UNITING THE
UNIKING
STRONGEST LINKS

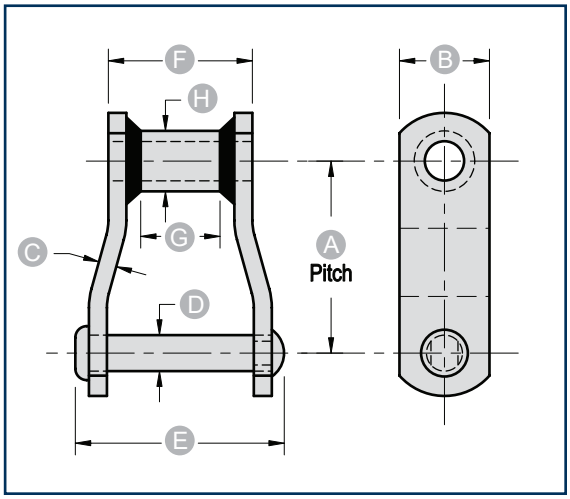
FORESTRY INDUSTY

TABLE OF CONTENT

WELDED STEEL CHAIN

Welded Steel Mill Chains (Offset Sidebars) are recommended for most conveying and elevating applications in which a high strength steel rollerless chain is required. A complete line on attachments and optional heat treatment make them easily adaptable to a wide variety of applications.

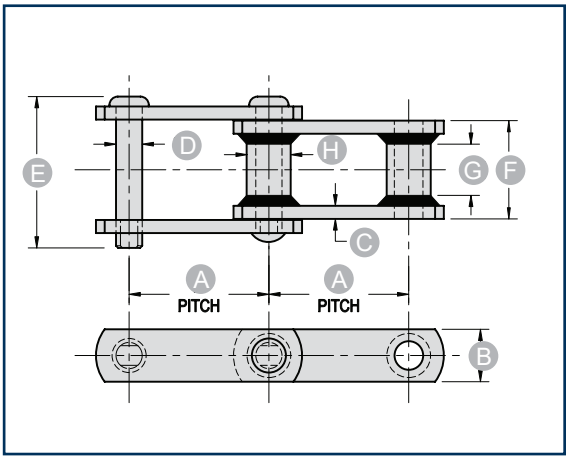
- All pins are through-hardened
- 1" & larger pins are further induction hardened
- Pre-Greased Rivets available upon request on all sizes



Part Number	A AVG Pitch	Average Ultimate Strength (pounds)	WH* Average Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Length of Bearing	G Max. Sprocket Thickness	H Barrel O.D.	Links per Foot	AVG Weight per Foot (pounds)
WS78**	2.609	29,800	34,000	1 ¼	¼	½	2 7/16	1 5/8	¾	0.84	4.6	3.9
WR78	2.609	29,800	34,000	1 ¼	¼	½	3	2	1	0.84	4.6	4.1
WR78XHD	2.640	32,700	38,500	1 ¼	⅜	9/16	3 9/32	2	1	1.05	4.5	6.3
WR78-4	4.000	29,800	34,000	1 ¼	¼	½	3	2	1	0.84	3	3.4
WR82	3.075	32,780	39,000	1 ¼	¼	9/16	3 5/16	2 ¼	1 ⅜	1.05	3.9	4.7
WR82XHD	3.075	50,400	60,000	1 ½	⅜	¾	3 13/16	2 ⅜	1 ⅛	1.25	3.9	8.4
WR124	4.000	50,400	60,000	1 ½	⅜	¾	4 ¼	2 13/16	1 ½	1.25	3	8
WR124XHD	4.050	85,500	121,500	2	½	1	4 ⅞	3	1 ½	1.66	3	14.5
WR111	4.760	50,400	60,000	1 ¾	⅜	¾	4 13/16	3 ⅜	2 ¼	1.25	2.5	8.6
WR106	6.000	50,400	60,000	1 ½	⅜	¾	4 ¼	2 13/16	1 ½	1.25	2	6.5
WR106XHD	6.050	85,500	121,500	2	½	1	4 ⅞	3	1 ½	1.66	2	11.5
WR132	6.050	85,500	121,500	2	½	1	6 ¼	4 7/16	3 ⅛	1.66	2	13.5
WR132XHD	6.050	118,500	142,000	2	⅝	1	6 ¾	4 11/16	3 ⅛	1.66	2	15.9
WR150	6.050	120,000	144,000	2 ½	½	1	6 ¼	4 7/16	2 ¾	1.66	2	15.5

"C-type" straight sidebar chain has the same general characteristics as offset sidebar construction. It is recommended for reversable conveyors and allows for the easiest in-field attachment welding.

- All pins are through-hardened
- 1" & larger pins are further induction hardened
- Pre-Greased Rivets available upon request on all sizes



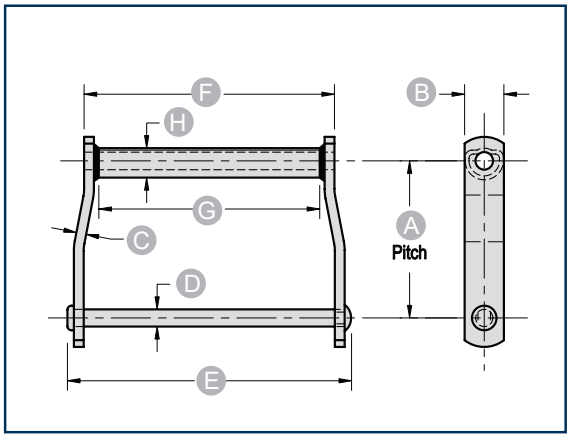
Part Number	A AVG Pitch	Average Ultimate Strength (pounds)	WHC* Average Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Length of Bearing	G Max. Sprocket Thickness	H Barrel O.D.	Links per Foot	AVG Weight per Foot (pounds)
WRC131	3.075	50,400	57,000	1 ½	⅜	¾	3 9⁄16	2 ⅛	1 ⅛	1.25	3.9	8.4
WRC124	4.000	50,400	57,000	1 ½	⅜	¾	4 ¼	2 13⁄16	1 ½	1.25	3	8
WRC124XHD	4.050	85,500	122,700	2	½	1	4 ⅞	3	1 ½	1.66	3	14.5
WRC111	4.760	50,400	57,000	1 ¾	⅜	¾	4 13⁄16	3 ⅜	2	1.25	2.5	8.6
WRC110	6.000	50,400	57,000	1 ½	⅜	¾	4 ¼	2 13⁄16	1 ½	1.25	2	6.4
WRC110XHD	6.050	85,500	122,000	2	½	1	4 ⅞	3	1 ½	1.66	2	11.5
WRC132	6.050	85,500	122,000	2	½	1	6 ¼	4 7⁄16	3 ⅛	1.66	2	13
WRC132XHD	6.050	118,500	142,000	2	⅝	1	6 ¾	4 11⁄16	3 ⅛	1.66	2	15.9
WRC150	6.050	120,000	144,000	2 ½	½	1	6 ¼	4 7⁄16	3 ⅛	1.66	2	15.5
WRC150XHD	6.050	122,500	148,000	2 ½	⅝	1	6 ¾	4 11⁄16	3 ⅛	1.66	2	18

All dimensions shown in inches unless noted otherwise

*WHC denotes Heat-Treated

Using select grade alloy steels these heavy duty chains are manufactured in North America to high standards. Our unique barrel forming process ensures consistent quality, reducing potential rivet wear and providing high strength and long service life. All heat treating and attachment options are available, as well as reverse barrel design.

- Standard zone induction-hardened rivets for ¾" and ⅞" diameters
- Standard through-hardened rivets for 1" diameters



Part Number	A AVG Pitch	Average Ultimate Strength (pounds)	WHC* Average Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Length of Bearing	G Max. Sprocket Thickness	Links per Foot	AVG Weight per Foot (pounds)
WD102	5.000	51,000	61,000	1 ½	⅜	¾	9 ¼	7 ¾	6 ⅜	2.4	12
WD104	6.000	51,000	61,000	1 ½	⅜	¾	6 ¾	5 ⅜	4 ⅛	2	8.6
WD110	6.000	51,000	61,000	1 ½	⅜	¾	11 ¾	10 ¼	9	2	12
WD112	8.000	51,000	61,000	1 ½	⅜	¾	11 ¾	10 ¼	9	1.5	10
WD116	8.000	55,000	69,000	1 ¾	⅜	¾	15 ½	14 ⅛	13	1.5	12.9
WD118	8.000	85,000	102,000	2	½	⅞ or 1	16 ⅝	14 ⅞	13 ¼	1.5	18
WD118XHD	8.000	122,000	146,000	2	⅝	1	17 ⅜	15 ⅛	13 ¼	1.5	21
WD120	6.000	85,000	102,000	2	½	⅞ or 1	12	10 ¼	8 ¾	2	18
WD120XHD	6.000	122,000	146,000	2	⅝	1	12 ¾	10 ½	8 ¾	2	21
WD122	8.000	85,000	102,000	2	½	⅞ or 1	12	10 ¼	8 ¾	1.5	15
WD122XHD	8.000	125,000	150,000	2	⅝	1	12 ¾	10 ½	8 ¾	1.5	17.6
WD480	8.000	85,000	102,000	2	½	⅞ or 1	14 ½	12 ¾	11	1.5	16.9
WD480XHD	8.000	122,000	146,000	2	⅝	1	15 ¼	13	11	1.5	19.5

All dimensions shown in inches unless noted otherwise.

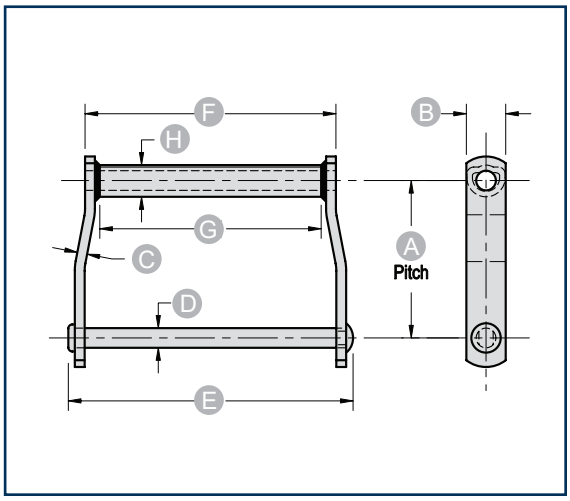
*WDH denotes Heat-Treated

"Super" Drag Chain

Using select grade alloy steels these heavy duty chains are manufactured in North America to high standards. Our unique barrel forming process ensures consistent quality, reducing potential rivet wear and providing high strength and long service life.

The Super series chain features a formed barrel of heavy wall tubing for severe applications, ideal for extra heavy loads associated with hog conveyors or “Load” chip dumping.

All heat treating and attachment options are available, as well as reverse barrel design.



Part Number	A AVG Pitch	Ultimate Strength (pounds)	WHC* Average Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Length of Bearing	G Max. Sprocket Thickness	Links per Foot	AVG Weight per Foot (pounds)
WD118SM	8.000	85,000	120,000	2	½	1	16 ⅝	14 ⅞	13 ¼	1.5	20.8
WD118XHDSM	8.000	125,000	150,000	2	⅝	1	17 ⅜	15 ⅛	13 ¼	1.5	24
WD120SM	6.000	85,000	120,000	2	½	1	12	10 ¼	8 ¾	2	19.5
WD120XHDSM	6.000	125,000	150,000	2	⅝	1	12 ¾	10 ½	8 ¾	2	24
WD122SM	8.000	85,000	120,000	2	½	1	12	10 ¼	8 ¾	1.5	17.5
WD122XHDSM	8.000	125,000	150,000	2	⅝	1	12 ¾	10 ½	8 ¾	1.5	20
WD480SM	8.000	85,000	120,000	2	½	1	14 ½	12 ¾	11	1.5	20
WD480XHDSM	8.000	125,000	150,000	2	⅝	1	15 ¼	13	11	1.5	23

All dimensions shown in inches unless noted otherwise.

*WDH denotes Heat-Treated

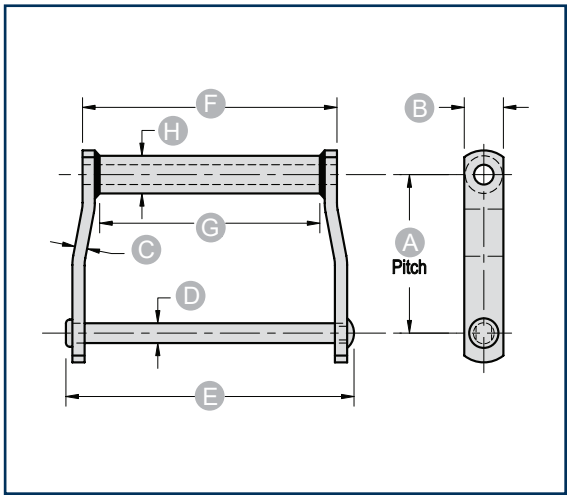
"Mega" Drag Chain

Using select grade alloy steels, these heavy duty chains are manufactured in North America to high standards.

The Mega series chain features a extra heavy .400" round barrel for the most severe applications. Ideal for extra heavy loads, large logs or any application prone to high impact leading to crushed barrels.

All heat treating and attachment options are available.

- Standard through-hardened rivets
- Available with additional induction hardened rivets



Part Number	A AVG Pitch	Ultimate Strength (pounds)	WDH* Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Length of Bearing	G Max. Sprocket Thickness	Links per Foot	AVG Weight per Foot (pounds)
WD118MM	8.000	85,000	120,000	2	½	1	16 ⅝	14 ⅞	13 ¼	1.5	23
WD118XHDMM	8.000	125,000	150,000	2	⅝	1	17 ⅜	15 ⅛	13 ¼	1.5	26
WD120MM	6.000	85,000	120,000	2	½	1	12	10 ¼	8 ¾	2	24
WD120XHDMM	6.000	125,000	150,000	2	⅝	1	12 ¾	10 ½	8 ¾	2	27
WD122MM	8.000	85,000	120,000	2	½	1	12	10 ¼	8 ¾	1.5	20
WD122XHDMM	8.000	125,000	150,000	2	⅝	1	12 ¾	10 ½	8 ¾	1.5	22
WD480MM	8.000	85,000	120,000	2	½	1	14 ½	12 ¾	11	1.5	22.5
WD480XHDMM	8.000	125,000	150,000	2	⅝	1	15 ¼	13	11	1.5	25

All dimensions shown in inches unless noted otherwise.

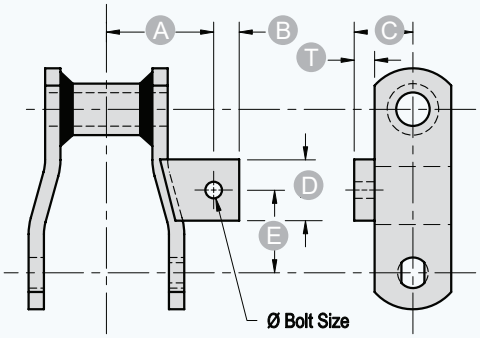
*WDH denotes Heat-Treated

WELDED STEEL CHAIN ATTACHMENTS

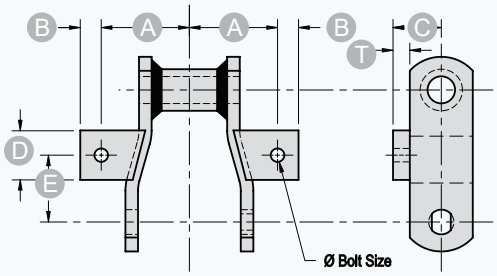
A1 + K1

Welded Steel Chain Attachments are recommended for most conveying and elevating applications in which a high strength steel rollerless chain is required. Optional heat treatment make them easily adaptable to a wide variety of applications.

A1 ATTACHMENT



K1 ATTACHMENT

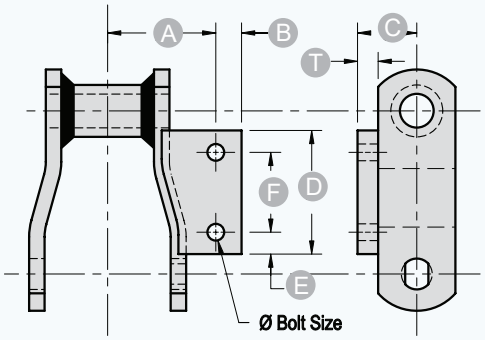


Part Number	For Chain Number	A	B	C	D	E	T	0 Bolt Size
A1-WR78 K1-WR78	WR78	2	½	⅞	1 ¼	1 ¼	¼	⅜
A1-WR78XHD K1-WR78XHD	WR78XHD	2	½	⅞	1 ¼	1 ¼	¼	⅜
A1-WR82 K1-WR82	WR82	2 ⅛	⅝	⅞	1 ¼	1 ½	¼	⅜
A1-WR82XHD K1-WR82XHD	WR82XHD	2 ⅜	⅝	1 ⅛	1 ¼	1 ½	⅜	⅜
A1-WR124 K1-WR124	WR124	2 ⅝	⅝	1 ⅛	1 ½	2	⅜	⅜
A1-WR124XHD K1-WR124XHD	WR124XHD	2 ⅝	¾	1 ½	1 ½	2	½	½
A1-WR111 K1-WR111	WR111	3 ⅛	⅝	1 ¼	1 ¾	2 ⅛	⅜	⅜
A1-WR132 K1-WR132	WR132	3 ¾	⅞	1 ½	2	3	½	½
A1-WR132XHD K1-WR132XHD	WR132XHD	3 ¾	⅞	1 ½	2	3	½	½

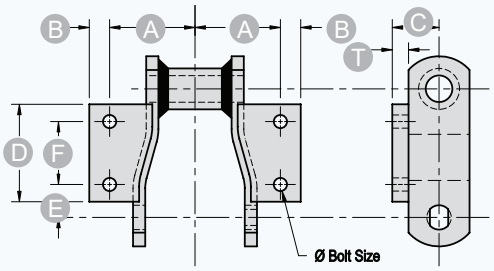
All dimensions shown in inches unless noted otherwise.

A2 + K2

A2 ATTACHMENT



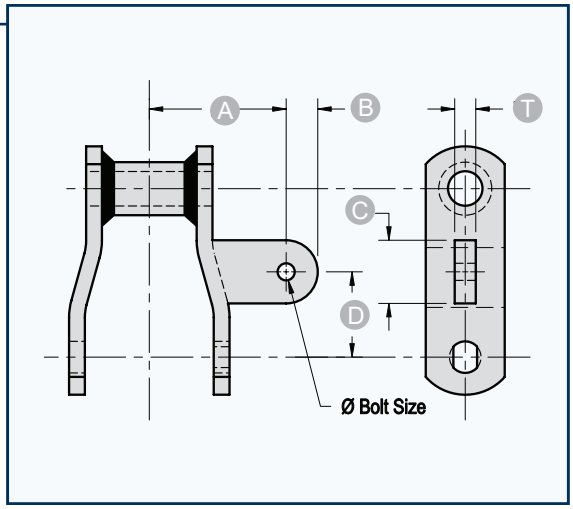
K2 ATTACHMENT



Part Number	For Chain Number	A	B	C	D	E	F	T	0 Bolt Size
A2-WR78 K2-WR78	WR78	2	½	⅞	2	13/16	1 ⅛	¼	⅜
A2-WR78XHD K2-WR78XHD	WR78XHD	2	½	⅞	2	13/16	1 ⅛	¼	⅜
A2-WR82 K2-WR82	WR82	2 ⅛	⅝	⅞	2 ¼	½	1 ¼	¼	⅜
A2-WR82XHD K2-WR82XHD	WR82XHD	2 ⅜	⅝	1 ⅛	2 ¼	½	1 ¼	⅜	⅜
A2-WR124 K2-WR124	WR124	2 ⅝	⅝	1 ⅛	3	1	1 15/16	⅜	⅜
A2-WR124XHD K2-WR124XHD	WR124XHD	2 ⅝	¾	1 ½	3	1	1 15/16	½	½
A2-WR111 K2-WR111	WR111	3 ⅛	⅝	1 ¼	3 ½	13/16	2 5/16	⅜	⅜
A2-WR132 K2-WR132	WR132	3 ¾	13/16	1 ½	4	1 ⅝	2 ¾	½	½
A2-WR132XHD K2-WR132XHD	WR132XHD	3 ¾	13/16	1 ½	4	1 ⅝	2 ¾	½	½
A2-WR150 A2-WR150	WR150	3 ¾	13/16	1 ¾	4	1 ⅝	2 ¾	½	½
A2-WR157 A2-WR157	WR157	3 ¾	13/16	1 ¾	4	1 ⅝	2 ¾	½	½

All dimensions shown in inches unless noted otherwise.

