened to provide extra wear resistance in the rotating components.
- Bushings are made from low carbon alloy steel to allow for a carburizing heat treatment process. This ensures both the interior and exterior surfaces achieve maximum hardness while retaining a tough core.
- Rollers are manufactured in alloy steel and are quenched and tempered to produce a consistent high hardness value through to the core of the material. This will ensure the longest life possible.





Chain	Pitch	L	D	A	H	X	T
mm							
SC250620	250	41	36	125	70	40	12
SC315850	315	51	42	135	80	50	15

Chain	Pitch	L	D	D2	D3	H	T	A
mm								
PH2501000	250	58	42	130	50	100	15	135
PH3151100	315	60	36	130	54	100	15	-
PH4001100	400	70	36	130	54	100	15	-

# CUSTOM CAST PARTS

## CXS CUSTOM CAST PARTS

Connexus Industries has a long history of supplying castings to material processing industries. Providing our clients with the right material for their specific application is our goal.

### Available materials include but are not limited to:

- Mild steel
- Low Alloy steel
- Manganese steel
- 300 series stainless steel
- 400 series stainless steel
- High Temperature Stainless Steel
- Tool Steel
- Grey Iron
- Ductile Iron
- Ni-Hard
- 25% CrFe
- Duplex stainless steel
- Super-duplex stainless steel
- CB7Cu-1 (17-4-Ph)



### The molding processes available include:

- Lost Wax
- Silica Sol
- Green Sand
- Chemically Bonded Sand
- Lost Foam

### Heat Treatment Processes include:

- Normalizing
- Oil Quench
- Water Quench
- Tempering
- Stress Relieving
- Induction Hardening
- Carburizing
- Precipitation Hardening





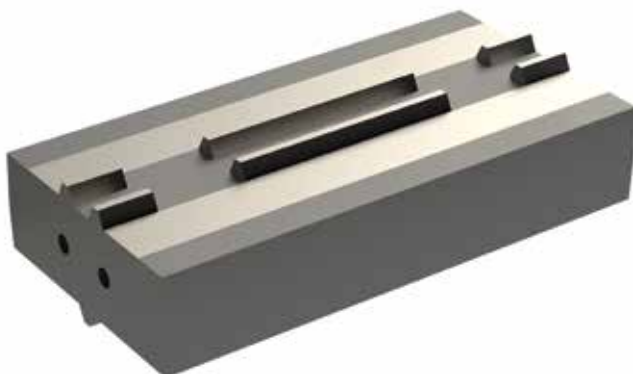
### SHREDDER TIPS

CXS hammer tips are either cast in l'Anco Alloy 3A and quenched and tempered to a through hardness of 444BHN or they are forged from 4140 Alloy steel and again quenched and tempered to a target hardness of 444 BHN. To further enhance the life of the tips we hard face the cutting edge with Tungsten Carbide chips embedded in a Chromium Carbide hard facing material



### SHREDDER GRATES

Shredder grates for wood and bark applications operate in brutal conditions. Sand, rocks and tramp metal add to the harsh environment found in these shredding applications. CXS grates are fabricated and formed from quenched and tempered steel plate that is through hardened and free of soft spots. This allows for long life and even wear. Custom designed cutting edges are available on some grate styles to aid in cutting stringy bark such as Cedar or Basswood.



### CRUSHER BARS

CXS crusher bars are cast in extremely high hardness materials for rock crushing applications. Based on customer request, we can supply cast crusher bars in either Hadfield Manganese steel or High Chrome White Iron. We can supply both materials with machined fits to ensure we match our bars to your requirements.

### CAST HADFIELD MANGANESE STEEL LINERS

Hadfield Manganese steel is a work hardening steel that is perfectly suited to high impact applications. The surface of this steel can work harden up to 600BHN and once polished has a very low coefficient of friction. Some typical applications include liners for the crushing chamber of concrete recycling equipment, car shredders and apron feeder hoppers just to name a few.

### HEAT RESISTANT DUCTILE IRON LINERS

(Our hot lime drag conveyor liners)

Our Heat Resistant Ductile Iron Liners are designed to provide extended liner life at elevated temperatures. Our most common application for this material is the discharge conveyor for the lime kiln in pulp mills. This iron is very stable at the extreme temperatures found in the kiln application (1,700-2,000 degrees F) and combined with our pocket style surface provide a liner that will last for decades. We can supply both materials with machined fits to ensure we match our bars to your requirements.

