Forged Chains & Sprockets

FORGED CHAINS & SPROCKETS

Cobalt Chains forged alloy fork link chain provides an excellent solution for the rigors of heavy duty conveying systems such as cement clinker or boiler ash handling. The low carbon, high strength base material used to manufacture these forged chains is strong and ductile to combat shock loads, and heat treated to control abrasion.

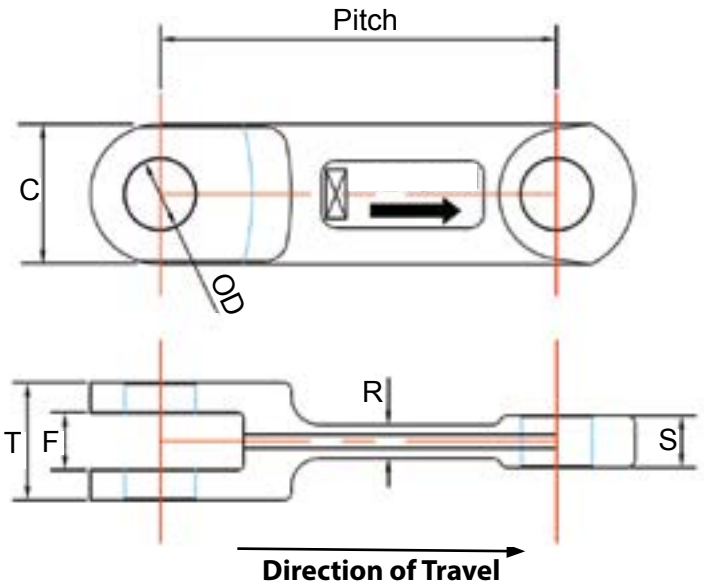
AVAILABLE LINK ALLOYS

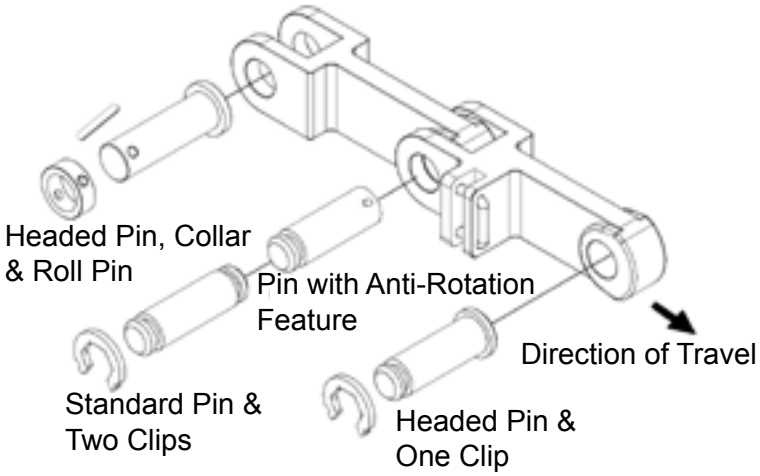
- 18MnCrB5 - Manganese Alloy Steel - Case Hardened
- 18NiCoMo5 - Chrome-Nickel Alloy Steel - Case Hardened
- C45 - Carbon Steel - Hardened & Tempered
- 42CrMo4 - Chrome Moly Alloy Steel - Hardened & Tempered
- Stainless Steel
  - AISI 304 - S3
  - AISI 420 - S4 - Hardened
  - AISI 316 - S6
  -

PIN MATERIALS

- 19MnCr5Pb - Alloy Steel - Case Hardened
- AISI 420 - Stainless Steel - Hardened & Tempered

Drop Forged Chain		
Case Hardness Specifications		
CF102	57-60 Hrc	.5mm (0.02")
CF102H	57-60 Hrc	.5mm (0.02")
CF14218	57-60 Hrc	.7mm (0.03")
CF14226	57-60 Hrc	.7mm (0.03")
CF21640	57-60 Hrc	1mm (0.04")
CF26040	57-60 Hrc	1mm (0.04")