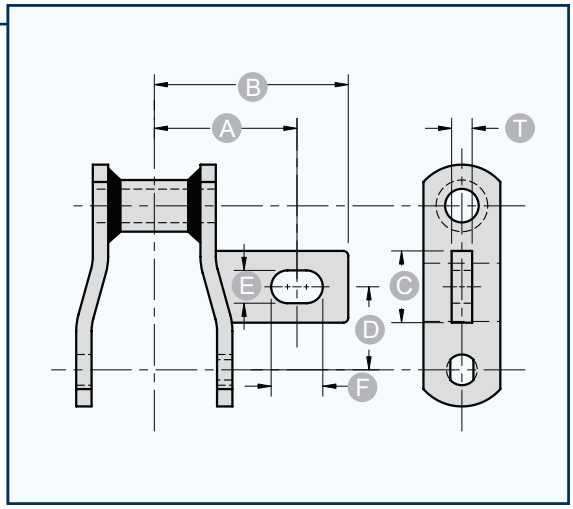
A22



Part Number	For Chain Number	A	B	C	D	T	0 Bolt Size
A22-WR78	WR78	2	⅝	1 ¼	1 ¼	¼	⅜
A22-WR82	WR82	2 ½	⅝	1 ¼	1 ½	¼	⅜
A22-WR124	WR124	3	⅞	1 ¾	2	⅜	½
A22-WR111	WR111	3 ½	⅞	1 ¾	2 ⅜	⅜	½
A22-WR106	WR106	2 ¾	⅞	2	3	⅜	½
A22-WR132	WR132	4 ¼	1	2	3	½	¾

All dimensions shown in inches unless noted otherwise.

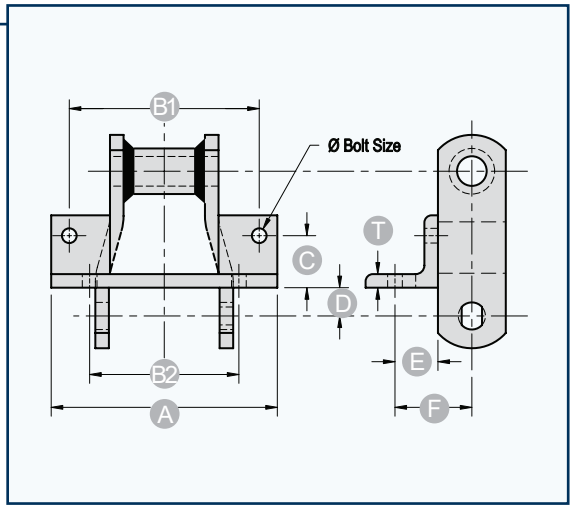
Slotted A22



Part Number	For Chain Number	A	B	C	D	E	F	T
Slotted A22-WR82	WR82	2 ½	3 ½	1 ½	1 ½	9/16	1 ¼	3/8
Slotted A22-WR124	WR124	4	5 5/16	2	1 ¾	13/16	1 ½	½
Slotted A22-WR144	WR144	4	5 5/16	2	1 ¾	13/16	1 ½	½
Slotted A22-WR106	WR106	4	5 5/16	3	3	13/16	1 ½	½
Slotted A22-WR106XHD	WR106XHD	4	5 5/16	3	3	13/16	1 ½	½
Slotted A22-WR166	WR166	4	5 5/16	3	3	13/16	1 ½	½
Slotted A22-WR132	WR132	4 ½	6 ¼	3	3	13/16	1 ½	½
Slotted A22-WR132XHD	WR132XHD	4 ¾	6 ½	3	3	13/16	1 ½	½

All dimensions shown in inches unless noted otherwise.

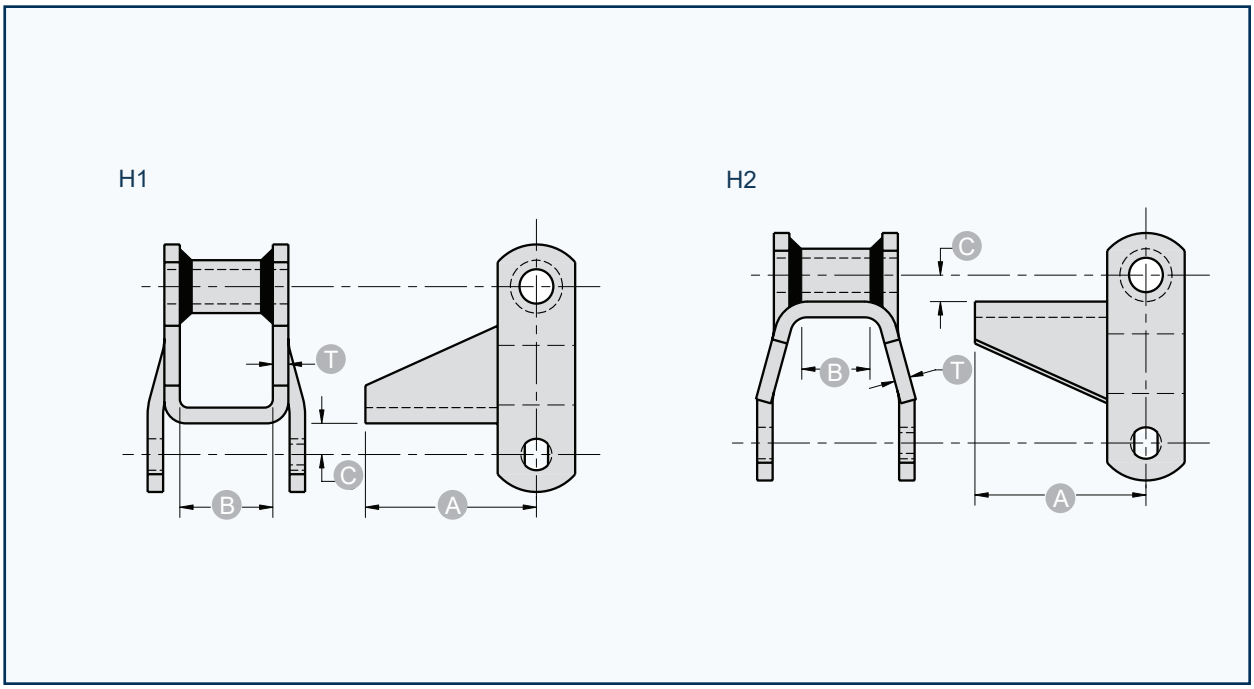
F2/F4



Part Number	For Chain Number	A	B1	B2	C	D	E	F	T	0 Bolt Size
F2-WR78 F4-WR78	WR78	5 ½	4 ½	3 ¾	1 ¼	¾	1 ⅛	1 ¾	¼	⅜
F2-WR78XHD F4-WR78XHD	WR78XHD	5 ½	4 ½	3 ¾	1 ¼	¾	1 ⅛	1 ¾	¼	⅜
F2-WR82 F4-WR82	WR82	5 ⅞	5	4 ⅛	1 ¼	⅝	1 ⅛	1 ¾	¼	⅜
F2-WR82XHD F4-WR82XHD	WR82XHD	5 ⅞	5	4 ⅛	1 ½	⅞	1 ⅛	1 ¾	⅜	⅜
F2-WR124 F4-WR124	WR124	6 ¼	5 ¼	4 ⅜	1 ½	1	1 ⅜	2 ⅜	⅜	⅜

All dimensions shown in inches unless noted otherwise.

H1/H2

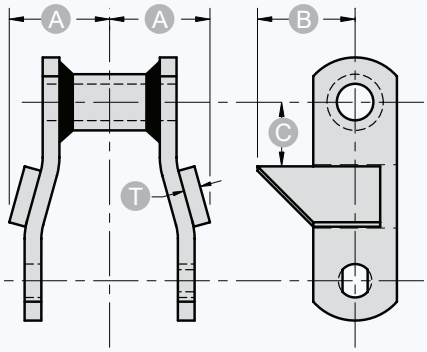


Part Number	For Chain Number	A	B	C	T
H1-WR78 H2-WR78	WR78	3 5/8	1 1/2	1/2	1/4
H1-WR78XHD H2-WR78XHD	WR78XHD	3 5/8	1 1/2	1/2	3/8
H1-WR82 H2-WR82	WR82	3 5/8	1 3/4	5/8	1/4
H1-WR82XHD H1-WR82XHD	WR82XHD	3 5/8	1 3/4	5/8	3/8

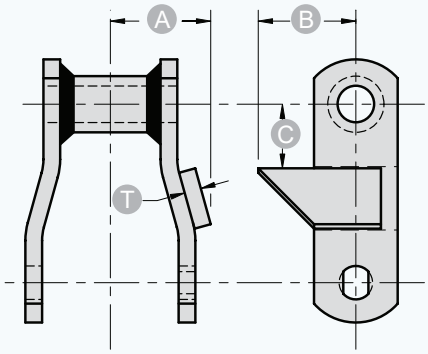
All dimensions shown in inches unless noted otherwise.

RR1 + R1

RR1



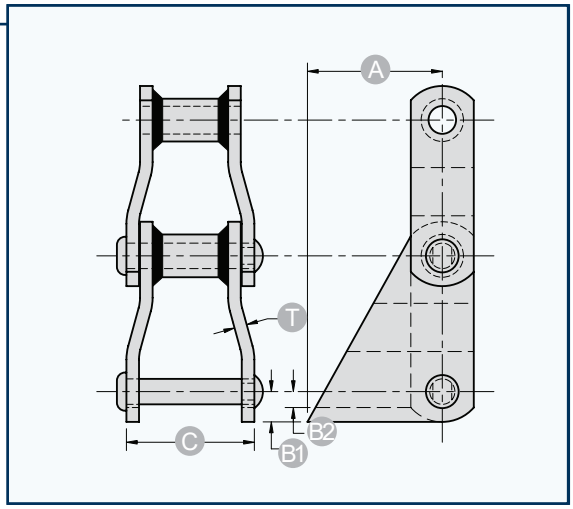
R1



Part Number	For Chain Number	A	B	C	T
RR1-WR78 R1-WR78	WR78	1 ½	1 9/16	5/8	¼
RR1-WR78XHD R1-WR78XHD	WR78XHD	1 ¾	1 9/16	5/8	¼
RR1-WR82 R1-WR82	WR82	1 5/8	1 ¾	13/16	¼
RR1-WR82XHD R1-WR82XHD	WR82XHD	1 15/16	2 1/16	13/16	⅜
RR1-WR124 R1-WR124	WR124	2 5/32	1 ⅞	1 ½	⅜
RR1-WR132 R1-WR132	WR132	3 3/32	2 ½	1 ½	½

All dimensions shown in inches unless noted otherwise.

S1/S2

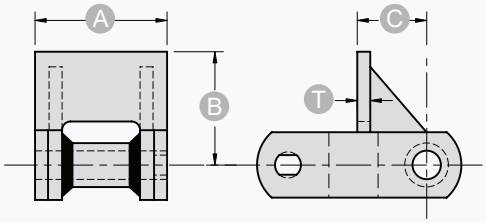


Part Number	For Chain Number	A	B1	B2	C	T
S1-WR124 S2-WR124	WR124	3 ¾	⅞	11⁄16	3 ⅝	⅜
S1-WR124XHD S2-WR124XHD	WR124XHD	3 ¾	1 ⅛	⅞	4 ⅛	½
S1-WR111 S2-WR111	WR111	4	1	1	4 3⁄16	⅜
S1-WR106 S2-WR106	WR106	3 ¾	⅞	11⁄16	3 ⅝	⅜
S1-WR132 S2-WR132	WR132	5	1 ⅛	⅞	5 7⁄16	½
S1-WR150 S2-WR150	WR150	5 ½	⅞	½	5 7⁄16	½

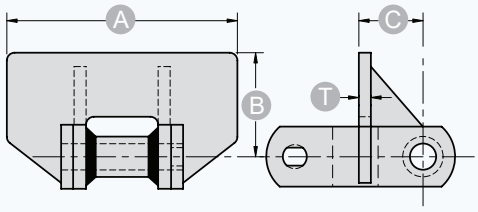
All dimensions shown in inches unless noted otherwise.

RF2 + RF12

RF2 ATTACHMENT



RF12 ATTACHMENT

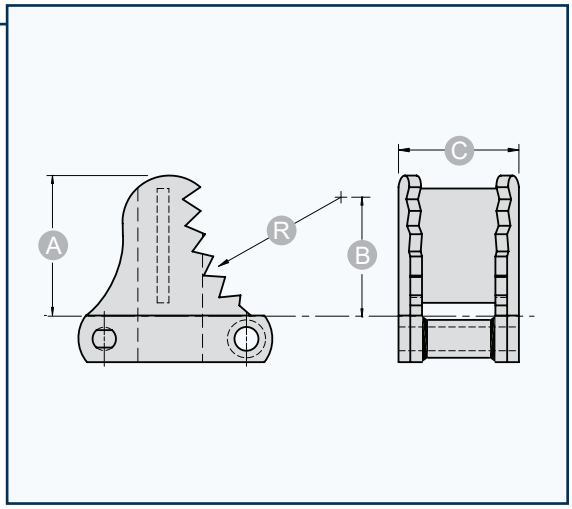


Part Number	For Chain Number	A	B	C	T
RF2-WR78 RF12-WR78	WR78	3	2 11/16	5/8	1/4
RF2-WR78XHD RF12-WR78XHD	WR78XHD	3	2 11/16	5/8	3/8
RF2-WR82XHD RF12-WR82XHD	WR82XHD	3 1/4	2 3/4	13/16	3/8
RF2-WR124 RF12-WR124	WR124	4 1/4	3 1/4	13/16	3/8
RF2-WR131 RF12-WR131	WR131	6 1/2	3 1/4	1 1/2	1/2
RF2-WR111 RF2-WRC111 RF12-WR111 RF12-WRC111	WR111 WRC111	7 3/4	3 1/4	1 1/2	1/2
RF2-WR132 RF2-WRC132 RF12-WR132 RF12-WRC132	WR132 WRC132	9	3 1/2	1 1/2	3/4
RF2-WR150 RF2-WRC150 RF12-WR150 RF12-WRC150	WR150 WRC150	9	3 1/2	1 1/2	3/4

All dimensions shown in inches unless noted otherwise.

CHAIN + ATTACHMENTS

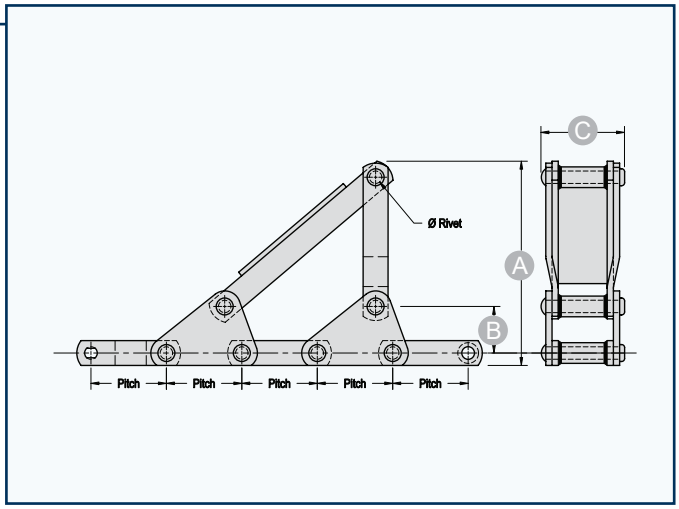
Slasher Flight



Part Number	For Chain Number	A	B	C	R
Slasher Flight-WR124	WR124	7 3/16	6 1/4	3 5/8	12
Slasher Flight-WR124XHD	WR124XHD	6 15/16	6	4 1/8	12
Slasher Flight-WR106	WR106	7 1/2	6	3 5/8	6
Slasher Flight-WR106XHD	WR106XHD	8	6	4 1/8	6
Slasher Flight-WR132	WR132	6 15/16	6	5 7/16	6
Slasher Flight-WR150	WR150	6 11/16	6	5 7/16	6

All dimensions shown in inches unless noted otherwise.

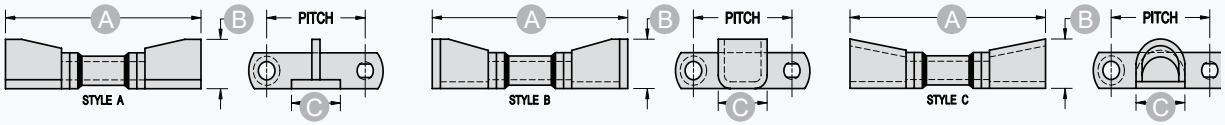
Side Lift Log Chair Assembly –



Part Number	For Chain Number	Pitch	A	B	C	0 Rivet
Side Lift Log Chair Assembly-WR78	WR78	2.609	8 - 14	1 ⅞	1 ¼	¼
Side Lift Log Chair Assembly-WR82	WR82	3.075	10 - 14	1 ⅞	1 ¼	¼
Side Lift Log Chair Assembly-WR124	WR124	4.000	10 - 18	2 ⅞	1 ¼	⅜
Side Lift Log Chair Assembly-WR124XHD	WR124XHD	4.050	12 - 18	3	1 ¼	¼
Side Lift Log Chair Assembly-WR106	WR106	6.000	12 - 20	3 ¾	1 ¼	¼
Side Lift Log Chair Assembly-WR132	WR132	6.050	12 - 24	3 ¾	1 ½	⅜
Side Lift Log Chair Assembly-WR132XHD	WR132XHD	6.050	12 - 24	3 ¾	1 ½	⅜
Side Lift Log Chair Assembly-WR150	WR150	6.050	12 - 24	4	2	½
Side Lift Log Chair Assembly-WR157	WR157	6.050	12 - 30	4	1 ¾	⅜

All dimensions shown in inches unless noted otherwise.

Log Cradles



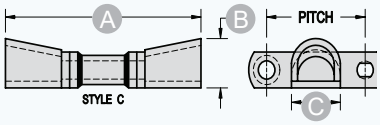
STYLE A STYLE B STYLE C

Part Number	For Chain Number	Pitch	Style A A	Style A B	Style A C	Style B A	Style B B	Style B C	Style C A	Style C B	Style C C
Log Cradles-WR124	WR124	4.000	8	2 ¼	1 ½	8	2 ½	2 ¼	8	2 ¼	3
Log Cradles-WR124XHD	WR124XHD	4.050	8 ½	3	2 ½	8 ½	3	2 ½	8 ½	2 ¾	3
Log Cradles-WR111	WR111	4.760	8 ½	2 ¼	1 ¾	8 ½	3	2 ¼	8 ½	2 ½	3
Log Cradles-WR106	WR106	6.000	8	2 ¼	3	8	2 ¼	2 ½	8	2 ¼	3
Log Cradles-WR132	WR132	6.050	11	3	3	11	3	3 ¼	11	2 ¾	3 ½
Log Cradles-WR132XHD	WR132XHD	6.050	11 ¼	3	3	11 ¼	3	3 ¼	11 ½	2 ¾	3 ½

All dimensions shown in inches unless noted otherwise.

A and B dimensions can easily be altered to meet requirements. Specify A, B and C dimensions when inquiring.

Special Style C

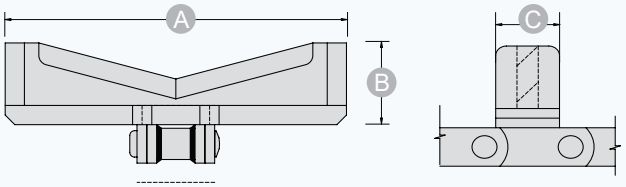


STYLE C

Part Number	For Chain Number	Style C A	Style C B	Style C C
Log Cradles-WR132	WR132	13	3 ½	3 ½
Log Cradles-WR132XHD	WR132XHD	13 ½	3 ½	3 ½

A and B dimensions can easily be altered to meet requirements. Specify A, B and C dimensions when inquiring.

Bevelled V-Flight



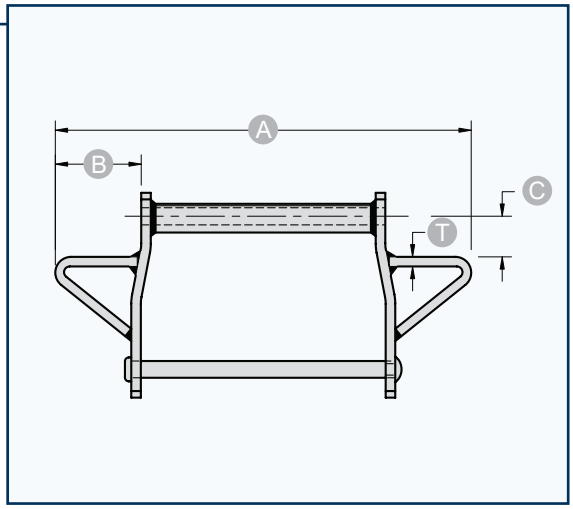
For Chain Number	For Chain Number	A	B	C
Bevelled V-Flight WR82XHD	WR82XHD	17	3 ½	3
Bevelled V-Flight WR124XHD	WR124XHD	12	3 ½	3

All dimensions shown in inches unless noted otherwise.

A and B dimensions can easily be altered to meet requirements. Specify A and B dimensions when inquiring.