### CAST NI-HARD AND HIGH CHROME WHITE IRON LINERS

ASTM A536 irons are produced at extremely high hardness values. Depending on the grade of material selected, hardness can range between 550-700 BHN. These materials are very effective in high abrasion applications such as chute liners, ball and rod mill liners and conveyor liners.





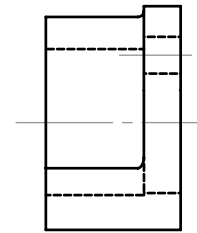
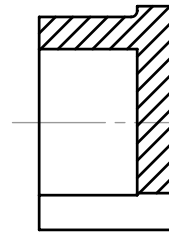
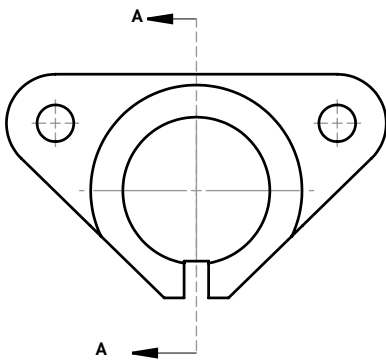
## CXS NI HARD ELEVATOR BEARINGS

Connexus Ni-Hard bearings and sleeves are cast to ASTM A532/A532M Class I Type A specifications at a hardness of 500-600 BHN.

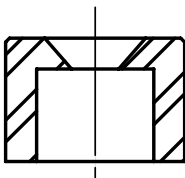
All CXS Ni-Hard bearings are interchangeable with other manufacturers Ni-Hard elevator bearings.

### Sizes available:

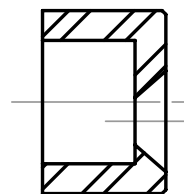
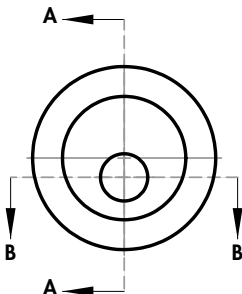
- 2  $\frac{7}{16}$ "
- 2  $\frac{15}{16}$ "
- 3  $\frac{7}{16}$ "
- 3  $\frac{15}{16}$ "
- 4  $\frac{7}{16}$ "
- 4  $\frac{15}{16}$ "



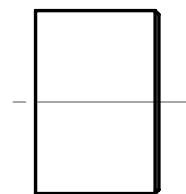
SECTION A-A



SECTION B-B



SECTION A-A



# SPROCKETS

## CXS SPROCKETS

Connexus sprockets are designed to meet your needs. From basic 'A' plates with solid hubs to segmented bolt on rims with split hubs, we will manufacture what you require.

### Available Sprocket and Traction rim materials:

- 1045 plate steel with hardened teeth or treads
- Alloy steel quenched and tempered through hardened
- Manganese steel (11%-14% Mn) with work-hardening capabilities
- 304/316 stainless steel
- 17-4-Ph (CB7Cu-1) hardened stainless steel
- 400 Series stainless steel through hardened

### Available hub styles:

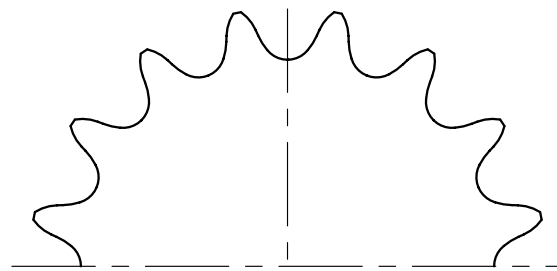
- Solid with shrink fit, square key way and set screws
- Solid with sliding fit, square key way and set screws
- Solid with sliding fit, tapered key way and set screws
- Taper-lock bushing style
- Compression hub style
- Split with square key way and set screw



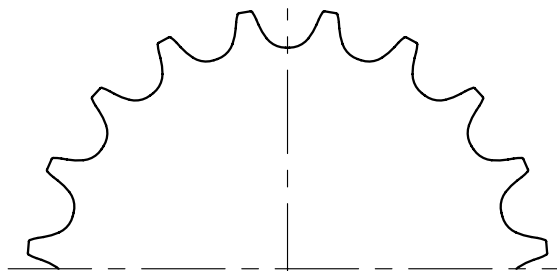
**All Connexus conveyor and roller chain sprockets are designed for specific chain type and application to ensure optimum performance of chain and maximum sprocket and chain life.**