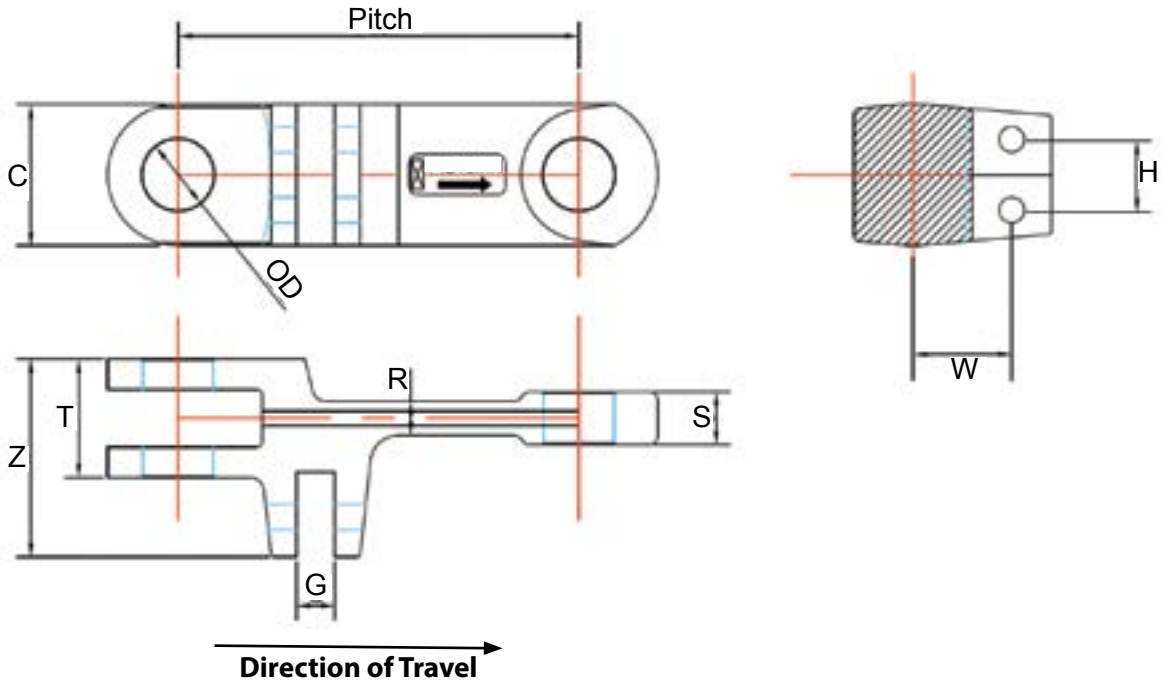


Forged Link Standard Series													All measurements in ins. () in mm.
Chain	Pitch	T	C	S	F	R	OD	Minimum Ultimate Strength LB					Weight
								MN	CN	C	CD	S 420	lbs/ft
CF102Z	4.018 (102)	0.94	1.42	0.31	0.39	0.25	0.56	24,700	2,700	33,700	47,200	46,900	2.31
CF102H	4.018 (102)	1.18	1.42	0.51	0.55	0.35	0.56	40,500	43,800	52,800	74,200	76,900	3.21
CF14214	5.591 (142)	1.18	1.57	0.51	0.55	0.35	0.70	40,000	3,800	52,800	74,000	76,000	3.28
CF14218	5.591 (142)	1.65	1.97	0.75	0.79	0.43	0.98	69,200	71,900	83,150	119,150	131,400	6.30
CF14226/8	5.591 (142)	2.44	1.97	1.10	1.18	0.59	0.98	98,900	105,600	128,100	177,600	187,900	9.12
CF21626	8.504 (216)	2.52	2.83	1.02	1.12	0.79	1.38	161,900	184,300	220,300	269,800	307,600	13.88
CF26040	10.236 (260)	2.76	2.95	1.22	1.30	0.79	1.28	188,800	202,300	247,300	332,700	358,700	14.00
Additional links available to custom order													

FORGED CHAINS & SPROCKETS

- Case-hardened Manganese Alloy Steel standard in stock
- Chrome-Nickel Alloy Steel, Carbon Steel, Chrome-Moly Alloy Steel & Stainless Steel available
- Standard & made to order flights available