DRAG
CHAIN ATTACHMENTS

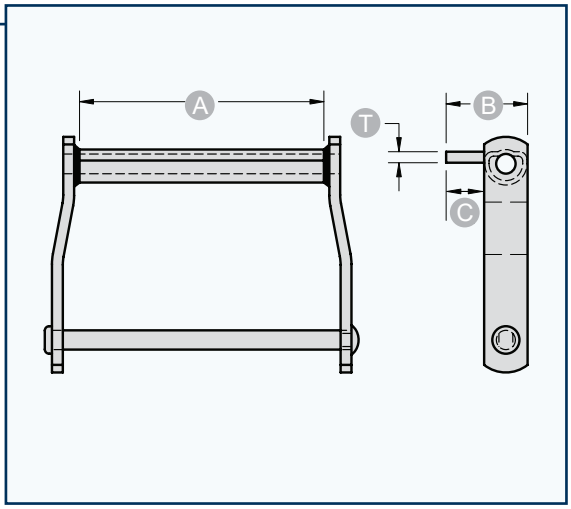
Standard Wing Attachment



Part Number	For Chain Number	A	B	C	T
Standard Wing WD102	WD102	14 ¼	1 ½	1 ½	⅜
Standard Wing WD104	WD104	11 ½	3	1 ¾	⅜
Standard Wing WD110	WD110	17	3 ⅜	1 ¾	⅜
Standard Wing WD112	WD112	17	3 ⅜	1 ¾	⅜
Standard Wing WD116	WD116	22	3 15/16	2 ½	⅜
Standard Wing WD118	WD118	22	3 9/16	2 ½	½
Standard Wing WD118XHD	WD118XHD	22 ¼	3 9/16	2 ½	½
Standard Wing WD120	WD120	17 ½	3 ⅜	1 ¾	½
Standard Wing WD120XHD	WD120XHD	17 ¾	3 ⅜	1 ¾	½
Standard Wing WD122	WD122	17 ½	3 ⅜	2 ½	½
Standard Wing WD480	WD480	22	4 ⅝	2 ½	½
Standard Wing WD480XHD	WD480XHD	22 ¼	4 ⅝	2 ½	½

All dimensions shown in inches unless noted otherwise.

"C" Attachments



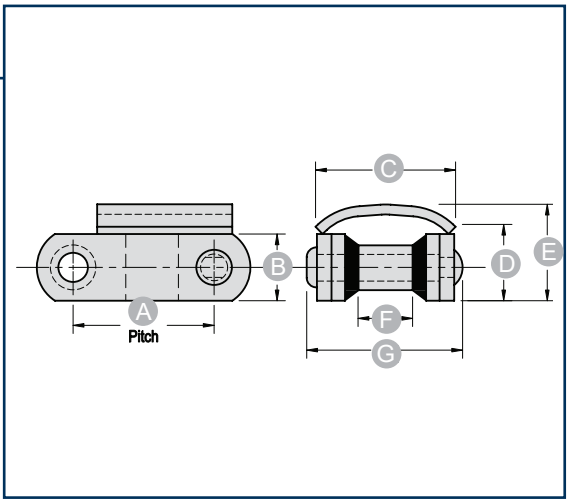
For Chain Number	A	B C1/2*	B C1	C C1	B C3	C C3	B C4	C C4	T
WD102	6 ½	1 ½	3	1 ½	3 ½	2	4 ½	3	⅜
WD104	4 ⅛	1 ½	3	1 ½	3 ½	2	4 ½	3	⅜
WD110	9	1 ½	3	1 ½	3 ½	2	4 ½	3	⅜
WD112	9	1 ½	3	1 ½	3 ½	2	4 ½	3	⅜
WD116	12 ⅞	1 ¾	3 ¼	1 ½	3 ¾	2	4 ¾	3	⅜
WD118	13 ⅜	2	3 ¾	1 ¾	4	2	6	4	½
WD118XHD	13 ⅜	2	3 ¾	1 ¾	4	2	6	4	½
WD120	8 ¾	2	3 ¾	1 ¾	4	2	6	4	½
WD120XHD	8 ¾	2	3 ¾	1 ¾	4	2	6	4	½
WD122	8 ¾	2	3 ¾	1 ¾	4	2	6	4	½
WD480	11 ¼	2	3 ¾	1 ¾	4	2	6	4	½
WD480XHD	11 ¼	2	3 ¾	1 ¾	4	2	6	4	½

All dimensions shown in inches unless noted otherwise.

C1/2 attachment is welded to front of barrel. All others are welded on top of barrel.

TRANSFER CHAIN

Welded Steel Transfer Chain
Universal Top Chain

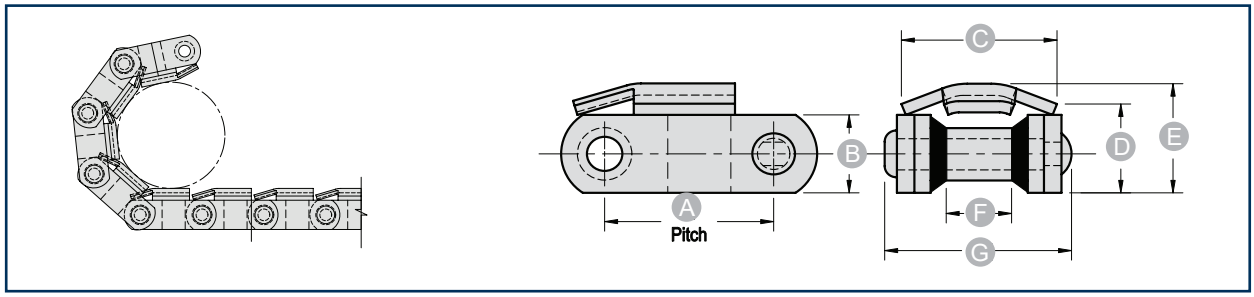


Part Number	A AVG Pitch	B Sidebar Height	C	D	E	F Max. Sprocket Thickness	G Overall Width	Rivet Diameter	AVG Weight per Foot (pounds)
WR78-UT	2.609	1 ¼	2 ½	1 ½	1 ¾	1	3.000	½	6.0
WR138-UT	4.000	1 ¼	2 ½	1 ½	1 ¾	1	3.000	½	4.8
WR78XHD-UT	2.640	1 ¼	3 ⅜	1 ⅝	2.000	1	3.281	0.563	10.7
WR82-UT	3.075	1 ¼	3 ⅛	1 ½	2.000	1 ⅜	3.312	0.563	7.2
WR82XHD-UT	3.075	1 ½	3 ⅞	1 ⅞	2.937	1 ⅛	3.812	¾	12.9
WR124-UT	4.000	1 ½	3 ⅞	1 ⅞	2 ½	1 ½	4 ¼	¾	13.1
WR124XHD-UT	4.050	2	4	2 ⅜	3 ¼	1 ½	4 ⅞	1	20.5

All dimensions shown in inches unless noted otherwise.

Note: Rooftop available by request

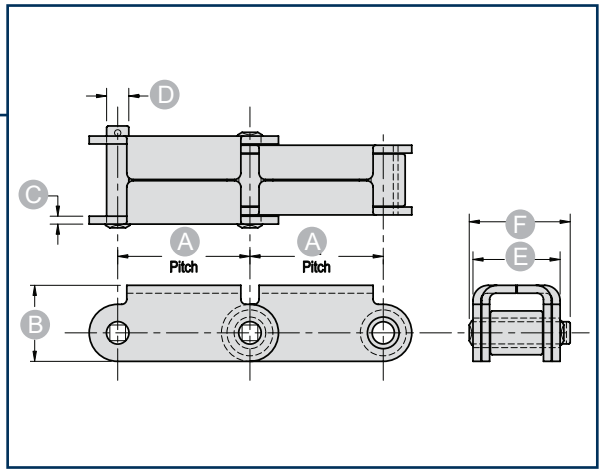
Reverse Articulation Camelback



Part Number	A AVG Pitch	B Sidebar Height	C	D	E	F Max. Sprocket Thickness	G Overall Width	Rivet Diameter	AVG Weight per Foot (pounds)
WR78 12" REVERSE CAMELBACK	2.609	1 ¼	2.437	1 ½	1 ¾	1	3	½	6.8

All dimensions shown in inches unless noted otherwise.

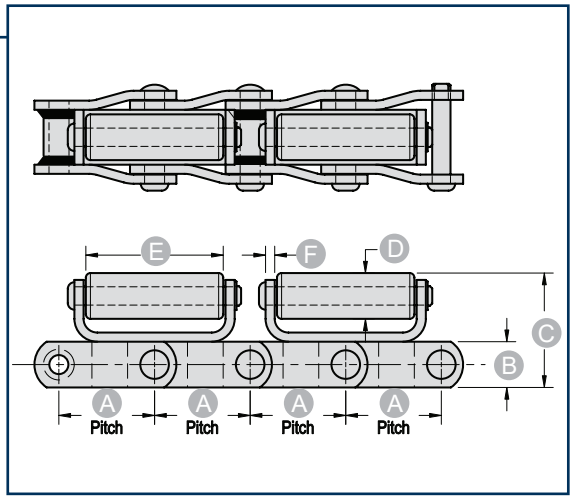
81X Steel Camelback



Part Number	A AVG Pitch	B Sidebar Height	C1 Outer Sidebar Thickness	C2 Inner Sidebar Thickness	D Rivet Diameter	E Top Width	F Overall Width	G Length of Bearing	H Roller Diameter	Links per Foot	AVG Weight per Foot (pounds)
81X Steel Camelback	2.609	1 ½	5/32	5/32	½	1 ¾	1.937	1 ⅜	29/32	4.6	3.3

All dimensions shown in inches unless noted otherwise.

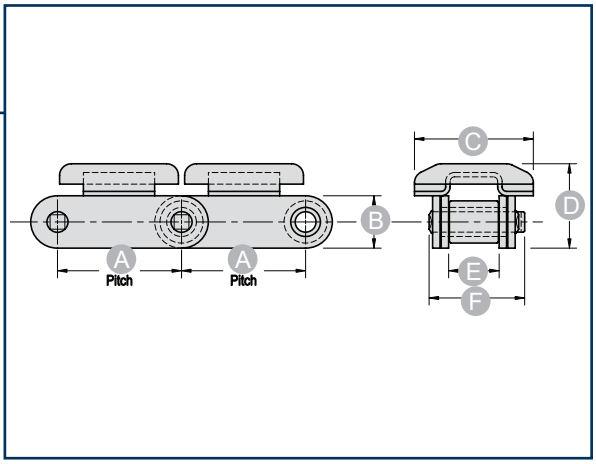
Nylon Rolltop



Part Number	A AVG Pitch	B Sidebar Height	C	D	E	F	G	Links per Foot	AVG Weight per Foot (pounds)
WR78-NYRLT	2.609	1 ¼	3 ⅛	1 ¼	4	¼	3	4.6	6.8

All dimensions shown in inches unless noted otherwise.

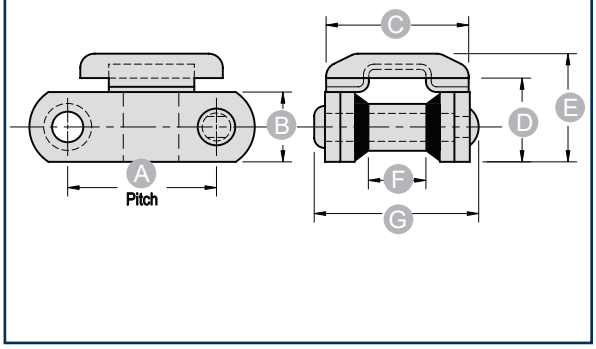
Transfer Chain C/W UHMW Top



Part Number	A AVG Pitch	B Sidebar Height	C Top Width	D Overall Height	E Max. Sprocket Thickness	F Overall Chain Width	Links per Foot	AVG Weight per Foot (pounds)
81X - UHMW Regular	2.609	1 ⅛	2 ⅝	1 ⅞	⅞	2 ⅛	4.6	3.5
81X - UHMW Narrow	2.609	1 ⅛	2 ⅛	1 ⅞	⅞	2 ⅛	4.6	3.5

All dimensions shown in inches unless noted otherwise.

Welded Steel UHMW Top



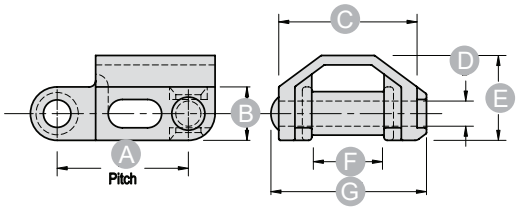
Part Number	A AVG Pitch	B Sidebar Height	C Top Width	D	E Overall Height	F Max Sprocket Width	G Overall Chain Width	Links per Foot	AVG Weight per Foot (pounds)
WR78-UHMW	2.609	1 ¼	2 ⅝	1 11/16	2	1	3	4.6	5.3

All dimensions shown in inches unless noted otherwise.

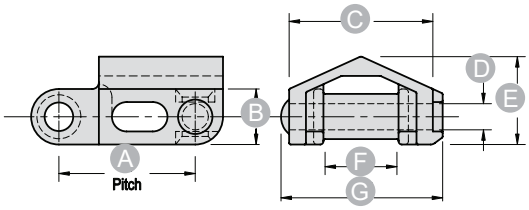
Malleable Cast Steel

- Cambelback: H78B, H138 (Cast)
- Rooftop: H78A, H130 (Cast)
- Combination: C55A, C55B, C55D

CAMELBACK



ROOFTOP



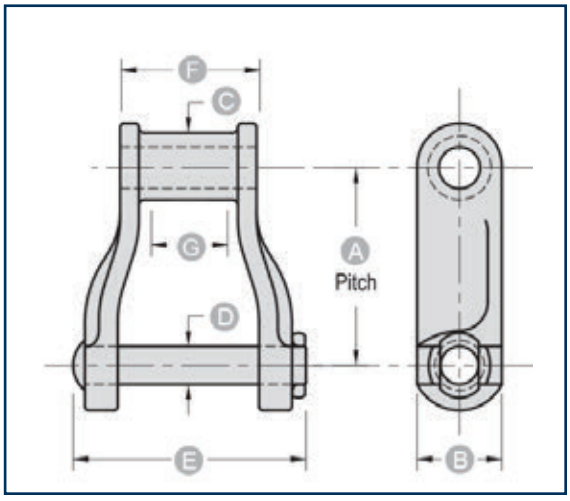
Part Number	A AVG Pitch	B Sidebar Height	C Roof Width	D Rivet Diameter	E Overall Height	F Max. Sprocket Thickness	G Overall Width	Links per Foot	AVG Weight per Foot (pounds)
H78A	2.609	1 1/16	2 3/4	1/2	1 11/16	1	3 1/4	4.6	5.7
H78B	2.609	1 1/16	2 3/4	1/2	1 11/16	1	3 1/4	4.6	6.0
H130	4.000	1 7/64	2 13/16	1/2	1 11/16	1	3 1/4	3	5.1
H138	4.000	1 7/64	2 13/16	1/2	1 11/16	1	3 1/4	3	5.3
C55A	1.630	3/4	1 13/16	3/8	1 1/4	3/4	2	7.4	3.2
C55B	1.630	3/4	1 13/16	3/8	1 1/4	3/4	2	7.4	3.2
C55D	1.630	3/4	1 13/16	3/8	1 1/4	3/4	2	7.4	3.2

All dimensions shown in inches unless noted otherwise.

MALLEABLE CHAIN

Malleable Cast Steel Chain

Malleable Iron Chains are designed for demanding applications such as transfer and conveying purposes. The pin joint permits operation in a moderately dusty or abrasive atmosphere.



Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C Barrel O.D.	D Rivet Diameter	E Overall Width	F Length of Bearing	G Max Sprocket Thickness
H60	2.308	7,000	¾	¾	5/16	2 17/32	1 ½	¾
H74	2.609	10,000	1	⅞	⅜	2 ⅞	1 21/32	1
H78	2.609	16,000	1 ⅛	⅞	½	3 13/16	1 ⅞	1
H82	3.075	20,000	1 ¼	1 7/32	9/16	3 ⅞	2 ⅛	1 ¼

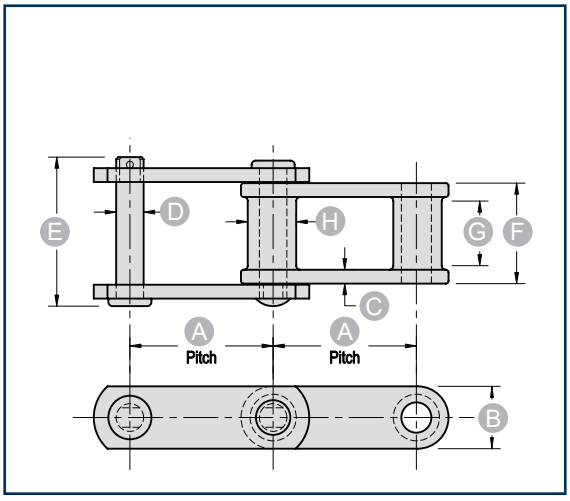
All dimensions shown in inches unless noted otherwise.

Part Number	Links per Foot	AVG Weight per Foot (pounds)
H60	5.2	2.1
H74	4.6	3
H78	4.6	4.2
H82	3.9	5.5

All dimensions shown in inches unless noted otherwise.

Steel + Malleable Combination Chain

Combination Chain consists of malleable block links alternated with steel sidebars, which are ideal for welding on steel attachments.



Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Length of Bearing	G Max. Sprocket Thickness	H Barrel O.D.	Links per Foot	AVG Weight per Foot (pounds)
C55	1.631	9,000	¾	3/16	⅜	2	1 3/16	¾	23/32	7.4	2.1
C77*	2.308	11,000	⅞	3/16	7/16	2 ⅛	1 ¼	¾	¾	5.2	3
C188*	2.609	14,000	1 ⅛	¼	½	2 ⅝	1 9/16	⅞	⅞	4.6	4.2
C131	3.075	24,000	1 ½	⅜	⅝	3 5/16	2	1 ⅛	1 7/32	3.9	5.5
C102B	4.000	24,000	1 ½	⅜	⅝	4 9/16	2 25/32	1 ¾	31/32	3	4.2

All dimensions shown in inches unless noted otherwise.

*Available with Stainless Steel Rivets and Cotters

MILL CHAIN RIVETS AND SPROCKETS

Mill Chain Rivets

- All Mill Chain Rivets are through heat treated as standard.
- All Super and Mega Chain Rivets 1" diameter and larger are supplied through and induction hardened as standard
- All Trimmer Chain Rivets are supplied Heat Treated as standard
- Other Induction Hardening & Heat Treating options are available on request, as are zinc plating and galvanizing.

Style 1 Style 2 Style 3

	Chain Number	Rivet Style	Rivet Size Dia. x Length Under Head	Approx. Weight per 100 Rivets
Trimmer Chain	SO-578	3	3/8 x 1 15/16"	10
	MS-88	3	7/16 x 2 1/4"	16
	81-X, 3939	3	7/16 x 1 59/64"	12
	MO-88	3	7/16 x 2 1/4"	16
	LXS-882	3	7/16 x 2 3/8"	15
Malleable Chain	C102-B	3	5/8 x 4	50
	C-131	1	5/8 x 3 1/4"	48
	C-188	3	1/2 x 2 1/2"	16
	H-78, H-130, H-138	2	1/2 x 3 1/16"	18
	H-82	2	9/16 x 3 5/8"	28
Mill Chain	WR-78, 78-4, 130, 138, 78 Rolltop	1	1/2 x 2 13/16"	17
	WR-78 (5") XHD	1	9/16 x 3 1/2"	26
	WR-78 XHD	1	9/16 x 3 3/32"	26
	WR-82	1	9/16 x 3 1/8"	26
	WR-82XHD/WR-720S	1	3/4 x 3 9/16"	52
	WR-124, WR-106	1	3/4 x 4"	58
	WR-111	1	3/4 x 4 5/8"	64
	WR-144	1	1 x 4 1/8"	97
	WR-124XHD/WR-106XHD	1	1 x 4 5/8"	101
	WR-150, WR-WRC-132	1	1 x 6"	138
	WR-WRC-132XHD	1	1 x 6 1/2"	155
	WR-WRC-157, WR-155	1	1 1/8 x 6 9/16"	188
	WHX-157XHD, WR-159	3	1 1/4 x 6.54"	200
	WRC-131	1	3/4 x 3 1/4"	52
Drag Chain	WD-102	1	3/4 x 8 7/8"	119
WD-104		1	3/4 x 6 11/16"	88.4
WD-110, WD-112		1	3/4 x 11 17/32"	150
WD-116		1	3/4 x 15 13/32"	198
WD-113		1	7/8 x 11 15/16"	210
WD-118		1	7/8 x 16 9/16"	290
WD-118-1		1	1" x 16.57"	372
WD-118XHD		1	1" x 17"	380
WD-120, WD-122		1	7/8 x 11 15/16"	210
WD-120XHD		1	1" x 12 15/16"	278
WD-480		1	7/8 x 14 7/16"	258
WD-480XHD		1	1 x 14 15/16"	344
WD-480-1		1	1 x 14 3/16"	334

Tabular dimensions and weights are approximate and non-binding. Design improvements may result in variations to published figures. Verification is recommended.

FABRICATED STEEL SPROCKETS are normally made of mild steel plate. Heat treated plate sprockets with hardnesses from 360 to 500 BHN are available. Unless otherwise requested, O.D. of hubs will be sufficient to accommodate bore and keyway desired.

Keys are not supplied with these items unless requested or unless mounted on shafts. Split sprockets provide an economical means of mounting sprockets on shafts where it is prohibitive to dismount the shaft assembly. Many sizes of sprockets are stocked with bores, keyways, and set screws already provided. Plates or partially finished sprockets are also stocked. In the case of long link sprockets and idlers, please specify the size of chain that will be used. Bronze and urethane bushing material is stocked for immediate insertion.