They have teeth designed and manufactured according to ANSI (American Standards Institute) and conform to the tooth form as it is specified in the standard for particular chain type:

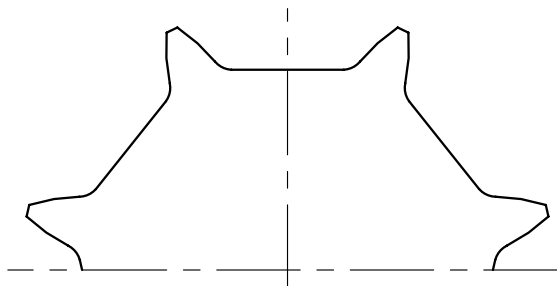
- Precision Transmission and Double Pitch Transmission Chain and Sprockets B29.100-2002
- Steel Roller Type Conveyor Chains and Sprockets B29.15M-1997
- Welded Steel Mill and Drag Chains and Sprockets B29.200-2001
- Steel Bushed Rollerless Chains and Sprockets B29.12M-1997



**DRIVE CHAIN**



**CONVEYOR CHAIN**



**BAR LINK CHAIN**

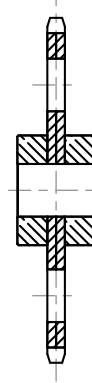
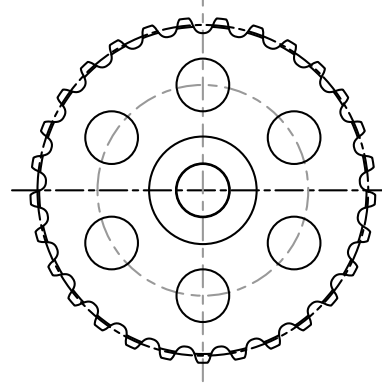
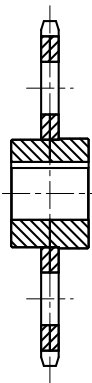
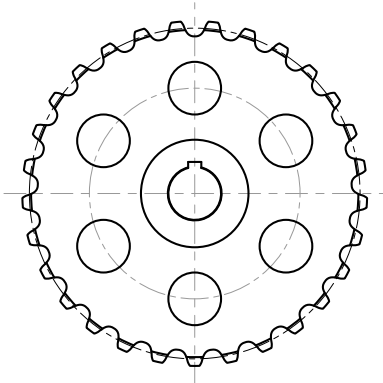
**All Connexus sprockets are made of quality steel suitable for particular application:**

- C1040/45 carbon steel plate, QT Plate (100 – 400 BHN Through Hardened), Cast Grey Iron (hardened teeth or deep chilled rim 360 BHN – 3/16" deep) and - Other Special Materials: Stainless Steel, NM-Non-Metallic (Nylon, UHMW, Polyurethane, etc.), BR - Brass or Bronze Material, etc.

# SPROCKETS

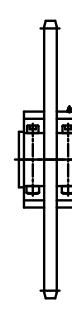
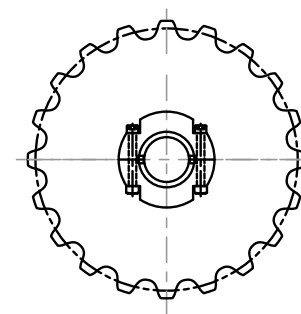
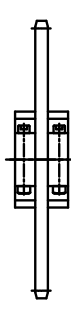
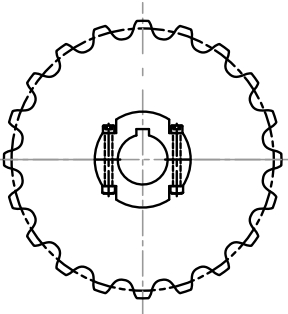
## CONVEYOR CHAIN SPROCKETS

- Cast Sprockets (grey iron, hardened teeth or deep chilled rim)
- Steel Sprockets (flame cut or precision machined with through hardened or induction or induction hardened teeth)
- Solid sprockets available as "A" plates or with "B" or "C" hub with finished bore key and 1 or 2 setscrews
- Split or replaceable tooth sprockets are available for easy installation