Double Forged Chain with UHMW paddle flights

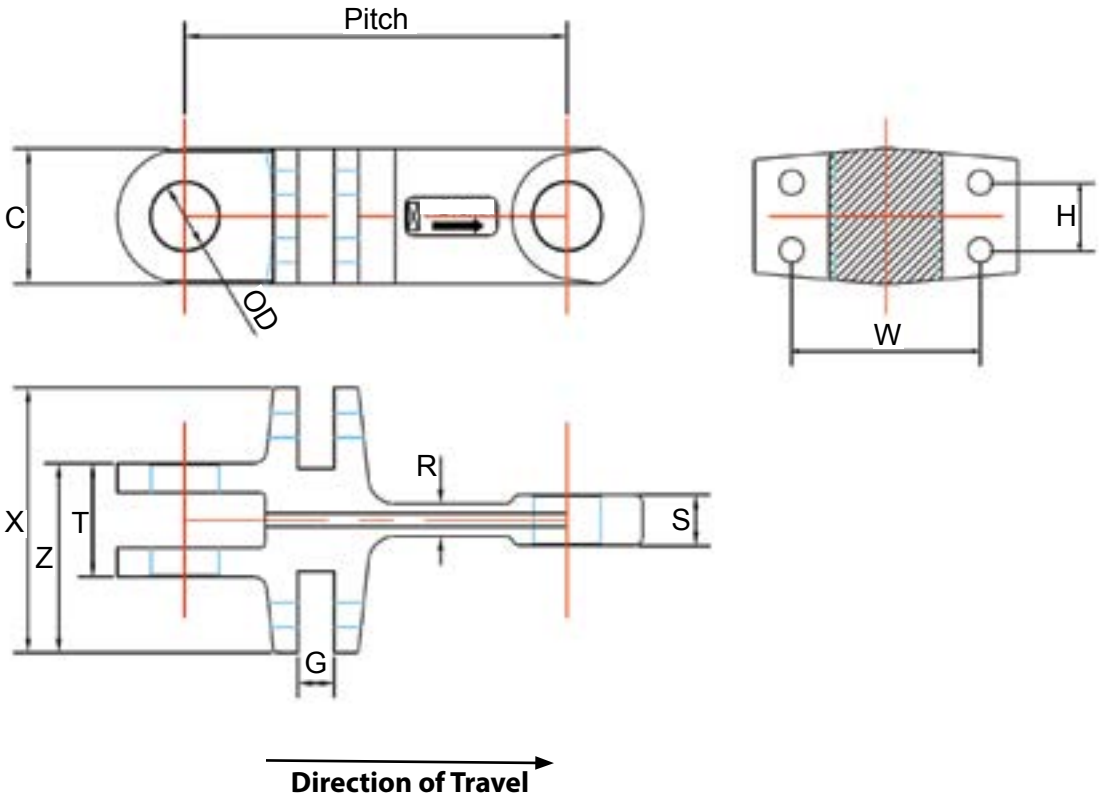


Forged Link Double Series											All measurements in ins. () in mm.					
Chain	Pitch	T	Z	C	S	G	R	OD	H	W	Minimum Ultimate Strength LB					Weight
											MN	CN	C	CD	S 420	lbs/ft
CF142183	5.591 (142)	1.65	2.76	1.97	0.75	0.53	0.43	0.98	0.98	1.38	65,200	71,900	83,200	123,600	131,400	7.78
CF142263	5.591 (142)	2.44	3.43	1.97	1.10	0.53	0.59	0.98	0.98	1.77	98,900	105,600	128,100	177,600	187,900	11.20
CF175403	6.890 (175)	2.83	3.74	2.36	1.18	0.63	0.91	1.18	0.98	1.53	105,600	119,100	150,600	179,800	200,600	13.61
CF200252	7.874 (200)	2.36	3.19	1.97	0.98	0.53	0.71	0.98	1.18	1.53	71,900	80,900	103,400	121,400	136,600	8.87
CF250603	9.843 (250)	3.94	5.51	2.76	1.77	0.83	1.42	1.38	1.18	1.85	191,100	215,800	265,300	317,000	363,000	23.60

FORGED CHAINS & SPROCKETS

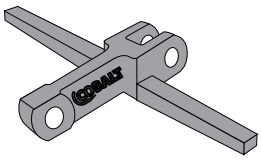
- Forged chains are strong and ductile to combat shock loading
- Large inventory and excellent customer service provide quick delivery of chains
- In-house fabrication allows for customization of forged chains to meet almost any need

Forged standard triple traversing 7-tooth, self-cleaning idler

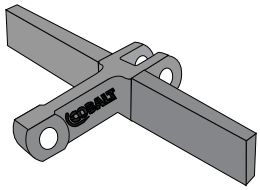


Forged Link Triple Series												All measurements in ins. () in mm.					
Chain	Pitch	T	Z	C	S	G	R	X	D	H	W	Minimum Ultimate Strength LB					Weight
												MN	CN	C	CD	S 420	lbs/ft
CF142184	5.591 (142)	1.65	2.76	1.97	0.75	0.53	0.43	3.86	0.98	0.98	70.00	65,200	71,900	83,200	123,600	131,400	8.00
CF142264	5.591 (142)	2.44	3.43	1.97	1.10	0.53	0.59	4.65	0.98	0.98	90.00	98,900	105,600	128,100	177,600	187,900	11.50