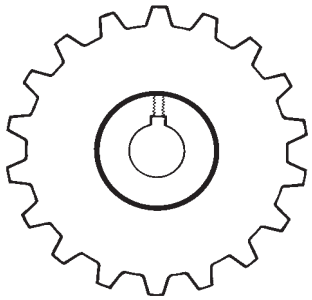
Chain Number	Number of Teeth	Pitch Dia.	Max. Bore	Tooth Face
WR-78, H-78	7	6.01	2 3/16	1
MOH-578*	8	6.82	2 7/16	1
SS-578*	9	7.63	2 11/16	1
MS-88*	10	8.44	2 15/16	1
MO-88*	11	9.26	3 7/16	1
LXS-882*	12	10.08	3 7/16	1
81-X*	13	10.90	3 15/16	1
C-188*	14	11 72	4 15/16	1
PITCH=2.609"	15	12.55	4 15/16	1
	16	13.37	4 15/16	1
	17	14.20	4 15/16	1
	18	15.02	4 15/16	1
	19	15.85	4 15/16	1
	20	16.88	5 15/16	1

* Tooth face is 7/8" Most flame cut sprockets supplied from stock.

Chain Number	Number of Teeth	Pitch Dia.	Max. Bore	Tooth Face
WR-78XHD	7	6.01	2 3/16	1
PITCH=2.609"	8	6.82	2 7/16	1
	9	7.63	2 11/16	1
	10	8.44	2 15/16	1
	11	9.26	3 7/16	1
	12	10.08	3 7/16	1
	13	10.90	3 15/16	1
	14	11 72	4 15/16	1
	15	12.55	4 15/16	1
	16	13.37	4 15/16	1
	17	14.20	4 15/16	1
	18	15.02	4 15/16	1
	19	15.85	4 15/16	1
	20	16.88	5 15/16	1

Chain Number	Number of Teeth	Pitch Dia.	Max. Bore	Tooth Face
WR-82	7	7.09	2 7/16	1 1/8
PITCH=3.075"	8	8.04	3 15/16	1 1/8
	9	8.99	4 15/16	1 1/8
	10	9.95	5 7/16	1 1/8
	11	10.91	5 15/16	1 1/8
	12	11.88	5 15/16	1 1/8
	13	12.85	5 15/16	1 1/8
	14	13.82	5 15/16	1 1/8
	15	14.79	5 15/16	1 1/8
	16	15.76	5 15/16	1 1/8
	17	16.73	5 15/16	1 1/8
	18	17.71	5 15/16	1 1/8
	20	19.66	5 15/16	1 1/8
WR-82XHD	7	7.09	2 7/16	1 1/8
WRC-131*	8	8.04	3 15/16	1 1/8
C-131	9	8.99	4 15/16	1 1/8
PITCH 3.075	10	9.95	5 7/16	1 1/8
	11	10.91	5 15/16	1 1/8
	12	11.88	5 15/16	1 1/8
	13	12.85	5 15/16	1 1/8
	14	13.82	5 15/16	1 1/8
	15	14.79	5 15/16	1 1/8
	16	15.76	5 15/16	1 1/8
	17	16.73	5 15/16	1 1/8
	18	17.71	5 15/16	1 1/8
	20	19.66	5 15/16	1 1/8

Sprockets

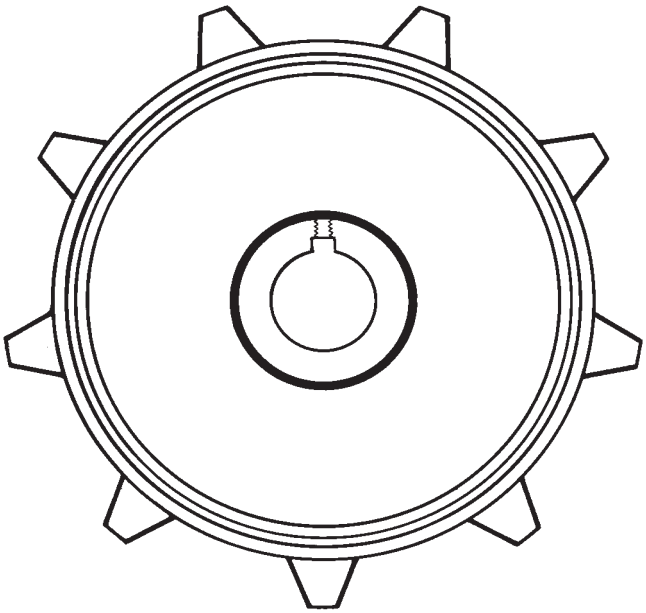


Chain Number	Number of Teeth	Pitch Dia.	Max. Bore	Tooth Face
H-130/138	6	8.00	2 7/16	1
WR-78-4	7	9.22	3 7/16	1
PITCH=4.000"	8	10.45	4 15/16	1
	9	11.70	5 15/16	1
	10	12.94	5 15/16	1
	11	14.20	5 15/16	1
	12	15.45	5 15/16	1
	16	20.50	5 15/16	1
WR-124	6	8.00	2 7/16	1 1/2
C-102B	7	9.22	2 15/16	1 1/2
PITCH=4.000"	8	10.45	3 7/16	1 1/2
	9	11.66	3 15/16	1 1/2
	10	12.94	4 15/16	1 1/2
	11	14.20	4 15/16	1 1/2
	12	15.46	4 15/16	1 1/2
	13	16.72	5 15/16	1 1/2
	14	17.98	5 15/16	1 1/2
	15	19.23	5 15/16	1 1/2
	16	20.50	5 15/16	1 1/2
	18	23.04	5 15/16	1 1/2
	20	25.57	5 15/16	1 1/2
WR-106	6	12.00	4 15/16	1 1/2
PITCH=6.000	8	15.68	4 15/16	1 1/2
	9	17.54	5 15/16	1 1/2
	10	19.42	5 15/16	1 1/2
	11	21.30	5 15/16	1 1/2
	12	23.18	5 15/16	1 1/2
	13	25.07	5 15/16	1 1/2
WR-106XHD	6	12.00	4 15/16	1 1/2
PITCH=6.050	8	15.68	4 15/16	1 1/2
	9	17.54	5 15/16	1 1/2
	10	19.42	5 15/16	1 1/2
	11	21.30	5 15/16	1 1/2
	12	23.18	5 15/16	1 1/2
	13	25.07	5 15/16	1 1/2

Most flame cut sprockets, finished bore K+S.S. or T.K. are supplied from stock. Hardened sprockets also available.

Chain Number	Number of Teeth	Pitch Dia.	Max. Bore	Tooth Face
WR-124HD	7	9.36	2 7/16	1 1/2
WR-124XHD	8	10.62	3 15/16	1 1/2
PITCH=4.063"	9	11.88	4 15/16	1 1/2
	10	13.15	5 7/16	1 1/2
	11	14.42	5 15/16	1 1/2
	12	15.70	5 15/16	1 1/2
	13	16.98	5 15/16	1 1/2
	14	18.26	5 15/16	1 1/2
	15	19.54	5 15/16	1 1/2
	16	20.83	5 15/16	1 1/2
	17	22.11	5 15/16	1 1/2
	18	23.40	5 15/16	1 1/2
	20	25.97	5 15/16	1 1/2
WR-111	8	12.44	4 15/16	2
PITCH=4.760"	9	13.91	4 15/16	2
	10	15.40	4 15/16	2
	11	16.90	5 15/16	2
	12	18.39	5 15/16	2
	13	19.89	5 15/16	2
	14	21.39	5 15/16	2
	16	24.40	5 15/16	2
	17	25.90	5 15/16	2
	18	27.41	5 15/16	2
	20	30.43	5 15/16	2
	24	36.47	5 15/16	2
	26	39.49	5 15/16	2
	28	42.51	5 15/16	2
WR-132	8	15.81	5 15/16	2 3/4
WRC-132	9	17.69	6 15/16	2 3/4
WR-132XHD	10	19.58	6 15/16	2 3/4
WRC-132XHD	11	21.47	6 15/16	2 3/4
WR/WH-157	12	23.38	6 15/16	2 3/4
WH-200	13	25.28	6 15/16	2 3/4
WR-150	14	27.19	6 15/16	2 3/4
WR-155	15	29.10	6 15/16	2 3/4
WR-159	16	31.01	6 15/16	2 3/4
PITCH=6.050"	18	34.84	6 15/16	2 3/4

Drag Chain Sprockets



FABRICATED DRUM C/W CAST STEEL "LONG LIFE" TEETH

Chain Number	Number of Teeth	Pitch Dia.	Max. Bore	Tooth Face
WD-102	6	10.00	3 15/16	6 3/8
	8	13.07	5 15/16	6 3/8
PITCH=5.000"	9	14.62	5 15/16	6 3/8
	10	16.18	5 15/16	6 3/8
	12	19.32	5 15/16	6 3/8
	13	20.89	5 15/16	6 3/8
WD-104	8	15.68	4 15/16	4 1/8
	9	17.54	5 15/16	4 1/8
PITCH=6.000"	10	19.42	5 15/16	4 1/8
	11	21.30	5 15/16	4 1/8
WD-110	6	12.00	4 7/16	9
WD-113	8	15.68	5 15/16	9
	9	17.54	5 15/16	9
PITCH=6.000"	10	19.42	5 15/16	9
	11	21.30	5 15/16	9
WD-112	7	18.44	4 15/16	9
	8	20.90	5 15/16	9
PITCH=8.000"	9	23.39	5 15/16	9

Chain Number	Number of Teeth	Pitch Dia.	Max. Bore	Tooth Face
WD-116	7	18.44	5 7/16	13
PITCH=8.000"	8	20.90	5 15/16	13
	9	23.39	5 15/16	13
WD-118	7	18.44	5 7/16	13
PITCH=8.000"	8	20.90	5 15/16	13
	9	23.39	5 15/16	13
WD-120	6	12.00	5 15/16	8 3/4
PITCH=6.000"	8	15.68	5 15/16	8 3/4
	11	21.30	5 15/16	8 3/4
WD-122	6	16.00	5 7/16	8 3/4
PITCH=8.000"	7	18.44	5 7/16	8 3/4
	9	23.39	5 15/16	8 3/4
WD-480	6	16.00	5 7/16	11
PITCH=8.000"	7	18.44	5 7/16	11
	8	20.90	5 15/16	11
	9	23.39	5 15/16	11
	11	28.40	5 15/16	11

Drag chain sprockets are recommended with a full width tooth to extend chain life. Specify flange width, as the sprockets and idlers are only as wide as the tooth face.

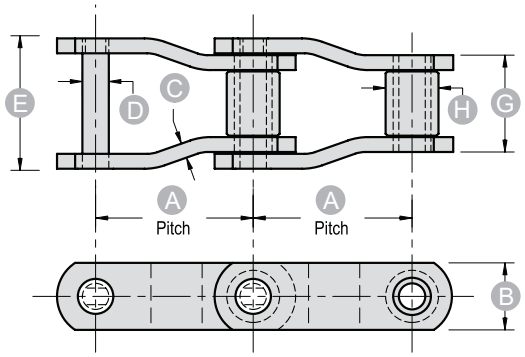
DLI/SCANNING CHAIN

SPECIAL APPLICATION CHAIN

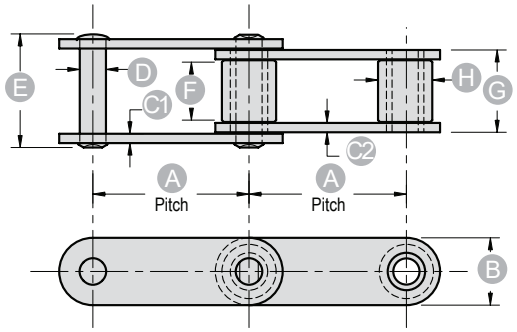
High Speed DLI/Scanner Chain

High speed DLI Scanner Chains are designed for rigged; abrasive and demanding sawmill applications. The DLI design offers thru hardened pin and heavier roller links and plates to increase the overall tensile strength.

(Offset Sidebars)

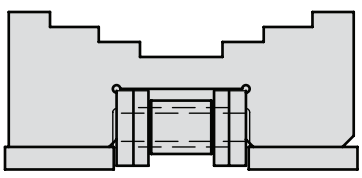


(Straight Sidebars)

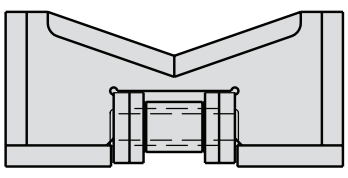


Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C1 Outer Sidebar Thick-ness	C2 Inner Sidebar Thickness	D Pin Diameter	E Max. Overall Width	F Max. Sprocket Thickness	G Length of Bearing	H Roller Diameter	Links per Foot	Average Weight per Foot (pounds)
124 Narrow	4.073	170,000	2 ½	½	N/A	0.937	3 ⅝	1 ⅛	2.281	1.781	3	16.3
124 Wide	4.073	170,000	2 ½	½	N/A	0.937	4 ½	2	3.156	1.781	3	18.4
100	100mm	170,000	2 ½	½	½	0.937	3 ⅜	1	2.125	1.781	3	15.5
124	4.073	170,000	2 ½	½	½	0.937	3 17/32	1 ⅛	2.281	1.781	3	16.3
2512	3.067	110,000	2 ¼	⅜	N/A	0.750	3 ⅞	1 ¼	2.328	1.629	3.9	12.8

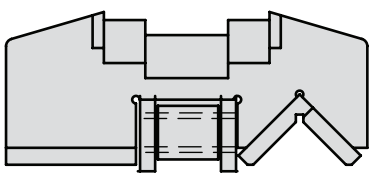
All dimensions shown in inches unless noted otherwise.



(DLI Stepped Profile)



(DLI V Profile)



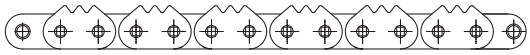
(DLI V Guide)

SHARPTOP CHAINS

Sharp Top chain is becoming widely used throughout the lumber processing industry. The applications this chain is used in are very severe. Speeds that range from 300 to 1,300 feet per minute combined with the debris present in these applications require a chain system that is designed to handle it. I'ANCO's Sharp Top Chain system is designed and manufactured to provide top performance in the worst applications.

The Chain

1. The teeth are machined to a uniform profile to provide a better grip with more accuracy and less penetration;
2. The bottom of the chain is machined flat to increase the load bearing surface, resulting in less wear and grooving on chain beds;
3. The centre plates in multi-strand chains are solid. This will reduce the failure rate due to sawdust and chips packing between plates;
4. Special alloy steel and heat treating methods provide a material that is designed to withstand the rigours faced in these applications;
5. The pins are hardened to reduce wear promoting longer life.



STD
Summit Tip Design

5 PEP
5 Points Every Pitch

4 STA
4 Points Every Pitch

4ST
4 Points Every 2nd Pitch

SL-LP
Slasher, Low Profile

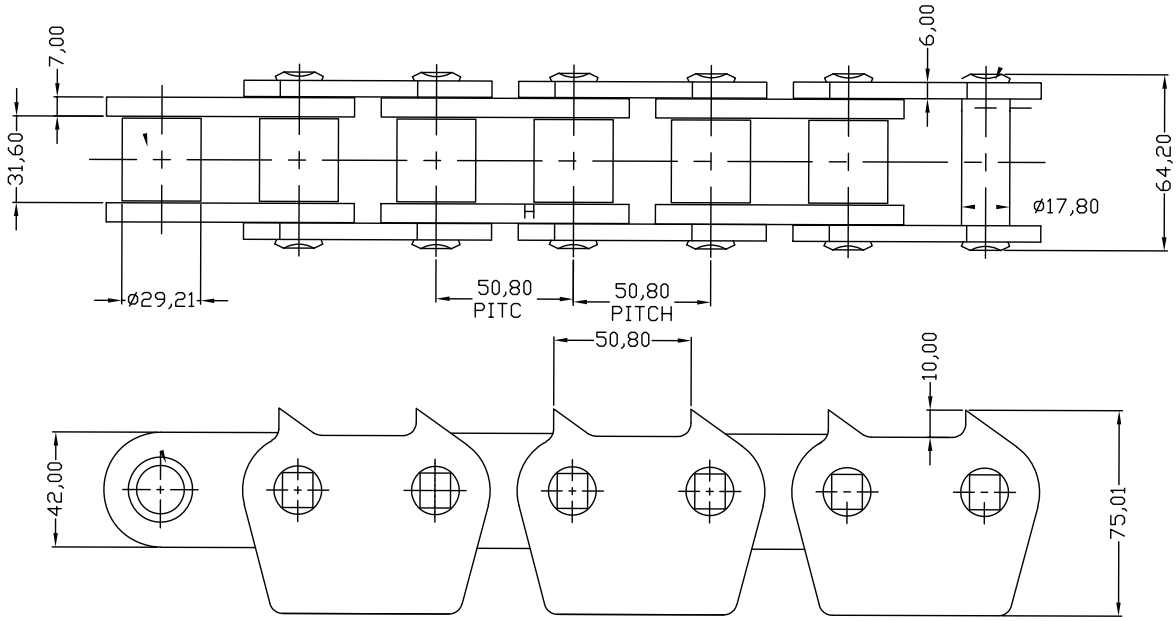
SL-LP
Slasher, Low Profile

Sharp Top Chains

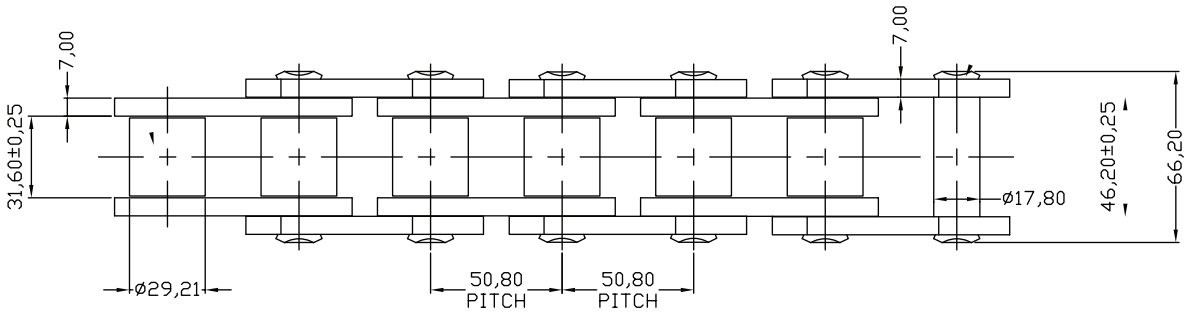
Size	Strand Type	Points	Pitch	Height	Point depth	Width
80-1	Single	3	1.00"	1.152"	.126"	1.155"
80-2	Double	3	1.00"	1.137"	.126"	2.299"
80-3	Triple	3	1.00"	1.137"	.126"	3.460"
80-4	Quadruple	3	1.00"	1.137"	.126"	4.614"
80-2-5PEP	Double	5	1.00"	1.153"	.125"	2.299"
80-3-5PEP	Triple	5	1.00"	1.153"	.125"	3.460"
80-4-5PEP	Quadruple	5	1.00"	1.153"	.125"	4.614"
100-2	Double	3	1.25"	1.325"	.125"	2.953"
100-3	Triple	3	1.25"	1.325"	.125"	4.362"

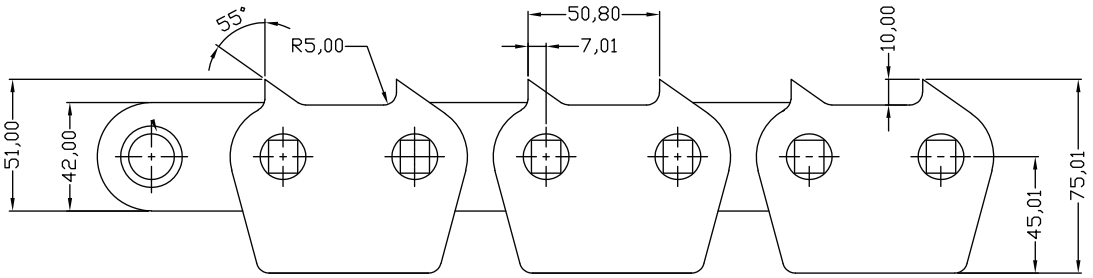
Note: Other sizes available. Please call for our complete selection.