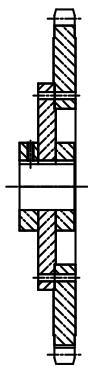
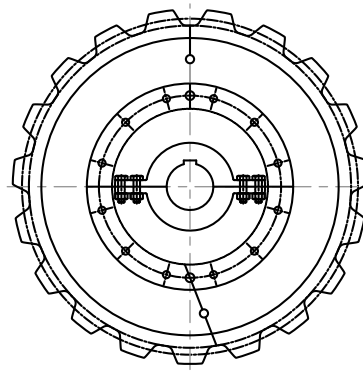
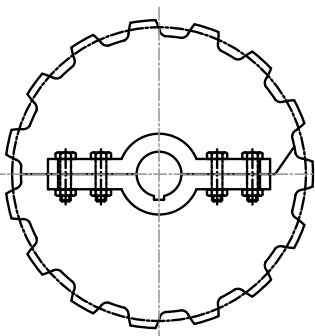
**SOLID SPROCKET DRIVE**

**SOLID SPROCKET IDLER**



**SPLIT SPROCKET-DRIVE (ROUND HUB)**

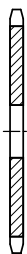
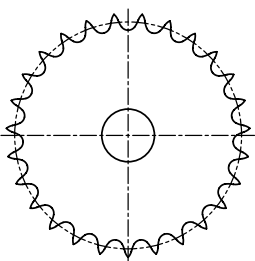
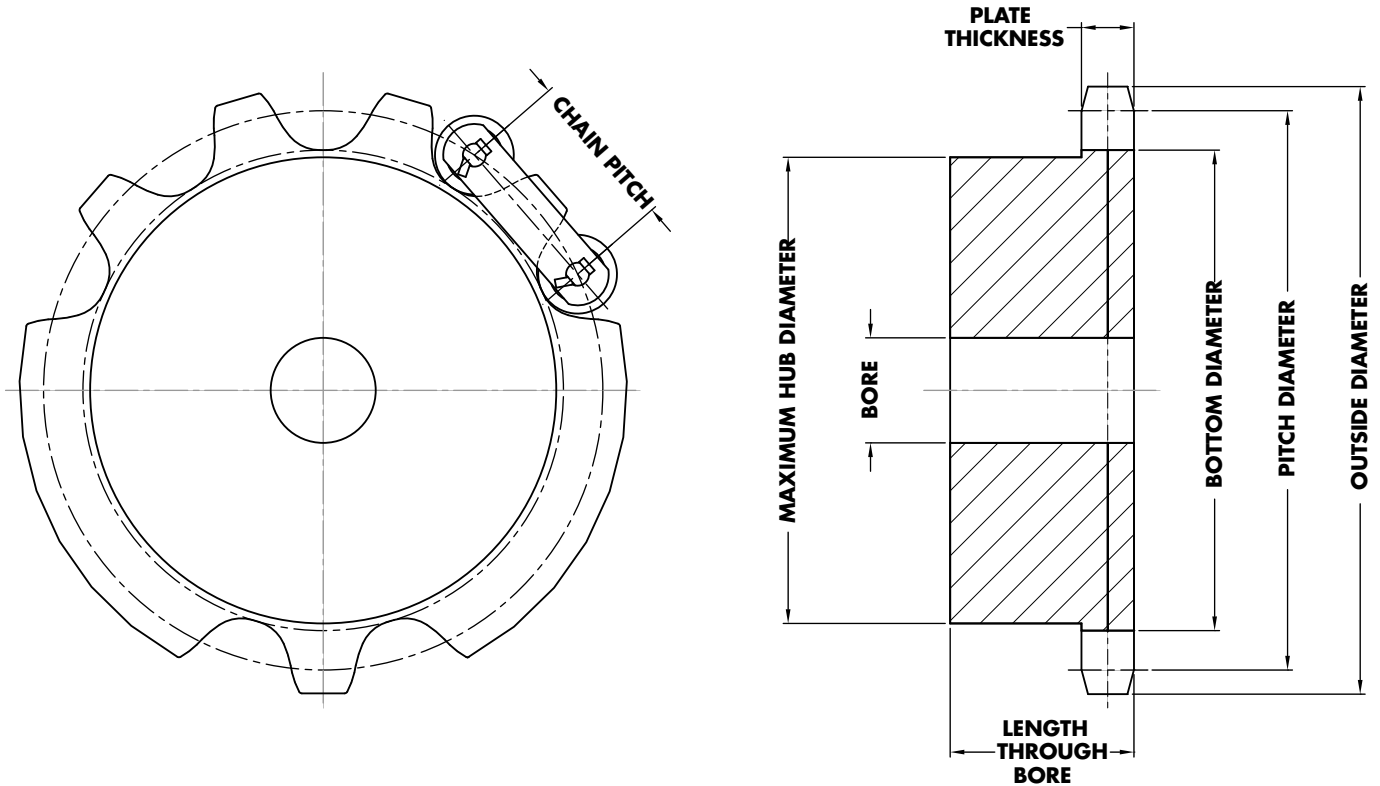
**SPLIT SPROCKET-IDLER (ROUND HUB)-BUSHING OPTIONAL**