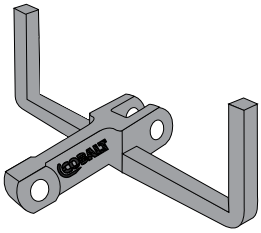
FORGED CHAINS & SPROCKETS



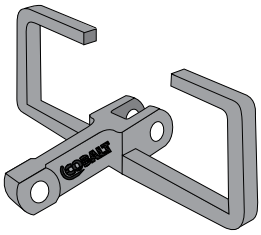
T Bar Flight



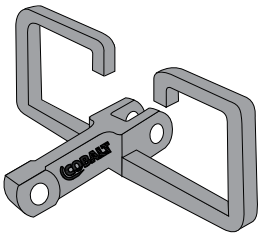
BT Plate Flight



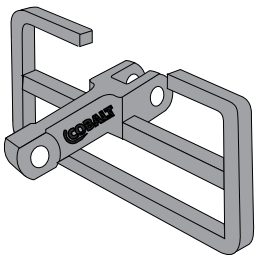
U Bar Flight



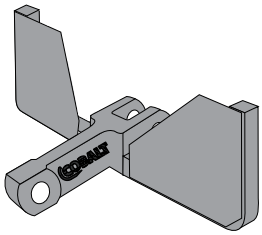
Closed U Flight



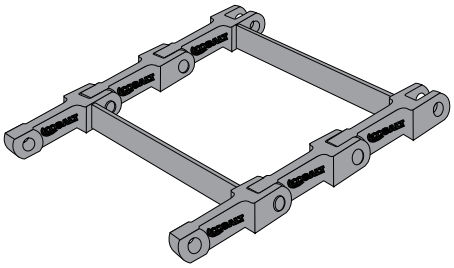
00 Flight



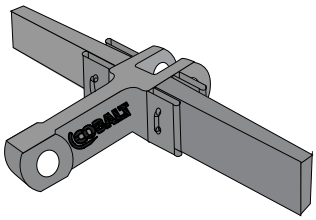
H Flight



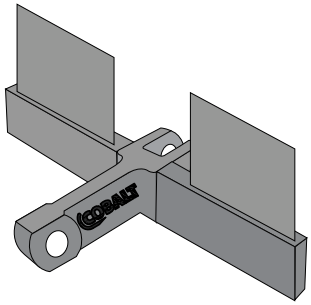
U Flight With Blanking Plate



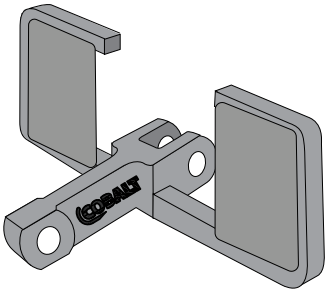
I Flight



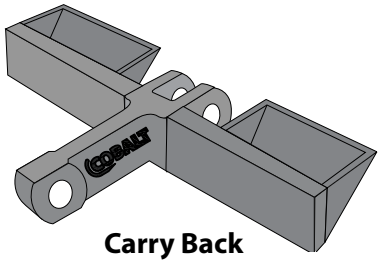
Triple Flight



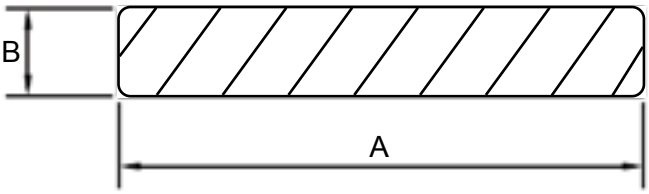
Up-Stand Flight



00 Flight With Blanking Plates



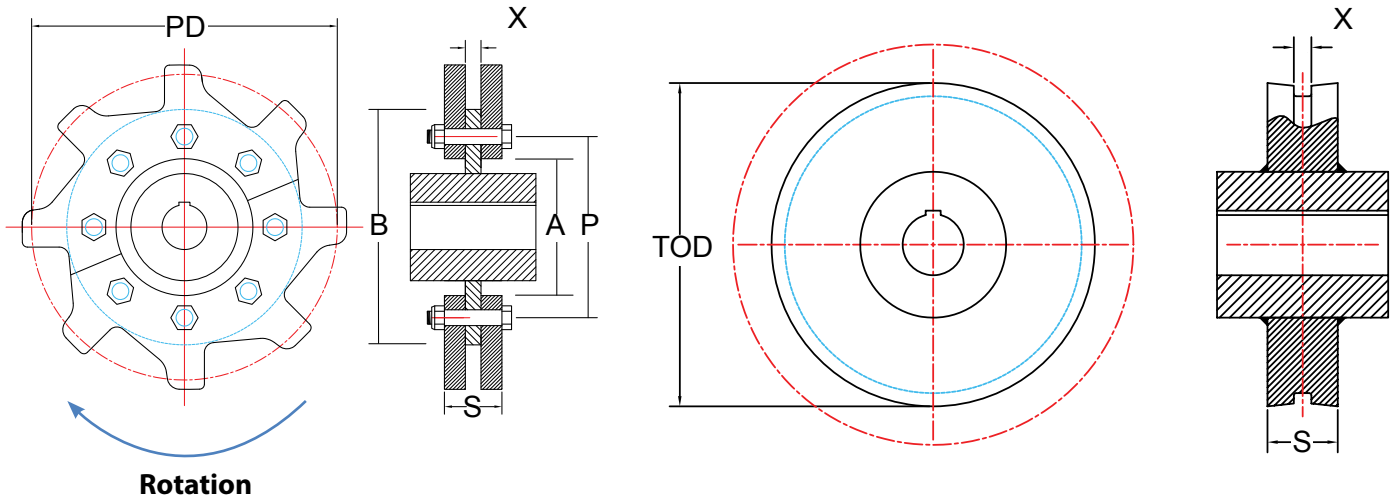
Carry Back Cup Flights



High Manganese Wear Rails

High Manganese Wear Rails						
	A		B		Standard Length	Weight
	mm	in	mm	in	ft	lbs/ft
GM4010	40.00	1.57	10.00	0.39	10.00	2.00
GM6010	60.00	2.36	10.00	0.39	10.00	2.98
"V" Grooved and other sizes available to order						