5269-1B

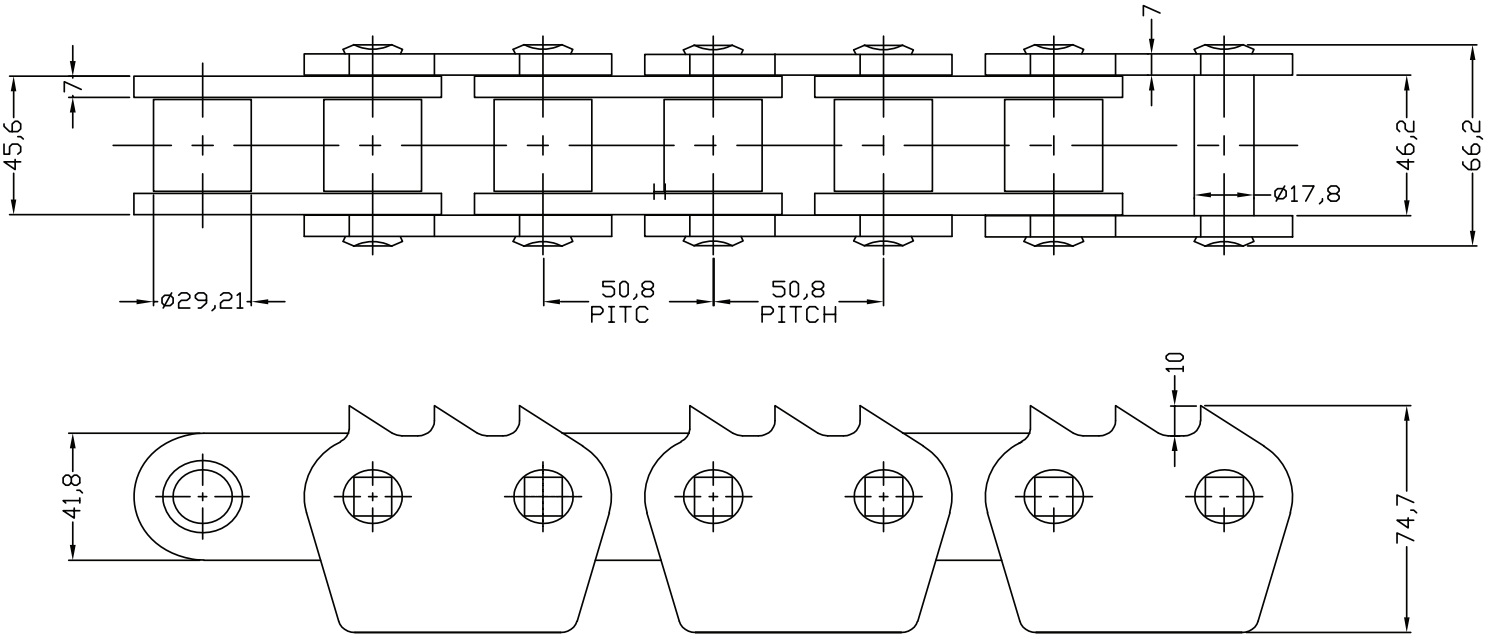


5269-1B-SHD (Super Heavy Duty)

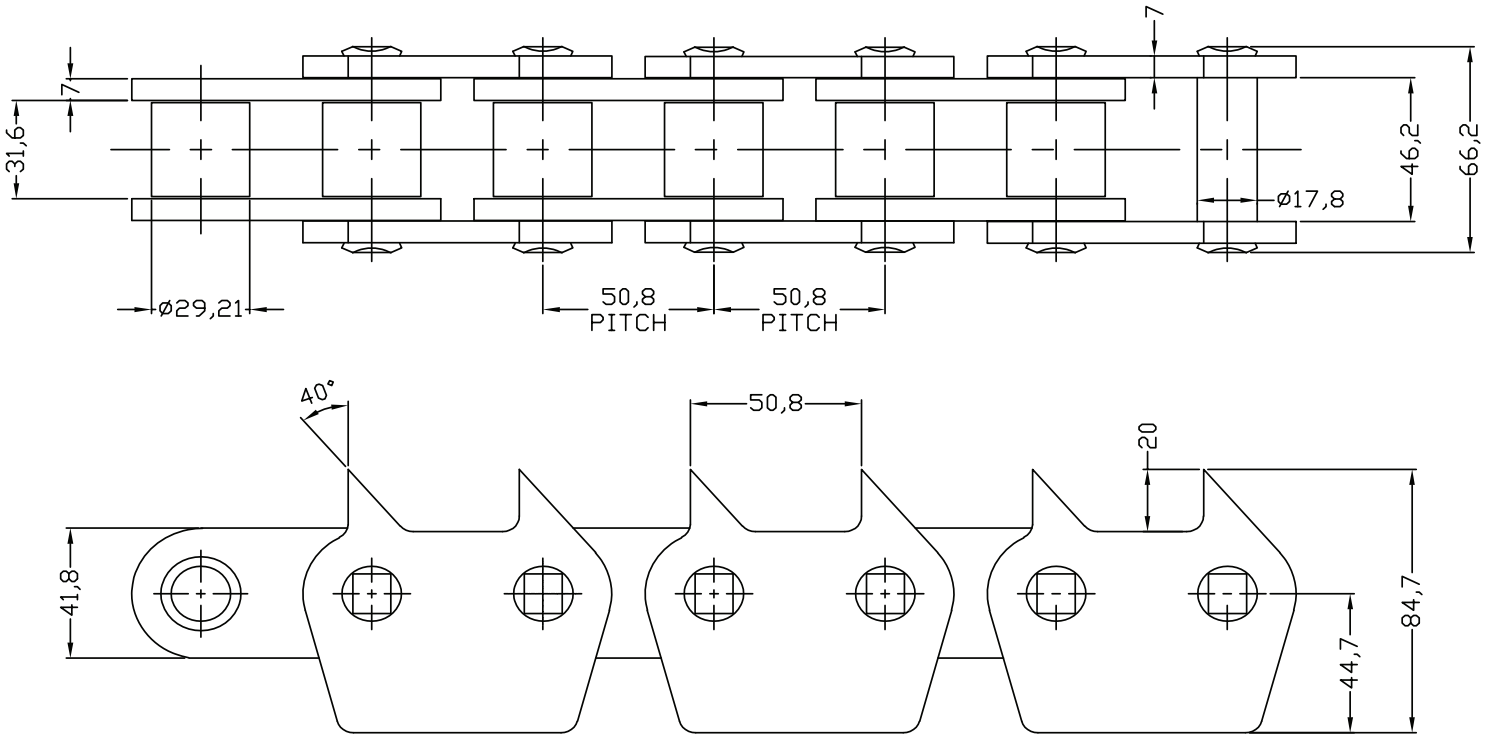




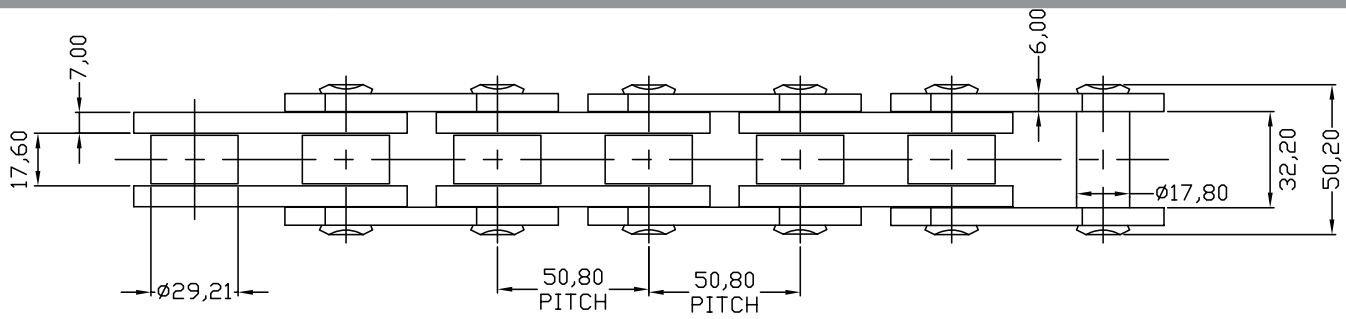
5167-12

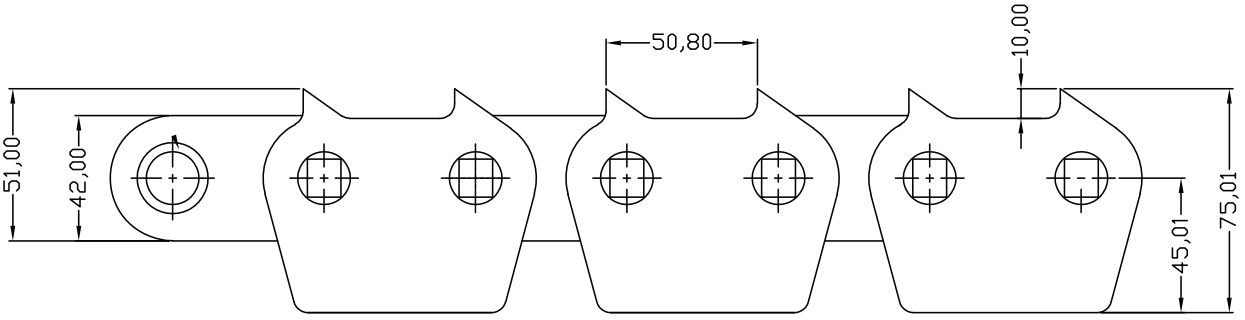


5289-1B-SHD (Super Heavy Duty)



5202-1B





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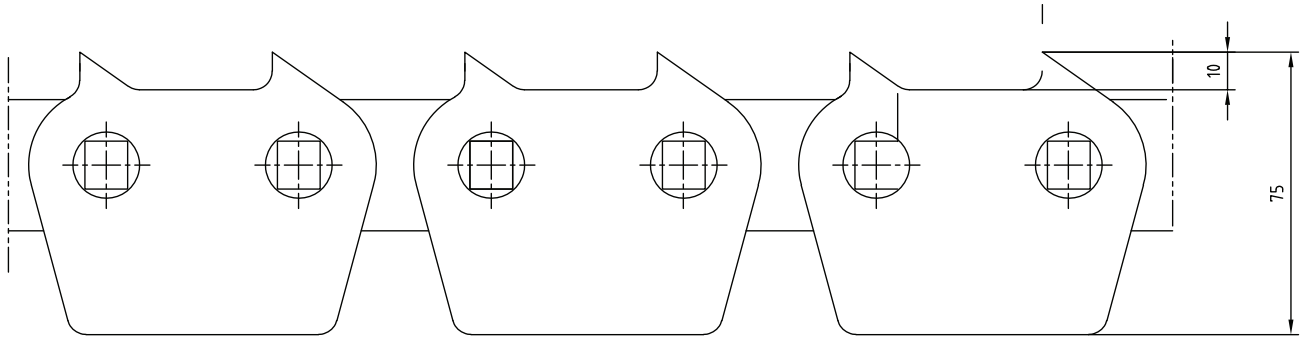
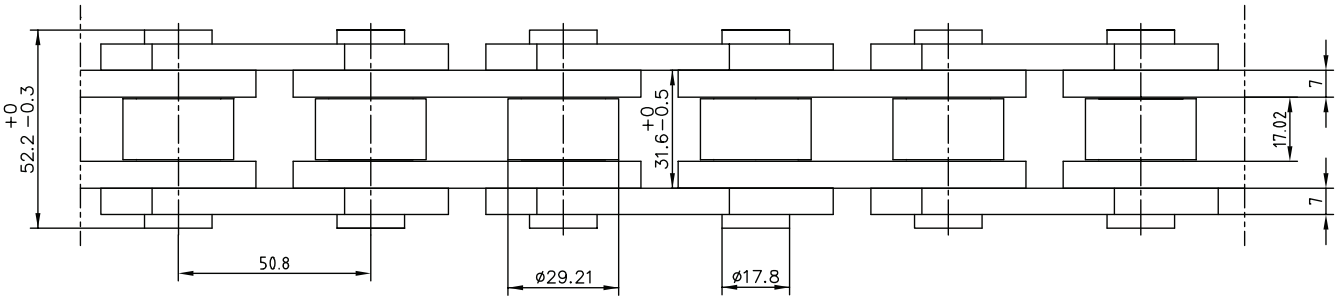


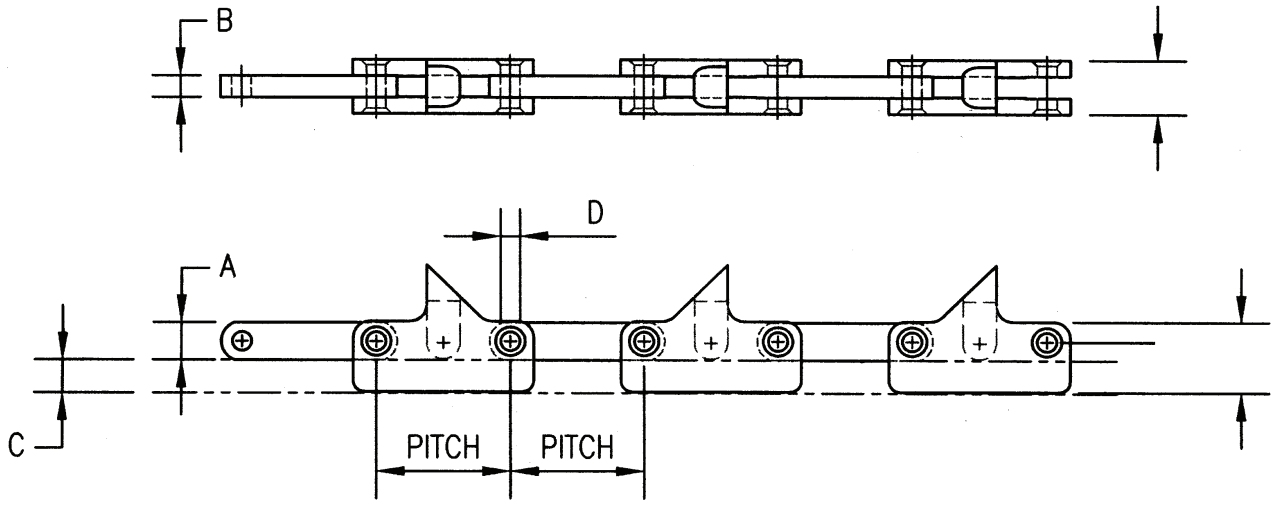


Precision Cast Sharp Chain

I'ANCO Products Ltd. has developed our Precision Cast Sharp Chain to address the needs of the high-tech saw mill.We have designed our chain with the rigors and challenges of primary log break-down in mind. It is manufactured from high quality low alloy steel components through hardened to produce the best combination of wearability and toughness. All components are fully machined toextremely tight tolerances to produce a chain with minimal lateral and vertical deviation allowing maxi-mum optimization of your saw logs. This chain is typically guided within .010" to allow the bands to run tight to the chain and minimize lateral deviation and eliminate wastage in the planer.

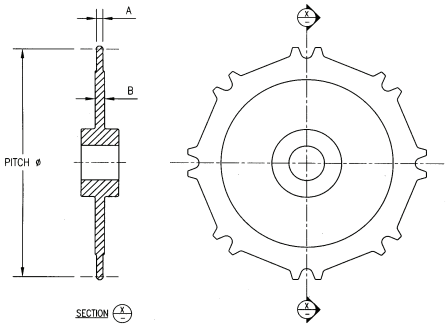
Chain

Chain Size	Pitch	A	B	C	D Ø	E	F
4"	4.000"	1.25"	1.25"	1"	.75"	2.625	2.5"
6"	6.030"	1.75"	1"	1.5"	.875"	3.25"	2.5"



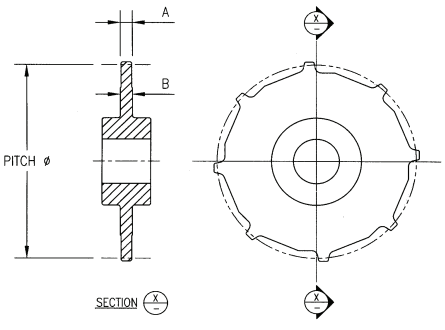
Chain Sprockets

I'ANCO manufactures our sharp chain sprockets with a fully machined hub and running area for the chain to minimize lateral run out. The teeth are burned on a precision burning table and fit to the chain to ensure maximum tooth contact and a smooth interface. We then post heat treat the sprockets to minimize the heat-affected zone from the burn. This produces a sprocket with an excellent longevity.



6.030" Pitch Sharp Chain Sprockets

Teeth	Pitch Ø	A	B
8	31.00"	.835"	1.25"
12	46.22"	.835"	1.25"



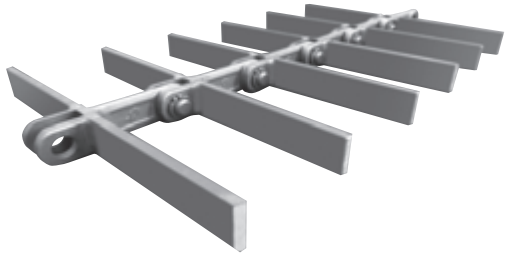
4.000" Pitch Sharp Chain Sprockets

Teeth	Pitch Ø	A	B
8	20.50"	1.200"	1.25"
12	30.64"	1.200"	1.25"

FORGED CHAINS

Drop Forged Chain

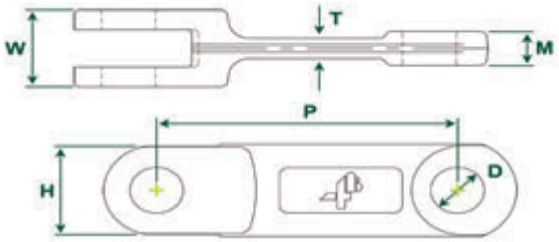
Drop forged chain is made of special heat treated alloy steel, case hardened to rockwell C57-C62 with a ductile core hardness of rockwell C40. Superior heat treatment technique provides the optimum chain link with a more resilient ductile core for shock resistance, and an extremely hard exterior surface for superior wear resistance. Uniking is backed by an international network of companies with over 150 years of experience, and a global team of engineers and sales professionals that can provide you with practical solutions for all your material handling applications.



STANDARD LINK

BOLT 'N' GO LINK

Links and pins are available in stainless steel



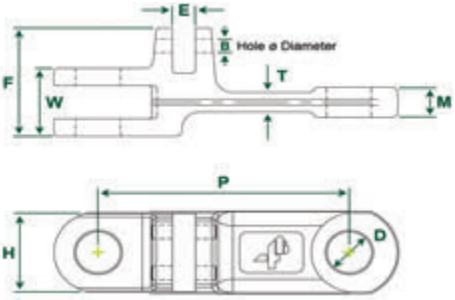
Standard Link

Chain Link	Min Breaking Load (kN)	Case Hardness	Case Depth (mm)	Core Hardness	Weight (Per Link) (kg)	Bolt 'N' Go Compatible	Dimensions					
							P (mm)	H (mm)	T (mm)	W (mm)	M (mm)	D (mm)
102LA	150	Rockwell C57-C62	0.5	Rockwell C40	0.36	No	102	36	6	25	8	14
102NA	180	Rockwell C57-C62	0.5	Rockwell C40	0.38	Yes	102	36	7	28	12	14
125NA	200	Rockwell C57-C62	0.6	Rockwell C40	0.70	Yes	125	35	10	36	15	16
142LA	250	Rockwell C57-C62	0.7	Rockwell C40	0.66	No	142	40	10	31	14	18.2
142NA	300	Rockwell C57-C62	0.7	Rockwell C40	1.08	Yes	142	50	12	42	18.7	25
142HA	450	Rockwell C57-C62	0.7	Rockwell C40	1.76	Yes	142	50	16.5	62	28.5	25
150NA	300	Rockwell C57-C62	0.7	Rockwell C40	1.20	Yes	150	49	13	36	15	25
160NA	350	Rockwell C57-C62	0.8	Rockwell C40	1.30	Yes	160	44.5	13	42	19.5	20
175NA	520	Rockwell C57-C62	1.0	Rockwell C40	2.73	No	175	60	16	72	22	30
200NA	600	Rockwell C57-C62	1.0	Rockwell C40	2.85	No	200	60	18	68	30	30
216NA	600	Rockwell C57-C62	1.0	Rockwell C40	3.66	No	216	75	19	59	26	35
250NA	700	Rockwell C57-C62	1.0	Rockwell C40	4.26	No	250	75	18	70	32	32
260NA	700	Rockwell C57-C62	1.0	Rockwell C40	5.38	No	260	75	21	71	31	32

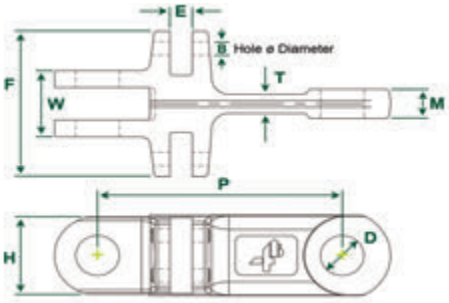
DOUBLE & TRIPLE LINKS

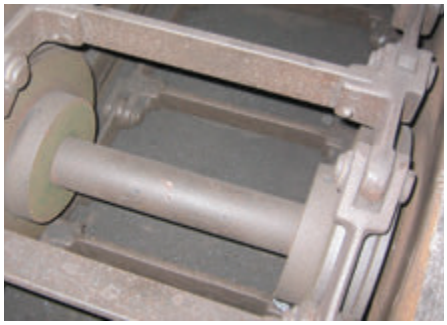
Double and triple links are forged with the same quality, strength and durability as our standard links.

DOUBLE LINK



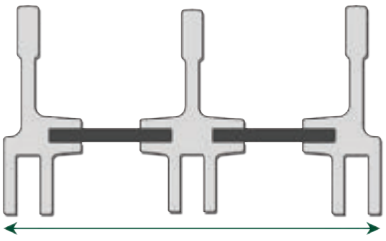
TRIPLE LINK





Typical Double Strand Chain Application

Triple Configuration



Widths to 3.7m

Chain Link	Min Breaking Load (kN)	Case Hardness	Case Depth (mm)	Core Hardness	Weight (Per Link) (kg)	Bolt 'N' Go Compatible	Dimensions								
							P (mm)	H (mm)	T (mm)	W (mm)	M (mm)	D (mm)	F (mm)	E (mm)	B (mm)
142DNA	300	Rockwell C57-C62	0.7	Rockwell C40	1.37	No	142	50	12	42	18.7	25	67	13	8.5
142DHA	450	Rockwell C57-C62	0.7	Rockwell C40	2.00	No	142	50	16	62	28	25	87	13	8.5
142TNA	300	Rockwell C57-C62	0.7	Rockwell C40	1.67	No	142	50	12	42	18.7	25	92	13	8.5
142THA	450	Rockwell C57-C62	0.7	Rockwell C40	2.32	No	142	49	16	62	28.5	25	112	13	8.5

Other sizes available on request.