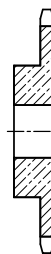
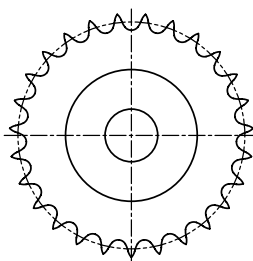
**SPLIT SPROCKET-DRIVE**

**SPLIT SPROCKET WITH REPLACEABLE SEGMENTS**

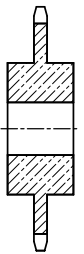
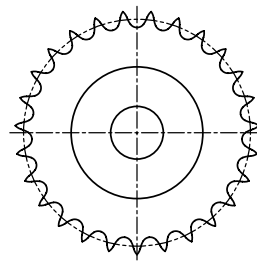
Required dimensions for quote: Chain type and Chain pitch, Sprocket Outside Diameter , Pitch Diameter , Hub Style (A, B, C), Hub Outside Diameter and length through the bore, bore size, key dimensions and set screws, any other special requirements.



**TYPE A**

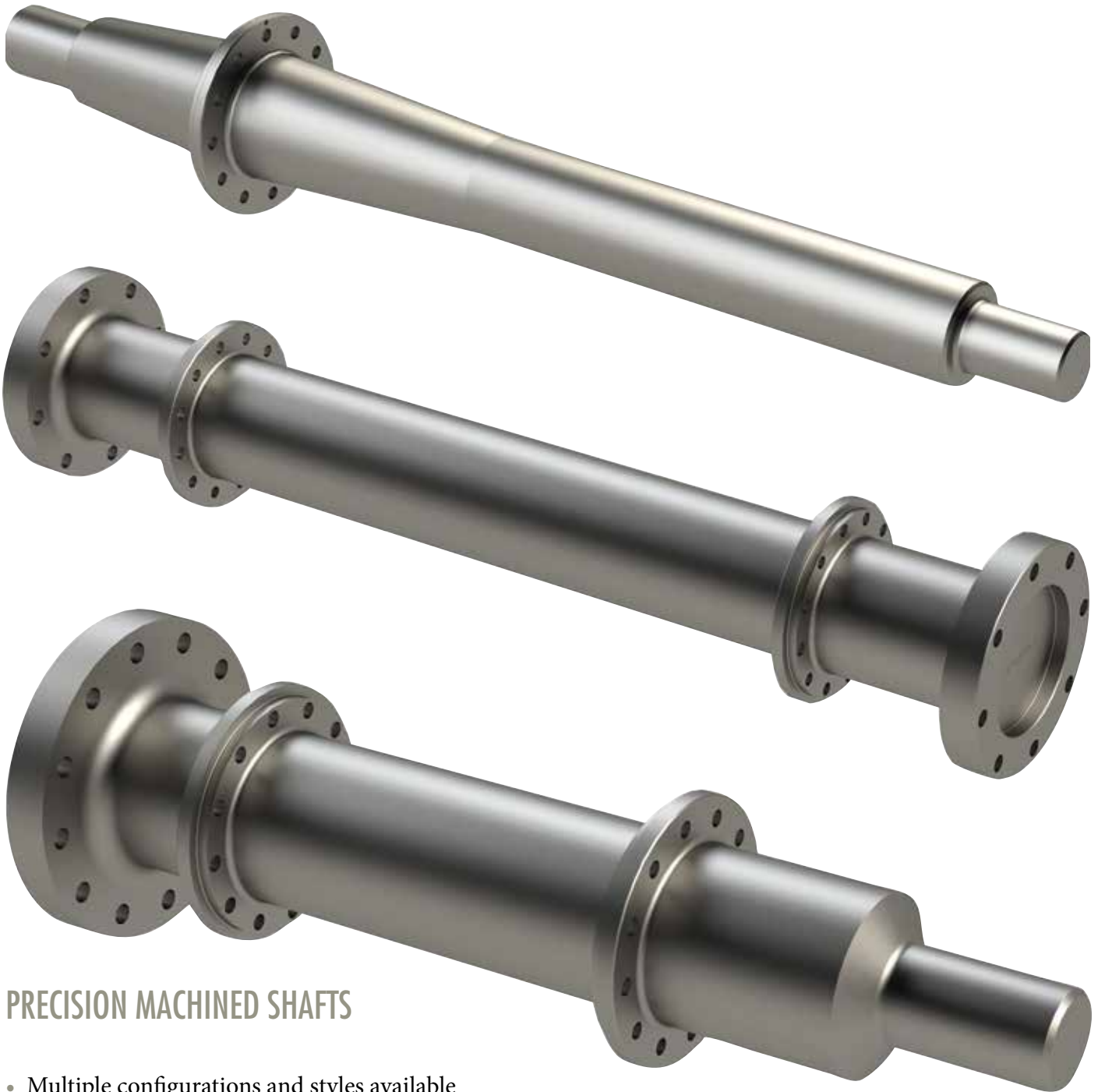


**TYPE B**



**TYPE C**

## CUSTOM SHAFTS



### PRECISION MACHINED SHAFTS

- Multiple configurations and styles available
- Some of the standard material specifications available;
  - 20Mn2- Q46D Steel
  - Yield Stg. 460MPa
  - Tensile Stg. 720MPa



## WARNING

### **Safety Precautions in installing, removing, lubricating or servicing a chain system:**

- There should be guards provided on all chain and sprocket installations in accordance with existing applicable safety standards.
- Take care that power is turned off before installing, removing, lubricating or servicing a chain system.
- Always wear safety glasses to prevent injury to eyes.
- Wear appropriate protective clothing; i.e., hats, gloves and safety shoes.
- Always be sure to have properly working tools and follow directions for their proper use.
- Always loosen tensioning devices.
- Always support the chain to prevent uncontrolled movement of the chain and/or parts.
- Discard damaged chain or parts and do not attempt to re-use chain or parts or their individual components.
- Failure to use these safety instructions may result in serious injury or death.

### **Limited Warranty Disclaimer and Exclusions**

The seller warrants that the Goods and/or Service will be free from defects in material workmanship for a period of three months from date of delivery, or an agreed upon established time period at time of order.