FORGED CHAINS & SPROCKETS



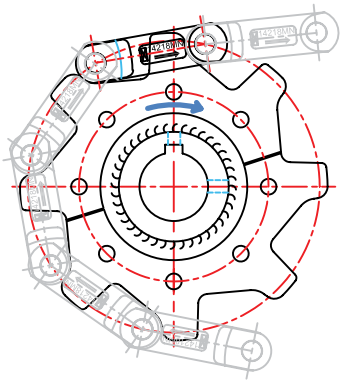
Sprocket Hub Detail

	Number of Teeth	Sprocket Pitch Diameter	Trailer Outside Diameter	Segment ID	Flange Diameter	Number of Bolt Holes	Bolt Diameter	Bolt PD	X	S	Recomended Max Bore
		PD	TOD	A	B	N		P			
		in					mm	in			
CF102R	7	9.26	7.52	4.250	6.800	6	12	5.750	0.500	1.50	2.0
	8	10.49	8.50	5.669	7.700	6	12	6.625	0.500	1.50	3.0
	9	11.74	10.24	6.850	9.100	6	12	7.875	0.500	1.50	4.0
	10	13.00	11.61	7.047	10.400	8	12	9.500	0.500	1.50	4.0
	11	14.25	12.34	8.622	11.800	8	16	10.250	0.500	1.50	5.0
	12	15.52	14.00	8.622	12.400	8	16	10.250	0.500	1.50	5.0
CF14218	6	11.18	9.21	5.375	7.500	6	12	6.625	0.625	1.88	3.0
	7	12.89	11.00	6.375	9.200	6	16	7.875	0.625	1.88	4.0
	8	14.61	12.60	7.375	11.000	8	20	9.500	0.625	1.88	5.0
	9	16.35	14.25	9.449	13.000	8	20	11.250	0.625	1.88	7.0
	10	18.09	16.34	9.449	13.000	8	20	11.250	0.625	1.88	7.0
	11	19.84	17.87	12.205	16.500	8	20	14.500	0.625	1.88	8.0
	12	21.61	19.69	13.580	18.300	8	20	16.339	0.625	1.88	8.5
	13	23.36	21.46	14.961	20.500	8	20	18.500	0.625	1.88	9.0
	14	25.13	23.15	14.961	21.500	8	20	18.500	0.625	1.88	9.0
CF14226	6	11.18	9.21	5.375	7.500	6	12	6.625	0.750	2.25	3.0
	7	12.89	11.00	6.375	9.200	6	16	7.875	0.750	2.25	4.0
	8	14.61	12.60	7.375	11.000	8	20	9.500	0.750	2.25	5.0
	9	16.35	14.25	9.449	13.000	8	20	11.250	0.750	2.25	7.0
	10	18.09	16.34	9.449	13.000	8	20	11.250	0.750	2.25	7.0
	11	19.84	17.87	12.205	16.500	8	20	14.500	0.750	2.25	8.0
	12	21.61	19.69	13.580	18.300	8	20	16.339	0.750	2.25	8.5
	13	23.36	21.46	14.961	20.500	8	20	18.500	0.750	2.25	9.0
	14	25.13	23.15	14.961	21.500	8	20	18.500	0.750	2.25	9.0

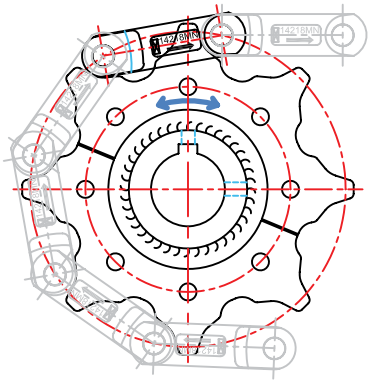
Details on 216mm and 260 mm sprockets and trailers available upon request

Additional Teeth Options Available

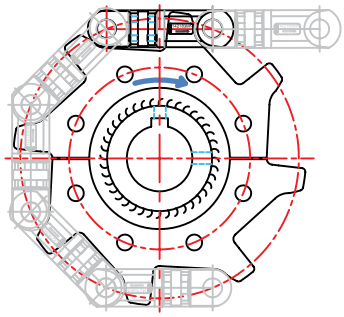
FORGED CHAINS & SPROCKETS



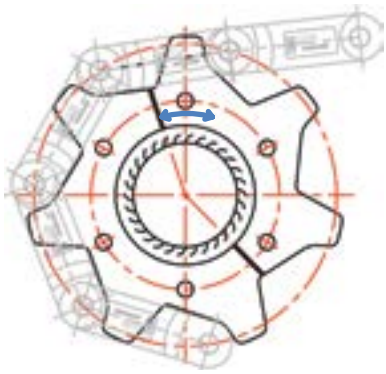
Standard Profile Drive Sprocket



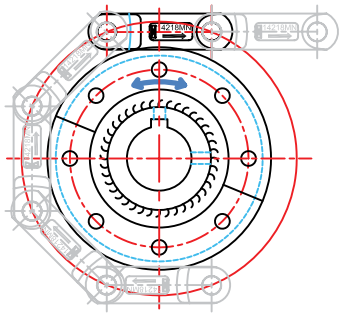
Reversible Symmetrical Drive Sprocket



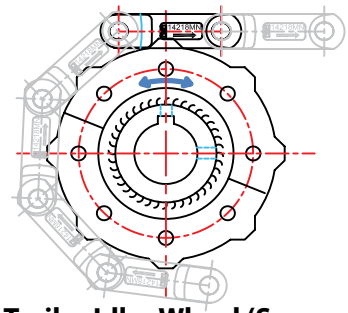
Double/Triple Drive Sprocket



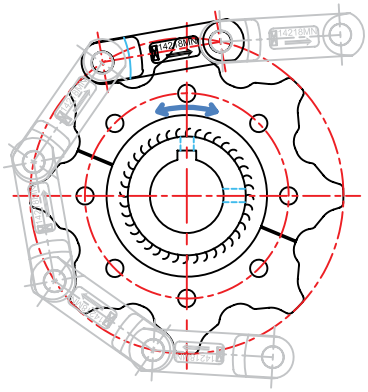
Reversible Asymmetrical Drive/Trailer Sprocket (102R Only)



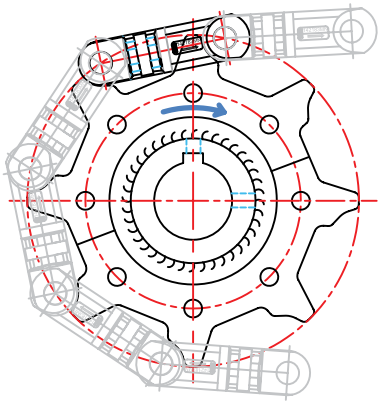
Smooth Idler Trailer Wheel (Segmental)



"Star" Trailer Idler Wheel (Segmental)