Typical Welded Flight Attachments

Square Bar Flight

Flat Bar Flight

Paddle Flight

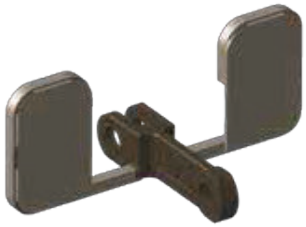
U Flight

Closed U Flight

Closed U Flights with Filler Plates

00 Flight

Return Cups



00 Flight with Filler Plates

Note: Custom flights are available, based on customer specifications.

Standard Pin Options

Forged Head Pin Collar and Roll Pin

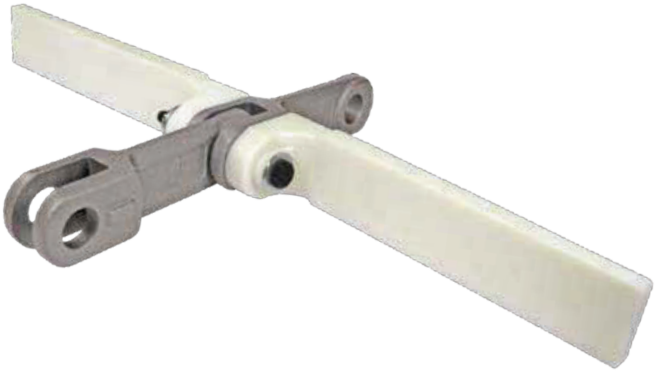
Forged Head Pin and One Clamp

Plain Pin and Two Clamps

Bolt 'N' Go Hollow Pin, Bolt, Washers and Nut

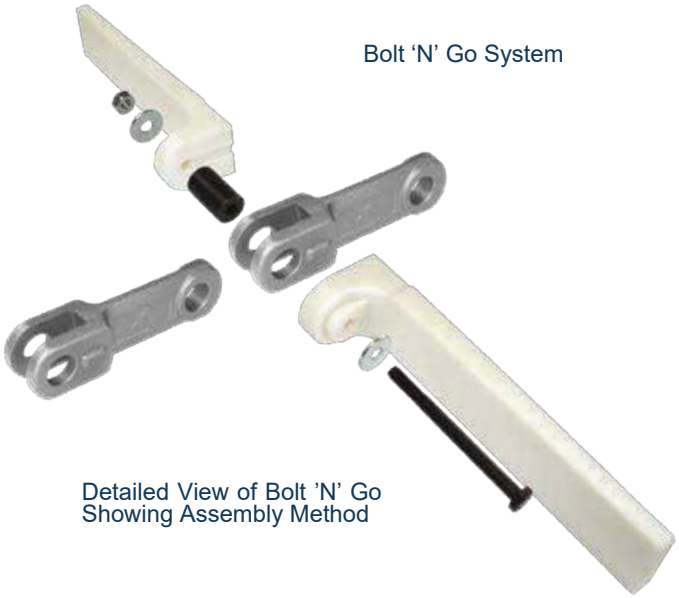
Bolt ‘N’ Go

Bolt ‘N’ Go flight system is a revolutionary assembly method for drop forged. Link and flight assembly is made easy by using a standard bolt and mechanical lock nut with a high strength hollow pin. There are no circlips and no intricate assembly required. There is no welding of flights, no need to remove chain from the conveyor for installation, and no issues with strength. Just bolt the links and the flights together. It’s easy, simple and reliable!



Bolt ’N’ Go Link

Bolt ‘N’ Go System



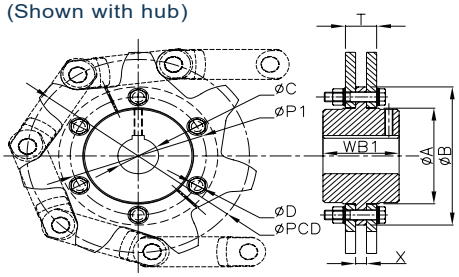
Detailed View of Bolt ’N’ Go Showing Assembly Method

US Pat. 7,080,728
Canadian Pat. 2,548,660
Mexican Pat. 272,056
Other Patents Pending

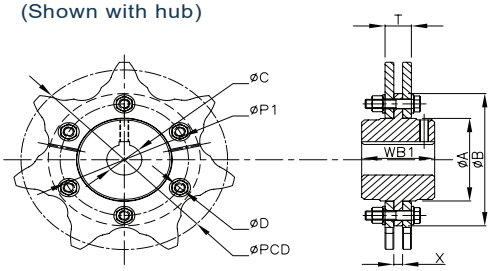
Sprockets

Sprockets and trailers are manufactured from high grade heat treated steel to a minimum hardness of 57 HRC. Each piece is machined to size with appropriate bore and keyway specific to each customer's application. Most sizes are in stock and ready to ship from inventory.

Standard Sprocket
(Shown with hub)

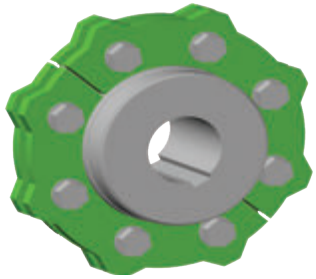


Wear Reversible Sprocket
(Shown with hub)



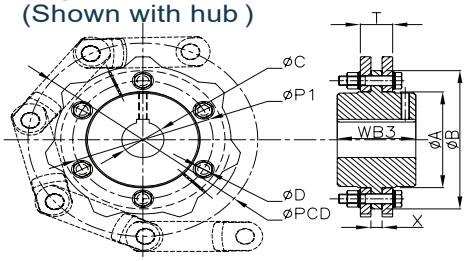
Chain Link	No. of Teeth	Pitch Circle Dia ØPCD (mm)	ØP1 (mm)	ØA (mm)	ØB (mm)	ØC max, Sprocket/ Stub Trailer (mm)	ØD (mm)	No. of Bolts	T (mm)	X (mm)	WB1 (mm)
4B102NA	6	204.0	-	105.0	135.0	70	–	–	30	10	83
	7	235.1	146.0	108.0	173.0	70	M12	6	30	10	83
	8	266.5	170.0	144.0	196.0	85	M12	6	30	10	83
	9	298.2	200.0	174.0	232.0	105	M12	6	30	10	83
	10	330.1	241.3	179.0	264.0	105	M12	8	30	10	83
4B142NA	6	284.0	168.3	136.5	190.5	85	M12	6	46	16	112
	7	327.3	200.0	162.0	234.0	105	M16	6	46	16	112
	8	371.1	241.3	187.3	282.0	115	M20	8	46	16	127
	9	415.2	285.8	240.0	330.0	150	M20	8	46	16	127
	10	459.5	285.8	240.0	330.0	150	M20	8	46	16	127
	11	504.0	368.3	310.0	419.0	170	M20	8	46	16	150
	12	548.6	415.0	345.0	465.0	170	M20	8	46	16	150
	13	593.4	450.0	380.0	521.0	170	M20	8	46	16	150
	14	638.1	470.0	380.0	546.0	170	M20	10	46	16	150
4B142HA	7	327.3	200.0	162.0	234.0	105	M16	6	69	19	127
	8	371.1	241.3	187.3	282.0	115	M20	8	69	19	150
	9	415.2	285.8	240.0	330.0	150	M20	8	69	19	150
	10	459.5	285.8	240.0	330.0	150	M20	8	69	19	150
	11	504.0	368.3	310.0	419.0	170	M20	8	69	19	150
	12	548.6	415.0	345.0	465.0	170	M20	8	69	19	150
	13	593.4	450.0	380.0	520.0	170	M20	8	69	19	180
	14	638.1	470.0	380.0	546.0	170	M20	10	69	19	180

Bore and keyway to customer specification. Sprockets and trailers available for all chain sizes. Contact Uniking for more information.

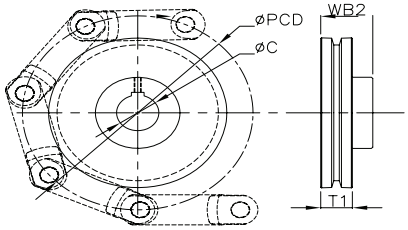


Trailers

Segmental Stub Trailer (Shown with hub)



Asymmetric Smooth Trailer**



Chain Link	ØC max Smooth Trailer (mm)	Pitch Circle Dia. ØPCD (mm)	Hub Width* (mm)		Rim Width T1 (mm)
			Smooth WB2	Segmental WB3	
4B102NA	65	204.0	57	83	35
	65	235.1	57	83	35
	65	266.5	57	83	35
	65	298.2	57	83	35
	65	330.1	57	83	35
4B142NA	85	284.0	74	112	45
	85	327.3	74	112	45
	85	371.1	77	127	45
	115	415.2	77	127	45
	115	459.5	77	127	45
	115	504.0	105	150	45
	115	548.6	105	150	45
	115	593.4	120	150	45
	115	638.1	120	150	45
4B142HA	115	327.3	110	127	75
	115	371.1	110	150	75
	115	415.2	110	150	75
	115	459.5	120	150	75
	140	504.0	120	150	75
	140	548.6	120	150	75
	140	593.4	120	150	75
	140	638.1	140	150	75

* Smooth and segmental trailers have different hub widths as noted (WB2 & WB3).
** Symmetric smooth trailers on demand.

Additional Recommendation

1. Sprocket cleaners and chain wipers help maintain the sprocket clear of buildup for the chain to engage.

2. Conveyor inlet screens ensure that particle size does not exceed conveyor design parameters and help prevent tramp material from entering the conveyor.

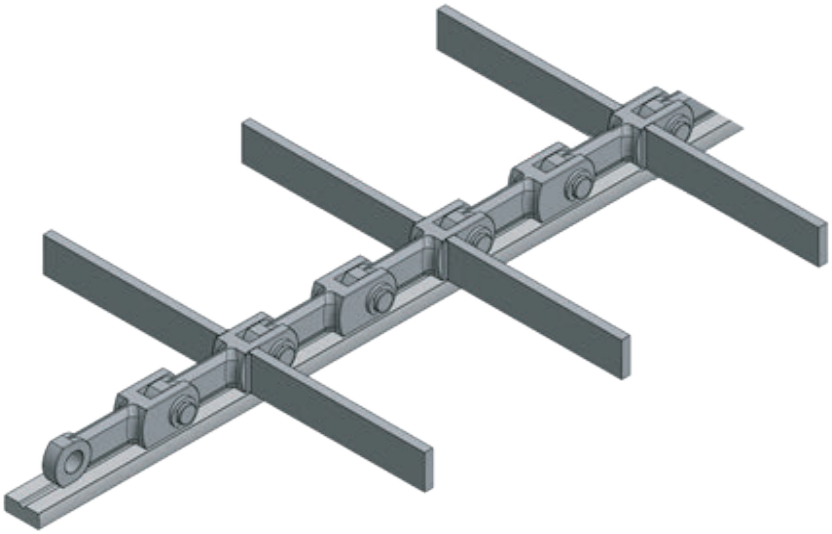
3. Conveyor inlet magnets help prevent the introduction of tramp material.

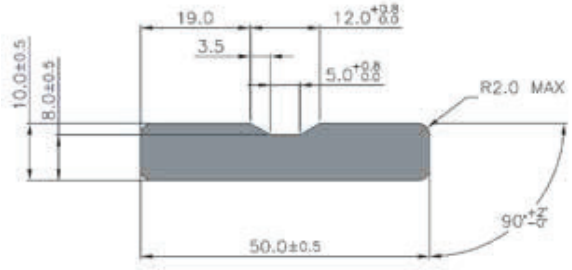
4. Central rails made from Hadfield manganese steel will maximize chain life and help prevent fatigue on welded flights (Image E).

5. Wear bushings, AR steel flights, and hard weld coatings are available for extremely abrasive applications.

6. For installation assistance or any application questions, call Uniking Canada.

IMAGE E
Manganese Rail
to Support Chain





Rail Design for 142NA Chain

CAST DRAG CHAINS AND LONG LINK CHAINS

I'ANCO

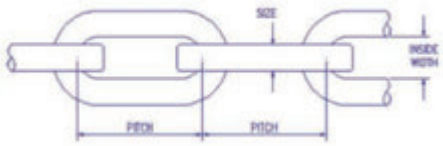
Long Link Chain

I'ANCO Products can help keep you competitive in a demanding marketplace. As the pioneer of the squared profile for long link chain, I'ANCO recommends this style of chain for your log haul and waste conveyor requirements.

Available in both Austenitic Manganese and Alloy 2A (a controlled balanced selection of strength enhancing elements), I'ANCO can provide a solution to your conveying needs.

SQUARE PROFILE LONG LINK CHAIN				
CHAIN SIZE	EST.WT. (lbs)	MANGANESE MAX WORKING LOAD **	ALLOY 2A MAX WORKING LOAD **	ULTIMATE STRENGTH
1x1-3/4x6	9	20,000	24,000	100,000
1-1/8x2x6	13	25,000	30,000	125,000
1-1/4x2x6	16	30,000	36,000	150,000
1-1/2 x 2-1/4x8	21	43,000	51,000	215,000
1-3/4 x 2-1/2x8	30	58,000	69,000	285,000

** Working load is material specific.Contact us for more details



Connecting Links

I'ANCO Products offers two styles of connecting links for your cast square long link. Depending on the material of your original chain, I'ANCO can provide a #4 Alloy Weld In Style link or a #5 Manganese Lap Style link.

CONNECTING LINKS	
CHAIN SIZE	EST. WT. (lbs)
1 x 1-3/4 x 6	4,5
1-1/8 x 2 x 6	6
1-1/4 x 2 x 6	7
1-1/2 x 2-1/4 x 8	15
1-3/4 x 2-1/2 x 8	21,5

#4 Alloy Weld in Style

#5 Menganese Lap Style

Series 300 Integral Fixed Loop Flight

When reliability counts, I'ANCO Series 300 integral flights are the number one choice for pulpwood applications. The rugged box design include one pitch of our square profile chain with the flight and is joined with #5 lap links at the factory and #4 weld-in style for field repairs.

I'ANCO Products builds our cast chains with integral flights to suit your specific requirements. The flights are spaced accordingly to minimize wear and maximize throughput. The symmetrical design of the heavy-duty flights allows for the chain to drag material on either the carry or return runs, or to be flipped extending the life of the chain. The box design with the internal gussets provides the best combination of lightweight and high strength. I'ANCO builds in thicker wear surfaces so the components last longer.

I'ANCO Series 300 flights are offered in either cast manganese or Alloy 2A steel depending on your conveyor's specific requirements. The manganese flights work hardens in the correct applications and develops a tough hardened surface that will resist wear. In dry, gritty applications with negligible impact, I'ANCO recommends our cast Alloy 2A. The Alloy 2A flights are heat-treated providing a through-hardened product to ensure long life without compromise.

I'ANCO cast Series 300 flights are available from 4" to 6" high depending on the size of the chain and up to width of 48".

SERIES 300 INTEGRAL FIXED LOOP FLIGHT		
CHAIN SIZE	HEIGHT	WIDTH
1 x 1-3/4 x 6	4"	18" up to 30"
1-1/8 x 2 x 6	4-1/2 and 5"	12" up to 36"
1-1/4 x 2 x 6	4-1/2 and 5"	12" up to 36"
1-1/2 x 2-1/4 x 8	5 and 6"	26" up to 48"
1-3/4 x 2-1/2 x 8	5 and 6"	26" up to 48"

Series 400 Alloy Dual Tang Flight

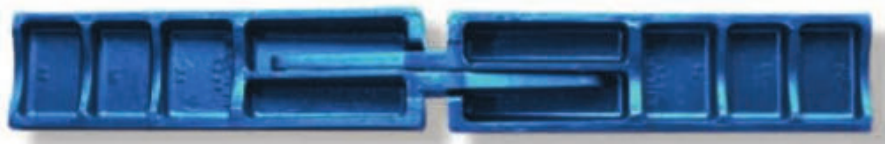
I'ANCO's cast alloy Series 400 dual tang flights are manufactured from a carefully selected combination of alloys which, in the heat treated condition has proven itself as a tough, long wearing product that can be easily welded. The superior grade of steel is selected because of its added strength and durability, enabling movement of a higher volume of product for longer periods of time.

Installation

I'ANCO's Series 400 flights are supplied as two identical pieces per flight. To assemble, use a vertical link with the vertical face of the flight facing the running direction of the chain. Slide the two tangs together until the body rests against the link on both sides. Clamp in position and tack each end, both sides; also tack the tangs to the ribs on the outer edge. When tacking is completed, finish with two passes on the chain and one pass on the tang.

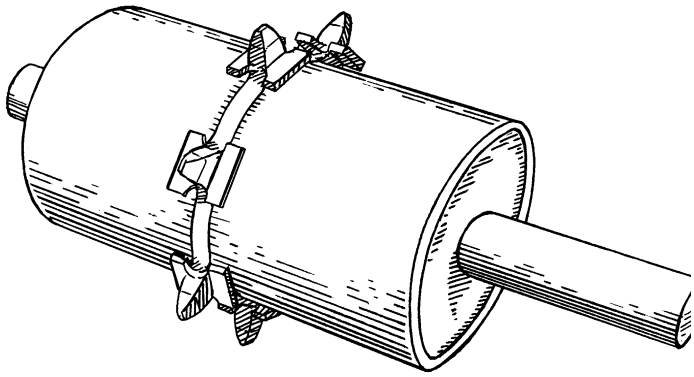
I'ANCO cast Series 400 flights are available from 4" to 6" high depending on the size of the chain and up to width of 48".

SERIES 400 ALLOY DUAL TANG FLIGHT		
CHAIN SIZE	HEIGHT	WIDTH
1 x 1-3/4 x 6	4"	12" up to 30"
1-1/8 x 2 x 6	4-1/2 and 5"	12" up to 40"
1-1/4 x 2 x 6	4-1/2 and 5"	12" up to 40"
1-1/2 x 2-1/4 x 8	6"	26" up to 48"
1-3/4 x 2-1/2 x 8	6"	26" up to 48"



In Alloy & Austenitic Manganese Steel

I'ANCO PRODUCTS LTD. is pleased to introduce its new line of economically priced cast austenitic manganese and alloy steel sprockets. We noware stocking “A” plates for 6" pitch long link chains and standard-sized hubs.

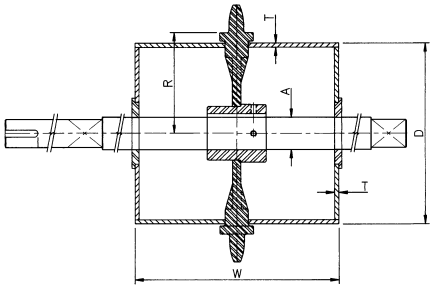


Austenitic manganese steel sprockets will remain the l’ANCO standard for all waste, chip, and hog fuel conveyors. The work-hardening characteristics of austenitic manganese steel significantly extend sprocket life in these applications. The carrying face of each tooth will work hard- en up to 550 BHN, preventing premature tooth wear.

Alloy steel sprockets are designed to operate in areas subject to severe, abrasive media, such as wet & dry ash handling systems and waste conveyors with abnormal amounts of sand and grit. These sprockets are typically quenched and tempered to 370 BHN, but can be customized upon request and hardened to a maximum of 550 BHN. And that’s not just skin deep. We recommend alloy steel for these very abrasive applications as extremely abrasive media wear away the work-hardening skin of manganese steel before it reaches full hardness.

l’ANCO sprockets are cast with a double taper tooth, allowing the tooth to catch the chain as it comes around every time. The tooth location and pitch diameter are fixed on the pattern, ensuring a perfectly running sprocket every time.

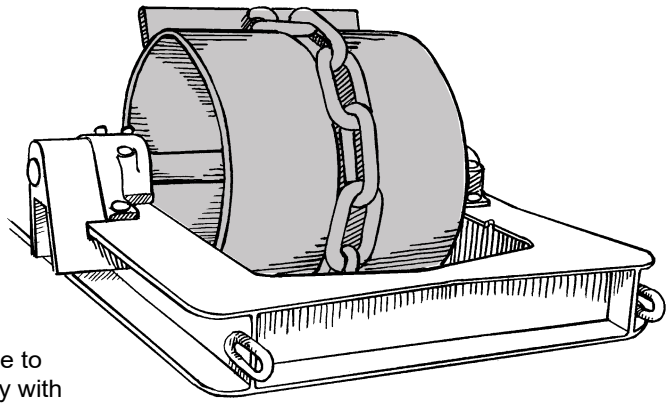
l’ANCO sprockets are manufactured in a modular system, allowing us to customize your sprockets and sprocket drum assemblies with the shortest possible lead times. As well, l’ANCO Products manufacturers a complete line of log haul sprockets, replaceable rim and flanged drum sprockets.