The sole obligation of CONNEXUS INDUSTRIES INC. or any associated companies here after called "The Company", under this Limited Warranty shall be to repair or replace or have it's Authorized Distributor repair or replace any defective products within 45 business days of a complaint communicated in writing to "The Company". Except as expressly provided herein, "The Company" shall not liable for the breach of any warranty, express or implied, including without liability arising out of merchantability of fitness for a particular purpose, or for any damages or other liability arising out of or in connection with customers' use of supplier products or "The Company" or the authorized distributor designing, manufacturing or selling supplied products. In no event shall "The Company" be liable for direct, special, incidental or consequential damages, including without limitation lost sales or profit, lost production or output, injury to property or reputation, or any other damages whether arising in contract or tort or otherwise (whether or not attributable to the fault or negligence of "The Company"). Under no circumstances shall any recovery of any kind against "The Company" be greater in amount than the price of the products and/or service to end user.

**NOTE:** Products that have been modified and/or altered from their original state without expressed written consent of "The Companies" Representative shall void this and any other warranty written or expressed. All returned materials shall be evaluated by "The Companies" engineering and sales staff prior to credit and rework. Product being returned for evaluation must include a valid "Returned Goods Authorization" number (RGA#) RGA Number added as a procedure with ISO 9001.2008 Certification Oct 19, 2015.

## CONTACT US



### Langley CAD HQ

27474 Gloucester Way, Langley BC, Canada V4W 4A1  
t **604.882.1602** f **604.882.1603** toll free **1.800.324.1244**

### Quebec Branch

1892 1'Ere Rue, St Romuald, QC, Canada G6W 5M6  
t **418.834.5116** f **418.834.5901** toll free **1.888.650.6090**

### Portland USA HQ

9525 SW Commerce Circle, Wilsonville, OR, USA 97070  
t **503.222.9992** f **503.222.0073** toll free **1.800.367.9992**

### Atlanta Branch

3411 Novis Pointe, Acworth, GA, USA 30101  
t **678.797.0777** f **678.797.5554** toll free **1.877.941.1500**

**[www.connexusindustries.com](http://www.connexusindustries.com)**