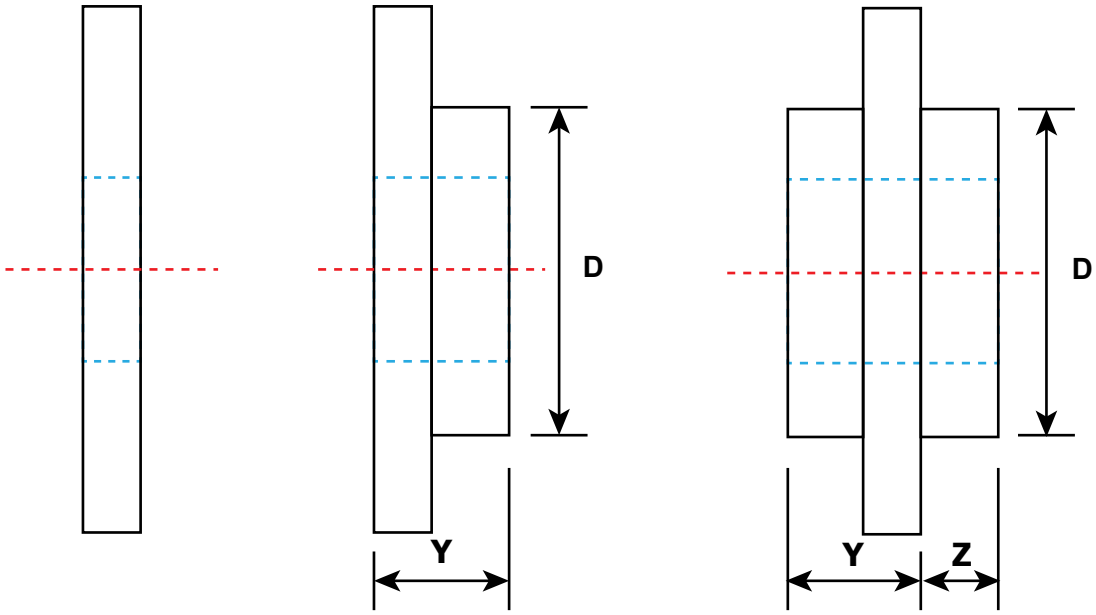


Self Cleaning Trailer Wheel



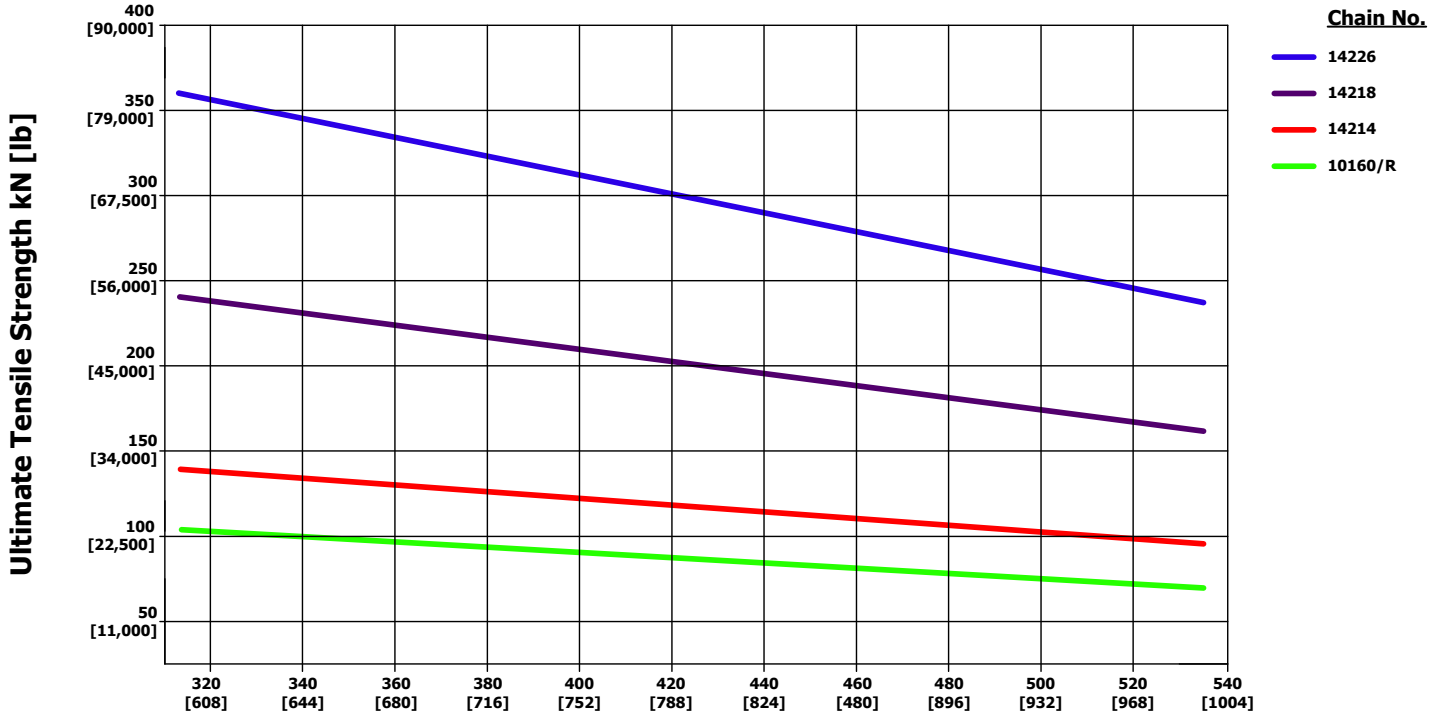
Double/Triple Toothed Trailer

COBALT HUB STYLES



Style A **Style B** **Style C**

FORGED CHAIN TEMPERATURE RESISTANCE GRAPH



FORGED CHAIN - OPERATION & MAINTENANCE INFORMATION

Cobalt Chains forged alloy chain provides an excellent solution for the rigors of heavy duty conveying systems. The low carbon, high alloy base material used to manufacture these links is strong & ductile to combat shock loads, and the surface is case hardened to ±RC60 to give excellent abrasion resistance.