Chain Size	Standar d Drum Size D	Body W	Body T	Radius R	Standar d Bor e Sizes A	Patter n #
5 Tooth Sprocket						
3/4 & 7/8 x 1 1/2 x 6	14 1/2	As ordered	1/2	8 5 / 8	1 15/16 - 3 15/16	A1-2180
1 & 1 1/8 x 1 3/4 x 6	14 1/2	As ordered	1/2	8 7/16	1 15/16 - 3 15/16	A1-1211
1 1/8 & 1 1/4 x 2 x 6	14 1/2	As ordered	1/2	8 1 / 8	1 15/16 - 3 15/16	A1-1212
7 Tooth Sprocket						
3/4 & 7/8 x 1 1/2 x 6	21 1/4	As ordered	1/2	12 5/16	1 15/16 - 3 15/16	A1-2183
1 & 1 1/8 x 1 3/4 x 6	21 1/4	As ordered	1/2	12 1 / 4	1 15/16 - 5 7/16	A1-1119
1 1/8 & 1 1/4 x 2 x 6	21 1/4	As ordered	1/2	12 1/32	1 15/16 - 5	

Alloy Steel Single - Groove Drums

l'ANCO's "alloy steel" is a carefully selected balance of chrome, nickel and molybdenum that is heat-treated to produce desired mechanical properties.

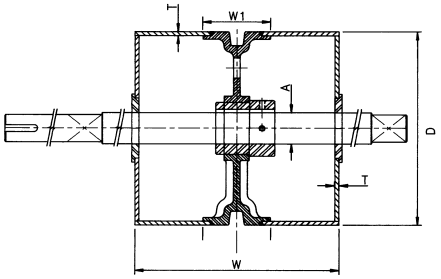


l'ANCO single-groove drums are cast in alloy steel and quenched and tempered to typically 300 BHN, which dramatically slows groove wear, producing a substantially longer service life. We also offer alloy steel wear area or welded-on austenitic manganese steel wear strips. The horizontal link rides on this hardened area and, along with the hardened groove, produces a superior drum life.

We stock all standard-sized drums, hubs, end discs, and pipe to produce a custom built, high-quality, single-groove drum assembly with a quick delivery. l'ANCO Products also manufactures a complete line of idlers and double-groove drum assemblies as well as our line of extra heavy-duty, single-groove drums.

I'Anco hubs are stocked in various sizes to suit your needs

Heavy-Duty Single-Groove Drums



Diameter D	Thickness T	Body Width W- 1	Face Width W	Standar d Bor e Sizes	Patter n #
18	1/2	5 1/2	to suit	1 15/16 - 4 15/16	A1-1679
20	1/2	5 1/2	flight and	1 15/16 - 4 15/16	A1-1567
24	1/2	5 1/2	conveyor	1 15/16 - 5 7/16	A1-1572
30	1/2	5 1/2	widths	1 15/16 - 5 7/16	A1-1268

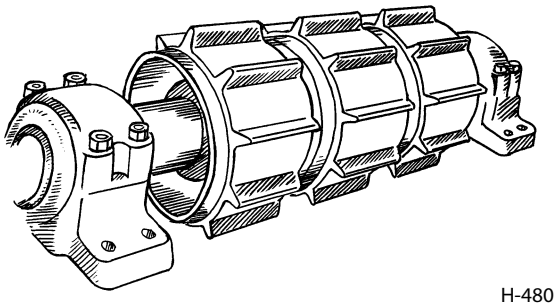
Avoid expensive down time and maintenance costs by using l'Anco sprockets

Austenitic Manganese Steel

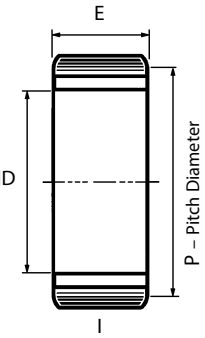
Get the Superior Quality of l'ANCO's Austenitic Manganese Steel Sprockets for little more than the cost of fabricated sprockets.

l'ANCO PRODUCTS have found over the years that austenitic manganese outperforms most alloys on the market. The surface of austenitic manganese work-hardens to produce a skin hardness of up to 550 BHN. While having a hard surface, austenitic manganese steel has an elongation of up to 30-65% and a ten-sile strength of up to 100,000 – 145,000 lbs. This gives you a product with an extremely wear-resistant sur-face while having a tough core to resist cracking and breakage.

H&C Class Rim Sprockets



Available with fabricated steel or cast steel bodies, I'ANCO H and C class rim sprockets are cast in austenitic manganese or hardened alloy steel, and machined to fit standard pipe sizes. A cast steel rim allows us to keep the tooth location and pitch diameter absolutely uni-form as well as easily producing a chain-saving tooth profile. I'ANCO currently stocks many standard-size sprockets for quick deliveries.



H-480

Pitch 8.000"
Tooth Face at Pitchline
" E" , 10-3/4"

Sprocket		
Pitch Diameter	Number of Teeth	Inside Diameter
18.44	7	14"
20.90	8	16"
23.39	9	18"
25.89	10	20"
28.39	11	24"
31.91	12	27"

C & H – 132

Pitch 6.050"
Sprocket Tooth Face
2-3/4" wide

Sprocket			Sprocket		
Pitch Dia.	No. Teeth	Inside Dia.	Pitch Dia.	No. Teeth	Inside Dia.
15.81	8	11"	23.38	12	20"
17.69	9	14"	25.28	13	21"
19.58	10	16"	27.19	14	23"
21.47	11	18"	31.01	16	26"

H-110

Pitch 6.000"
Tooth Face at Pitchline
"E", 8-7/8"

Sprocket		
Pitch Diameter	Number of Teeth	Inside Diameter
15.68	8	11"
17.54	9	14"
19.42	10	16"

H-120

Pitch 6.000"
Tooth Face at Pitchline
" E" , 8-7/8"

Sprocket		
Pitch Diameter	Number of Teeth	Inside Diameter
12.00	6	11"
15.68	8	14"
21.30	11	18"

C & H – 124

Pitch 4.000"
Sprocket Tooth Face
1-1/2" wide

Sprocket			Sprocket		
Pitch Dia.	No. Teeth	Inside Dia.	Pitch Dia.	No. Teeth	Inside Dia.
10.45	8	7"	17.98	14	15"
11.70	9	8"	19.24	15	16"
12.94	10	9"	20.50	16	17"
14.20	11	10"	21.77	17	18"
15.45	12	12"	23.04	18	19"
6.71	13	14"			

CAST DRAG CHAINS AND LONG LINK CHAINS

ESCO

ESCO® XHC Series Chain

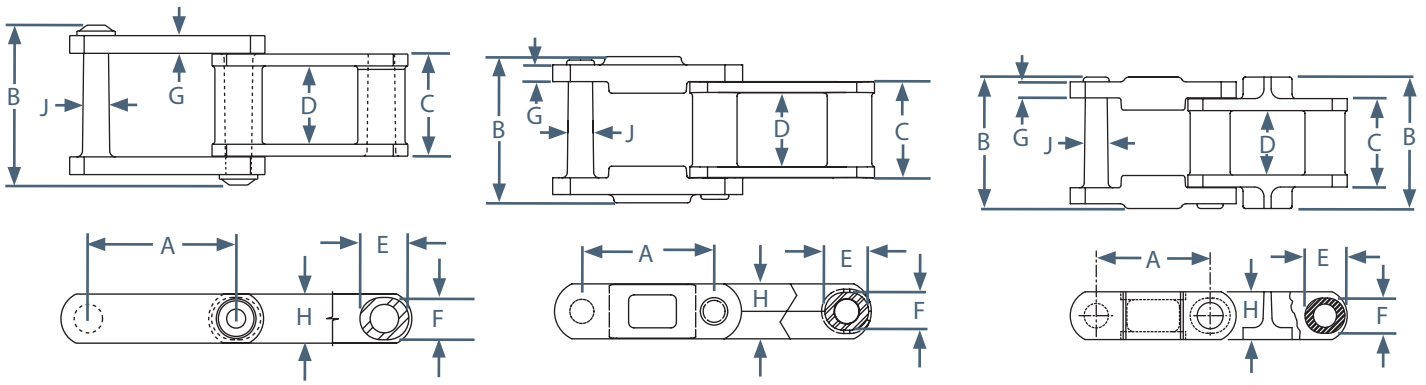
The strongest, most wear resistant chain systems available — XHC124, 132, 155, 157, 159* — are specifically designed to provide the lowest cost of ownership in today's most difficult material handling applications. Use the chain comparison charts to find the ESCO chain solution for your chain system.

• All XHC-series sidebar/pins and block links utilize ESCO's unique integral, one-piece casting technology — for maximum strength and production capabilities.

• All XHC-series chain components are furnished in alloy 12-series 100% Heat Treated Alloy Steels to achieve the best balance between hardness, ductility and wear resistance.

• All XHC-series cast attachments are furnished integrally cast with the Block Links.

• ESCO XHC-series cast alloy sprockets and traction wheels are also furnished in ESCO alloy 12-series Steels and typically work 2-3 times longer than plate alternative



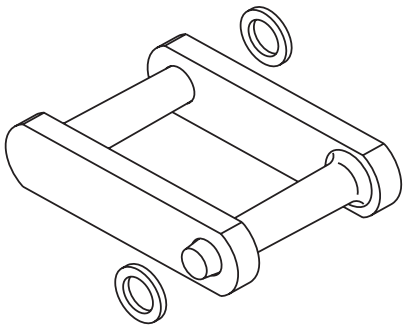
ESCO Chain	Series	A	B	C	D	E	F	G	H	J	Maximum Recommended Working Load (lbs)	Ultimate Strength (lbs)	Weight per Foot
XHC124	I	4.06	4.75	3.00	2.00	1.88	1.63	0.63	2.00	0.88	22,800	148,600	14.9
XHC132	I	6.05	6.81	4.31	3.31	2.00	1.75	0.75	2.00	1.09	32,800	214,000	16.3
XHC155N	I	6.05	6.41	4.31	3.31	2.00	1.75	0.63	2.50	1.13	35,000	230,000	19.0
XHC155	II	6.05	6.69	4.31	3.31	2.00	1.75	0.75/1.64	2.50	1.13	35,000	230,000	20.7
XHC155P	II Plus	6.05	6.69	4.31	3.31	2.00	1.75	0.75/1.64	2.50	1.13	35,000	230,000	23.0
XHC157	II	6.08	6.95	4.63	3.38	2.13	1.84	0.84/1.73	2.50	1.22	41,800	270,000	23.6
XHC157P	II Plus	6.08	6.95	4.63	3.38	2.13	1.84	0.84/1.73	2.50	1.22	41,800	270,000	24.8
XHC159P	II Plus	6.13	6.95	4.62	3.37	2.25	2.00	0.84/1.73	3.00	1.28	50,000	324,000	28.8

ESCO® XHC Series Chain - Spare Parts

Sidebar Pin Link Kits

Kit Part No.	Pattern No.	Chain No.	Weight	Alloy
4187869	CL124	XHC124	5.4	12E
4111557	CL132	XHC132	9.0	12E
4157703	CL155N	XHC155N	11.0	12M
4153069	CL155E	XHC155	12.5	12M
4153255	CL157B	XHC157	12.8	12M
4165029	CL159	XHC159	16.2	12E

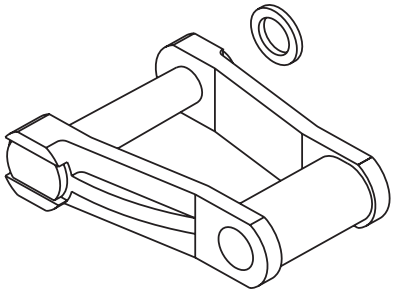
Kit consists of (2) each sidebar pins.
Rivet type connecting link provides the most positive fastening.
* Weld washers provided with XHC124 & XHC132 kits only.



Offset Link Assembly Kits

Kit Part No.	Pattern No.	Chain No.	Weight	Alloy
4113280	OL124	XHC124	5.1	12E
4113278	OL132	XHC132	8.2	12E
4113279	OL155	XHC155	10.0	12E
4186884	OL157	XHC157	11.4	12E
4166223	OL159	XHC159	14.0	12E

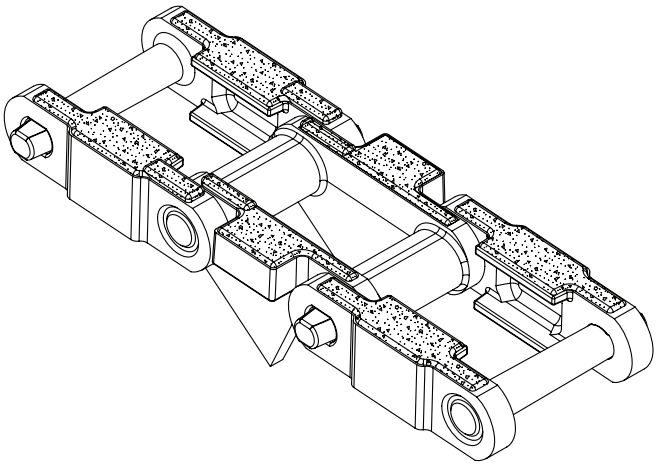
Kit consists of (1) each offset link, pin, and washer.
The offset link assembly kit permits the removal of a single pitch of slack combination chain. The offset link replaces (1) block link and (2) pair of sidebar/pins.



Hard-Faced Attachment Pin Kits

Kit Part No.	Attachment	Chain No.	Weight
4209749	S1	XHC155	37.86
4192833	S1B	XHC155	38.96
4209707	S1	XHC155P	41.6
4203138	S1	XHC157	40.9
4214016	S1	XHC157P	41.8
4235455	S1	XHC159	47.5

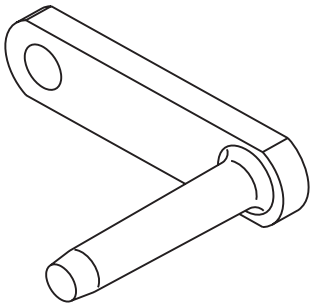
Kit consists of (1) each attachment and (4) each sidebar pin



Sidebar Pins - Only

Part No.	Pattern No.	Chain No.	Weight	Alloy
5102665	CL124	XHC124	2.6	12E
5102669	CL132	XHC132	4.5	12E
5126596	CL155NB	XHC155N	5.6	12M
5126674	CL155G	XHC155*	6.5	12M
5126750	CL157C	XHC157*	7.0	12M
5128937	CL159	XHC159	8.1	12M

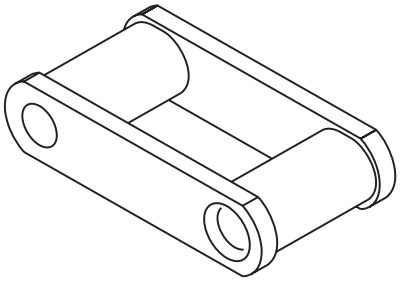
*Parts used on standard and plus series chain.
Use ESCO Sidebar Pin Kits. (see chart above)



ESCO® XHC Series Chain - Spare Parts

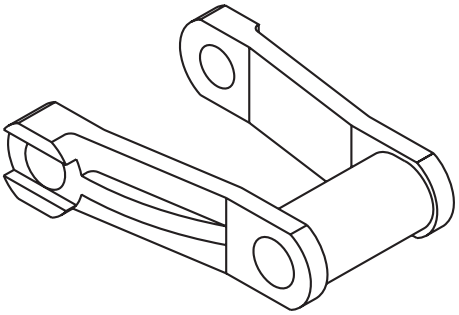
Block Links - Only

Part No.	Pattern No.	Chain No.	Weight	Alloy
5118295	BL124	XHC124	4.0	12M
5118195	BL132A	XHC132	6.7	12M
5114515	BL155	XHC155	7.6	12M
5126748	BL155PA	XHC155P	10.0	12M
5116958	BL157	XHC157	9.1	12M
5126752	BL157A	XHC157P	11.0	12M
5128936	BL159P	XHC159	12.6	12M



Offset Links - Only

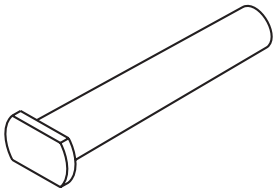
Part No.	Pattern No.	Chain No.	Weight	Alloy
5112860	OL132	XHC132	6.2	12E
5115055	OL155	XHC155	8.0	12E
5118547	OL157	XHC157	9.0	12E
5129013	OL159	XHC159	11.0	12E



Offset Link Pins - Only

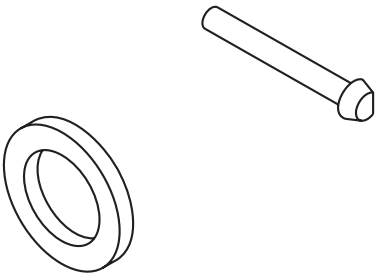
Part No.	Pattern No.	Chain No.	Weight	Alloy
4240177	OLP124	XHC124	1.0	4130
4240686	OLP132	XHC132	2.0	4130
4240686	OLP155	XHC155	2.0	4130
4240505	OLP157	XHC157	2.4	4130
4166222	OLP159	XHC159	2.6	4130

Use ESCO Offset Link Kits.



Offset Fasteners

Weld Washer	Chain No.
4010976	XHC124
4010808	XHC132
4005370	XHC155
4032765	XHC157
4032765	XHC159

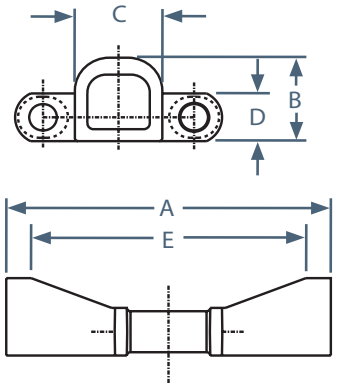


ESCO® XHC Series Chain - Integral Cast Attachments

C-Style Round Top Cradle

Pattern	Chain	A	B	C	D	E	Weight
BL15517C - 5136197	XHC155	17.00	3.25	3.50	2.50	10.00	28.7

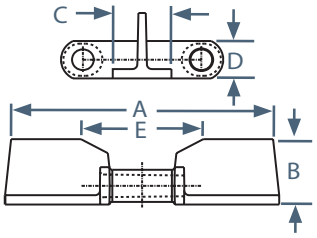
Note: Attachments can be trimmed to custom width.



A-Style Vertical Point Cradle

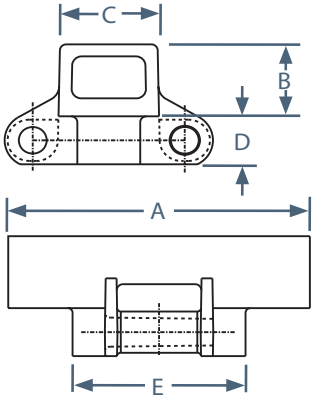
Pattern	Chain	A	B	C	D	E	Weight
X12109D - 5136153	XHC155	18.00	4.38	3.00	2.50	7.95	23.0

Note: Attachments can be trimmed to custom width.