CHAIN LINKS

1) The "Forked Link" style of conveying chain is designed to operate in one direction only, note the direction arrow on each link and the direction of travel shown in fig. 1. However, chains that transit in both directions can be made to special order.

2) When assembling or disassembling chain the pin keeper/retainer, whether "C" clip or tension pin, must NEVER be re-used. These are the most important assets of chain security, and if ignored can result in serious crashes and down time.

3) Keep the chain properly "Tensioned" in use. Tensioning is defined as applying as much force to the take-up, as is necessary, to remove the slack out of the system. Conveyor chain does not need to be "Pre-tensioned" like a belt, as this is not required for the proper operation. In fact, in most applications, some small amount of slack is desirable, in the return chain.

4) Regularly inspect the condition of the chain, paying particular attention to the pin retainers. Missing or broken retainers can result very quickly in chain separation.

5) Straighten or replace bent flights, as this will reduce stress on the conveyor system and may prevent chain damage or a conveyor plug condition. Missing, or bent, flights or scrapers, will put significantly more load on the others.

6) Replace chain before elongation of pin bore and pin reaches 3mm (1/8").

7) Although Cobalt Chains forged chain requires no lubrication in use, if the application permits, drip lubrication of the chain may extend the wear life – for example used gasoline engine oil.

8) With "double" or "triple" chains be sure to check the flight connection "U" pins or bolts as in Fig. 1. Make certain that none are missing and all are in sound structural condition.

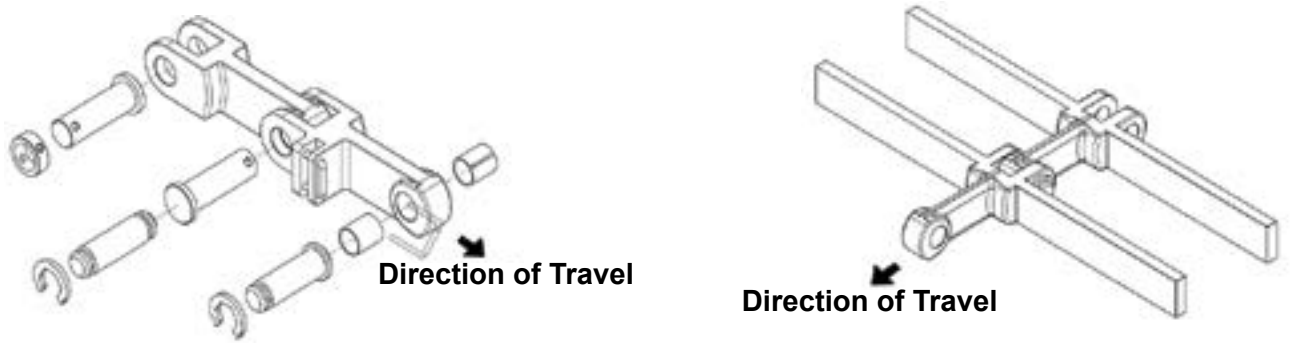


Fig. 1

DRIVE SPROCKETS

16 Tooth Star Trailer

1) Regularly inspect the drive sprocket, looking specifically for any evidence of "Pocketing" as this can damage the pin retainers. Replace worn sprocket segments and assembly bolts immediately.

2) Periodically check the retaining bolts of the sprocket segments and re-torque them.

3) Replace worn or missing sprocket cleaners, return rails, ramp rails and any "hold-down" rails.

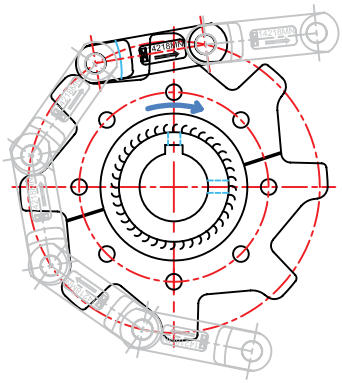
4) All sprockets are replaceable tooth type. Be sure that during installation and start-up that the mounting bolts are re-torqued to the appropriate setting and also the hub cross bolts, if a split hub is utilized (applies to Idler also).

5) There are two styles of sprocket, see Figure 2. The more usual asymmetrical pattern must rotate in the direction shown in Figure 2. The reversible pattern, which is reversible for wear only, is bi-directional and may rotate in either direction.

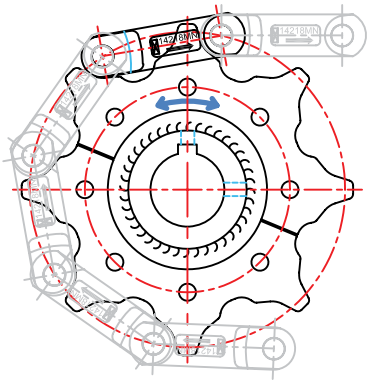
6) Maintain the perpendicularity of drive and end shafts, as well as the alignment of all the sprockets.

7) Regularly inspect all shaft keys and setcrews, and re-torque hub setscrews, sprocket assembly bolts and hub cross bolts (split hub only).

8) If split hub is present, be sure that the sprocket segments bolt across the split line.



Standard Profile Drive Sprocket



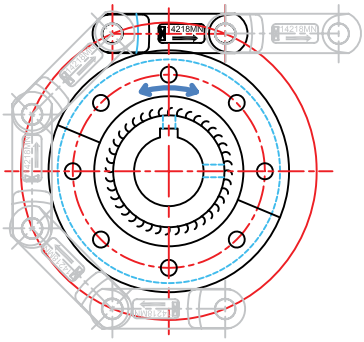
Reversible Symmetrical Drive Sprocket

Figure. 2

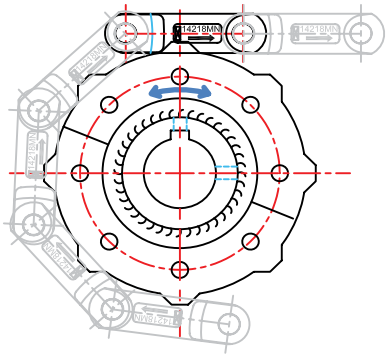
TAKE-UP & IDLER SPROCKETS

1) Regularly inspect the condition of the trailer or take-up wheels. If significant wear is evident the wheel or the segments will need replacing. Worn segments can cause chain damage, and a worn wheel may result in chain run off and mis-tracking.

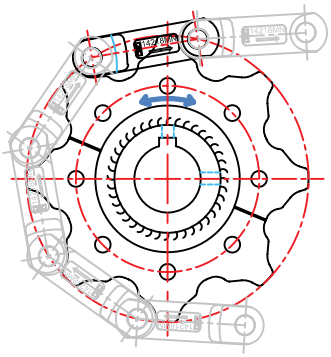
2) There are three styles of idler, see figure 3, and both may rotate in either direction. The toothed style gives a more positive location of the chain and has the benefit of replaceable tooth rim segments.



Smooth Idler Trailer Wheel (Segmental)



"Star" Trailer Idler Wheel (Segmental)



Self Cleaning Trailer Wheel

CLIP RETAINER SYSTEM - Special attention should be given to the pin clips if used:

1) Install – fit clip in groove squeezing firmly as fig. 4 – do not over-tighten as clip ends do not touch and there should be about a 0.050" gap.

2) Remove – position tool as fig. 5. Squeeze pull & twist, clip will release.

3) Standard and Heavy Duty Clip Tools are available from stock.

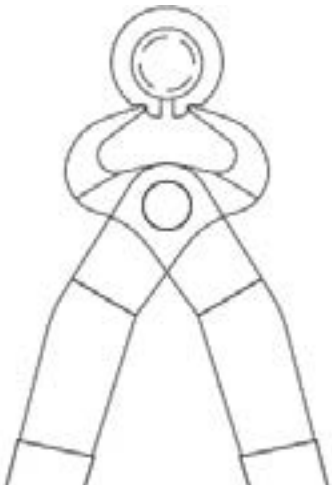


Fig. 4

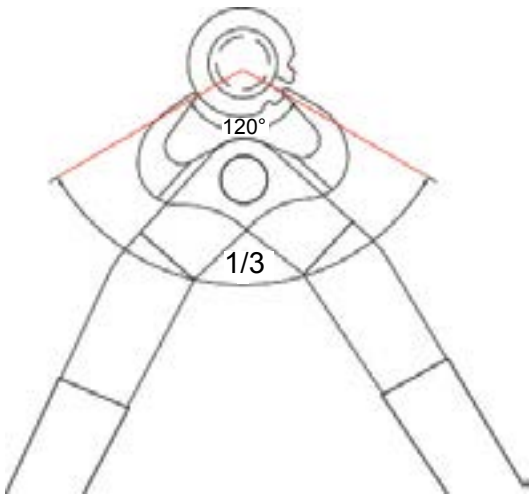


Fig. 5

GENERAL

1) When working around machinery such as conveyors you MUST observe all LOTO procedures (Electrical Lock-Out/Tag-Out), as well as OSHA and your company's procedures.

2) Cobalt Chains recommends the installation of safety equipment such as a speed switch, a plug detector and slack chain detectors.

3) Never "BUMP" a conveyor to clear a plugged conditions.

4) The tensioning note herein does not apply to cantenary, spring or automatic take-up systems

SPARE PARTS

The following minimum spare chain parts are recommended per conveyor:

STANDARD STYLE CHAINS

10%	Complete chain assembly
10	Connecting pins and retainers
1	Sprocket and Idler segment assembly

DOUBLE STYLE CHAINS

Add to the above:

10%	Flights and retainers
10	Connecting pins and retainers
1	Sprocket and Idler segment assembly (these are "paired")

A clip installation tool can be included with the chain system, additional tools may be purchased.

Please contact Cobalt Chains Inc. at any time should you have questions or concerns regarding your Cobalt Conveyor or Drive chain System.

After hours phone numbers are:

Chris Robinson: 309.840.8988

Mike Robinson: 309-840-5042