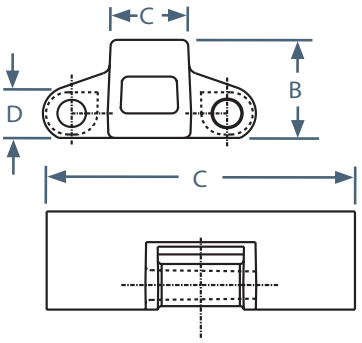
Drop Center Pulpwood Flight

Pattern	Chain	A	B	C	D	E	Weight
D32958 - 5126258	XHC155	6.38	2.00	2.50	2.50	7.75	16.5
D32986 - 5127092	XHC155	6.38	2.00	2.50	2.50	4.31	15.6
BL157AN01 - 5130497	XHC157	4.40	2.00	2.00	2.50	6.75	18.8
BL159AT1 - 5128939	XHC159	7.00	2.00	2.00	3.00	8.25	19.0
BL159AT10 - 5136123	XHC159	10.00	2.50	2.00	3.00	8.25	23.0



Flush Bottom Pulpwood Flights

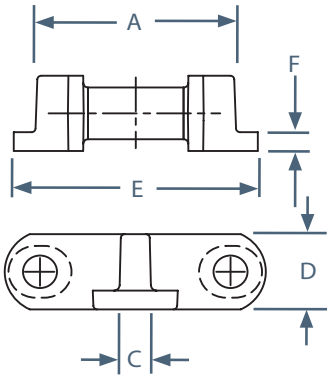
Pattern	Chain	A	B	C	D	E	Weight
D32958 - 5126258	XHC155	6.38	2.00	2.50	2.50	7.75	16.5
D32986 - 5127092	XHC155	6.38	2.00	2.50	2.50	4.31	15.6



ESCO® XHC Series Chain - Integral Cast Attachments

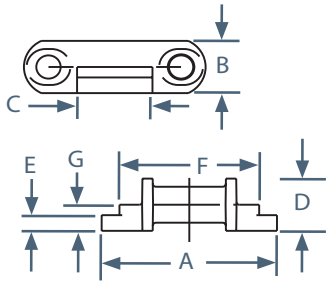
Block Links with Hold-down Clips

Pattern	Chain	A	B	C	D	E	F	Weight
D32959 - 5126259	XHC155	6.38	--	1	2.50	7.75	0.62	11.2



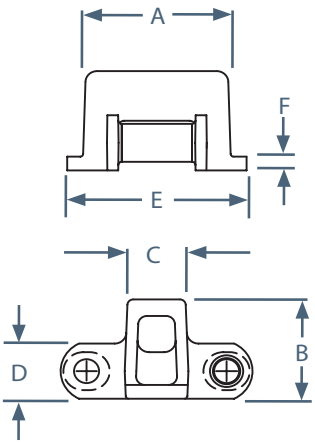
Block Links with Hold-down Clips

Pattern	Chain	A	B	C	D	E	F	G	Weight
BL155W-12K 5125567	XHC155	8.00	2.50	3.44	2.50	0.75	6.38	1.25	11.2
BL155WA-12K 5127768	XHC155	8.50	2.50	3.44	2.50	0.75	6.38	1.25	11.6



Flush Bottom Flights with Hold-down Clips

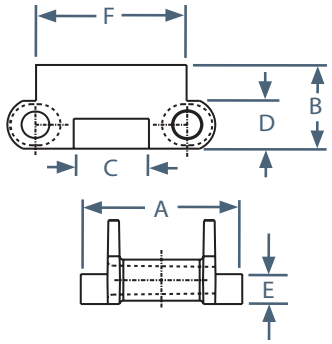
Pattern	Chain	A	B	C	D	E	F	Weight
D32958 - 5126258	XHC155	6.38	4.50	2.50	2.50	7.75	0.62	16.5
BL157AN01 - 5130497	XHC157	4.40	2.00	2.00	2.50	6.75	1.25	18.8
BL159AT1 - 5128939	XHC159	7.00	2.00	2.00	3.00	8.25	0.75	19.0
BL159AT10 - 5136123	XHC159	10.00	2.50	2.00	3.00	8.25	0.75	23.0



Integral Cast "M" Attachment with Side Wear Guide Pads

Pattern	Chain	A	B	C	D	E	F	Weight
BL155M325 - 5125529	XHC155	6.50	3.25	3.31	2.50	1.25	6.05	13.0
BL155M350 - 5125530	XHC155	6.50	3.50	3.31	2.50	1.25	6.05	13.5
BL155M400 - 5125531	XHC155	6.50	4.00	3.31	2.50	1.25	6.05	14.3
BL157M325 - 4231151	XHC157	6.95	3.25	3.37	2.50	1.25	6.08	13.3
BL157M350 - 4231149	XHC157	6.95	3.50	3.37	2.50	1.25	6.08	13.8
BL157M400 - 5120919	XHC157	6.95	4.00	3.37	2.50	1.25	6.08	14.8

ESCO 12K alloy steel

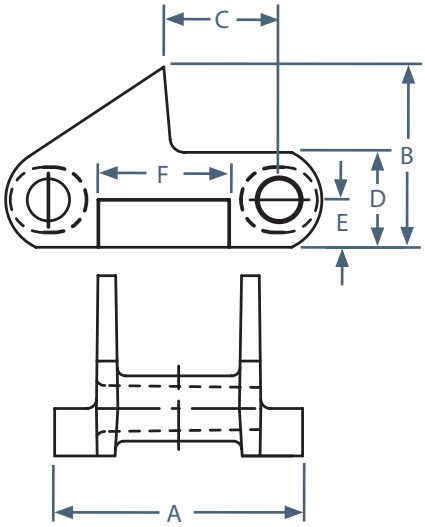


ESCO® XHC Series Chain - Integral Cast Attachments

Integral Cast S1 Attachment w/Side Wear Guide Pads

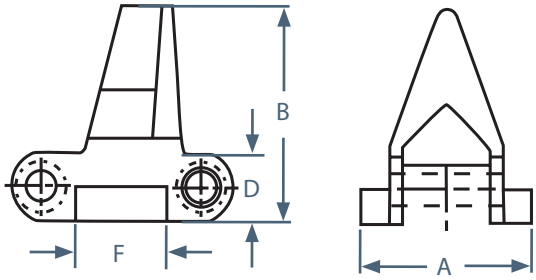
Pattern	Chain	A	B	C	D	E	F	Weight
E52709 - 5126550	XHC155	6.50	4.75	3.04	2.50	1.25	3.43	11.4
BL155S1B - 5118112	XHC155	6.50	5.25	0.50	2.50	1.25	3.43	13.0
E52769 - 5126616	XHC157	6.95	5.25	3.04	2.50	1.25	2.62	12.9
BL159S1 - 5130191	XHC159	6.88	5.38	3.06	3.00	1.50	2.63	15.1

ESCO® 12K alloy steel.
Note: Other height options are available as fabricated attachments.



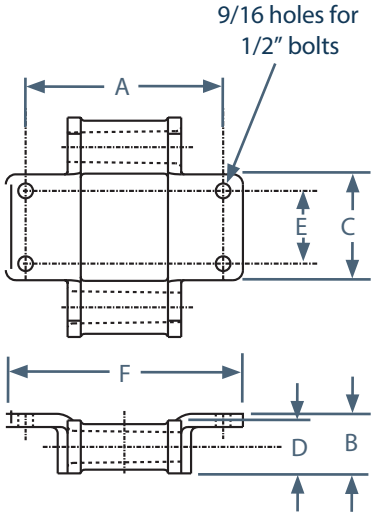
Integral Cast Slasher Deck Attachment

Pattern	Chain	A	B	C	D	E	F	Weight
BL155TP - 5126950	XHC155	6.50	8.00	na	2.50	na	3.43	15.0



Integral Cast K2 Attachment

Pattern	Chain	A	B	C	D	E	F	Weight
BL132K2 - 5100033	XHC132	7.50	2.25	4.00	2.00	2.75	9.00	9.5
BL155K2 - 5136155	XHC155	7.50	2.50	4.00	2.50	2.75	9.00	10.7

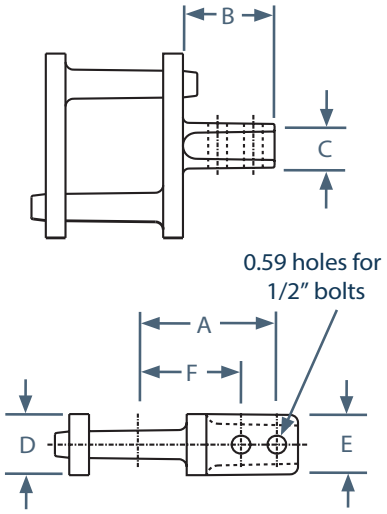


ESCO® XHC Series Chain - Integral Cast Attachments

Integral Cast S22 Attachment on Sidebar

Pattern	Chain	A	B	C	D	E	F	Weight
CL124S22 - 5120074	XHC124	4.38	2.88	1.43	2.00	1.94	3.25	4.5

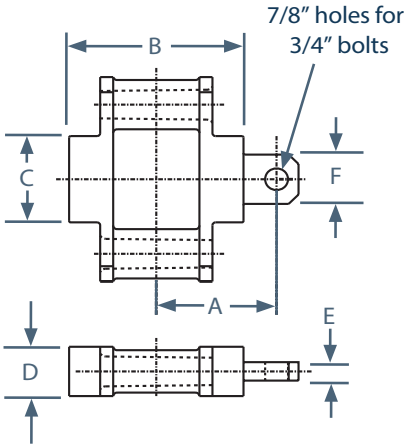
ESCO® 12F alloy steel.



Integral Cast Block Link w/A42 Grit Collector Attachment

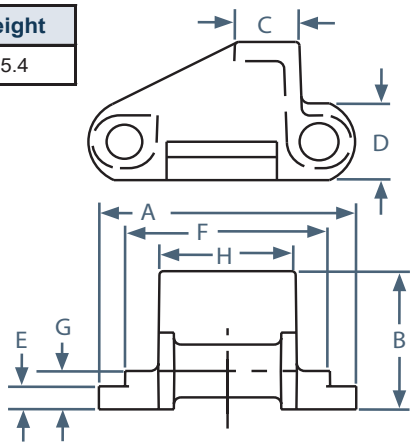
Pattern	Chain	A	B	C	D	E	F	Weight
BL132A42 - 5112505	XHC132	4.62	6.75	3.50	2.00	0.75	2.00	11.5
CL155A42 - 5131859	XHC155	5.50	6.69	3.00	2.50	1.00	2.00	8.6

Note: All cast attachments are made in ESCO 12M alloy unless otherwise noted.
Sidebar Only (not shown).

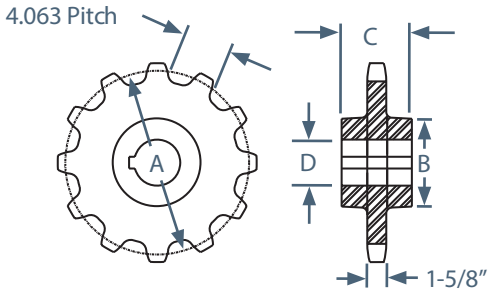


Integral Cast Pusher Attachment (Long Wood Applications)

Pattern	Chain	A	B	C	D	E	F	G	H	Weight
D32825A - 5128095	XHC155	8.00	5.00	2.00	2.50	0.75	6.38	1.25	4.23	15.4

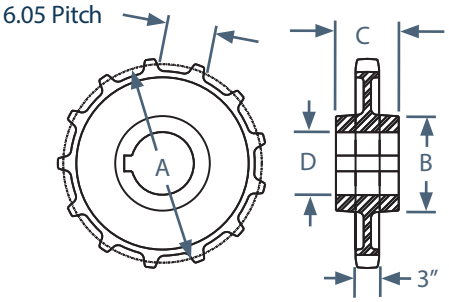


Sprockets For XHC Series Chain



Sprockets for XHC124 Chain

Pattern No.	No. of Teeth	Pitch Dia. A	Hub Dia. B	Hub Length C	Bore Range D Min	Bore Range D Max	Weight
X10602	10	13.15	7.50	6.00	2.44	5.44	121
X3401	11	14.42	7.50	6.00	2.44	5.44	128
X10601	12	15.70	7.50	6.00	2.94	5.44	137
X10725	14	18.23	7.50	7.00	2.44	5.44	160
X10726	19	24.68	7.50	7.00	2.44	5.44	227



Sprockets for XHC132, XHC155, XHC157 and XHC159 Chain

Pattern No.	No. of Teeth	Pitch Dia. A	Hub Dia. B	Hub Length C	Bore Range D Min	Bore Range D Max	Weight
X3924	9	17.69	8.25	8.00	2.44	6.00	220
X3924B	9	17.69	6.00	6.75	2.44	3.94	220
X4137 *	10	19.59	8.25	8.00	2.94	6.00	238
X3926	11	21.47	8.25	7.00	2.94	6.00	257
X3926K *	11	21.47	14.00	8.00	8.94	11.00	385
X4068 *	12	23.38	8.25	8.00	2.44	6.00	280
X4068J	12	23.38	10.50	9.88	4.99	8.00	368
X3925	13	25.28	8.50	8.00	2.94	6.00	285
X3925A	13	25.28	11.50	8.00	4.94	10.00	373
X3925B	13	25.28	14.00	11.00	9.44	12.00	515
14T132-6 *	14	27.19	14.00	9.00	6.44	12.00	490
X3923A	16	31.01	9.00	8.00	2.94	6.44	400

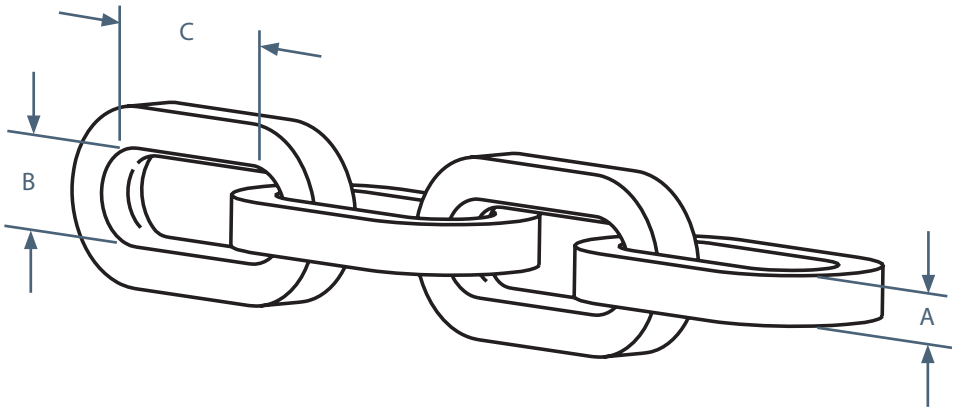
* These sprockets can be modified into split style.

ESCO® Long Link Chain

Since the 1930s ESCO has been a world leader in the production of long link chain systems.

The cornerstones of our success are…

- Alloy steel technology– chain systems are produced in high-strength/ high hardness alloy steels.
- Solution professionals – ability to service your special needs on a wide variety of applications.
- Lowering the cost of ownership – minimal maintenance and downtime, economic guarantees, longer life.
- Consistency of product – manufactured to strict quality standards.



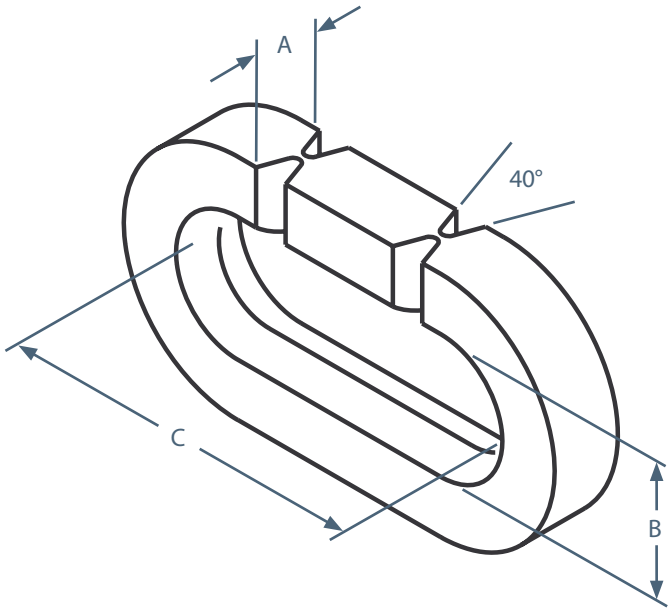
Maximum Recommended Work Load

A	B	C	12 Series Maximum Recommended Working Load (lbs)	Weight (lbs./ft.)
1-1/8	2	6	30,000	12.5
1-1/4	2	6	36,000	16.0
1-1/4	2	7	36,000	15.0
1-1/4	2	8	36,000	14.0
1-1/2	2-1/4	7	51,600	22.0
1-1/2	2-1/4	8	51,600	20.0
1-3/4	2-1/2	8	69,600	28.5
2-1/4	3-3/8	9-1/2	132,000	58.0

IMPORTANT: The maximum recommended working loads shown are based on pull test results. Chain systems must be able to handle surge and start-up loads even in the worn out condition.

Weld-Type Connecting Links

- For permanent application.
- Supplied in ESCO® Alloy 12E/12F to provide weldability and strength.



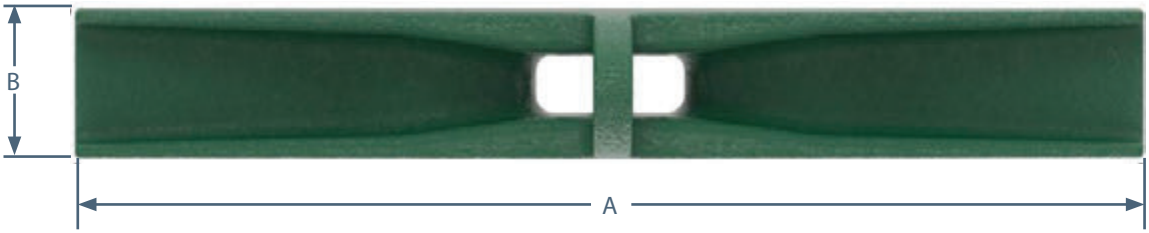
Weld Links

Part No.	Pattern No.	Chain Size	A	B	C	Weight	Alloy
4226002	WR1186	1-1/8 x 2 x 6	1-1/8	2	6	6.3	12F
4226003	WR1146	1-1/4 x 2 x 6	1-1/4	2	6	7.4	12F
4226004	WR1147	1-1/4 x 2 x 7	1-1/4	2	7	8.3	12F
4226005	WR1148	1-1/4 x 2 x 8	1-1/4	2	8	9.3	12F
4226006	WR1127	1-1/2 x 2-1/4 x 7	1-1/2	2-1/4	7	12.4	12F
4226007	WR1128	1-1/2 x 2-1/4 x 8	1-1/2	2-1/4	8	14.3	12F
4226008	WR1348	1-3/4 x 2-1/2 x 8	1-3/4	2-1/2	8	19.2	12F
4226009	WR214X912	2-1/4 x 3-3/8 x 9-1/2	2-1/4	3-3/8	9-1/2	44.1	12F

NOTE: *For installation instructions refer to ESCO Fiber Processing Maintenance, literature number P6002CNV. For weld instructions refer to ESCO Weld Procedures, literature number P6000GEN.*

Integral Cast Conveyor Flights

All ESCO® integral cast flights are made of series 12 alloys to give you the highest performance in your application.

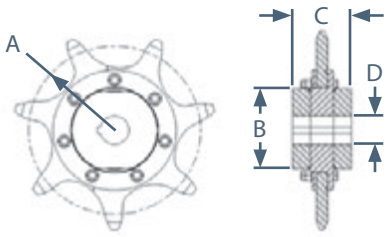


Conveyor Flights

CHAIN SIZE	Width A	Height B	WEIGHT	ALLOY
1-1/8 x 2 x 6	14.00 - 42.00	5.00	101	12S
1-1/4 x 2 x 6	14.00 - 42.00	5.00	101	12S
1-1/8 x 2 x 6	14.00 - 44.00	7.00	140	12S
1-1/4 x 2 x 6	14.00 - 44.00	7.00	140	12S
1-1/2 x 2-1/4 x 7	14.00 - 36.00	6.26 & 7.25	93 - 103	12S
1-3/4 x 2-1/2 x 8	32.00 - 42.00	7.38 & 8.00	148	12S
2-1/4 x 3-3/8 x 9-1/2	32.00 & 42.00	8.88 - 10.38	173 - 250	12S

Note: Weights shown are for maximum width.

Replaceable Ring Sprockets

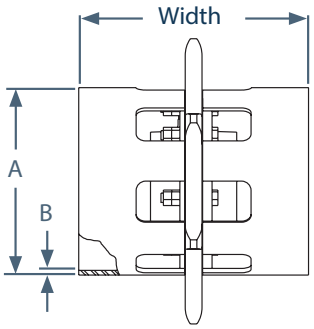


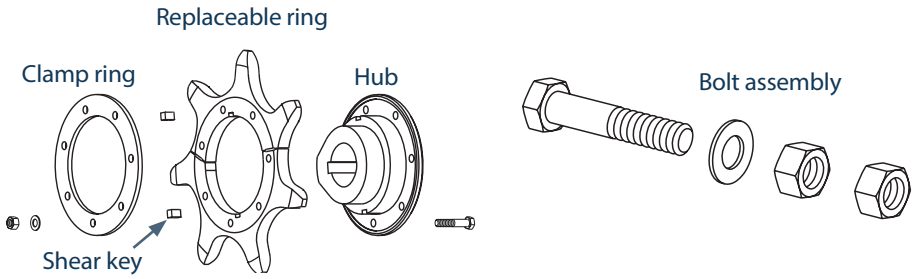
Sprockets without Flanges

Pattern Number	Chain Pitch	No. of Teeth	Pitch Radius A		Hub Diameter B		Hub Length C	Bore Range D		Weight
			Min	Max	Min	Max		Min	Max	
X3498	6	7	12.44	13.81	10.50	12.00	9.00	5.44	9.50	425
X3380	7	7	14.56	16.12	10.50	12.00	9.00	5.44	9.50	530
X10154	8	7	16.63	18.44	14.00	16.12	12.00	7.94	13.00	1070
X11141	9-1/2	7	19.73	21.89	19.00	20.50	12.00	7.00	15.00	1789

Sprockets with Flanges

Pattern Number	Chain Pitch	No. of Teeth	Diameter A	Flange Thickness B	Width	Bore Range	
						Min	Max
X3498	6	7	20.00	0.50	To Suit	5.44	9.5
X3380	7	7	23.25	0.50	Flight or	5.44	9.5
X10154	8	7	26.62	0.50	Conveyor	7.94	13
X11141	9-1/2	7	30.00	0.62	Width	7	15





Replacement Parts

Pattern Number	Chain Pitch	No. of Teeth	Hub Pattern	Replaceable Ring	Clamp Ring	Shear Key	Bolt Assembly
X3498	6	7	X3379	4202683	4017697	1x1x1-11/16	4017225 (7 req)
X3380	7	7	X3379	4200579	4017223	1x1x1-11/16	4017225 (7 req)
X10154	8	7	X10155	4202676*	4018121***	1-1/2x1-1/2x2-1/2	4018114 (7 req)
X11141	9-1/2	7	X11142	4204550**	4036824****	--	4157380 (12 req)

Note: Hubs are made to bore requirement.

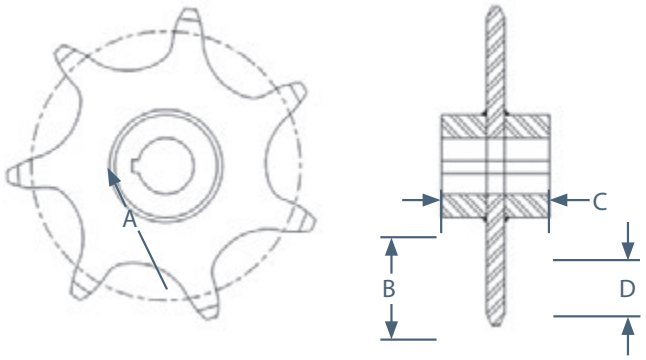
* Oversized Ring 4036183

** Oversized Ring 4036822

*** Oversized Ring 4036825

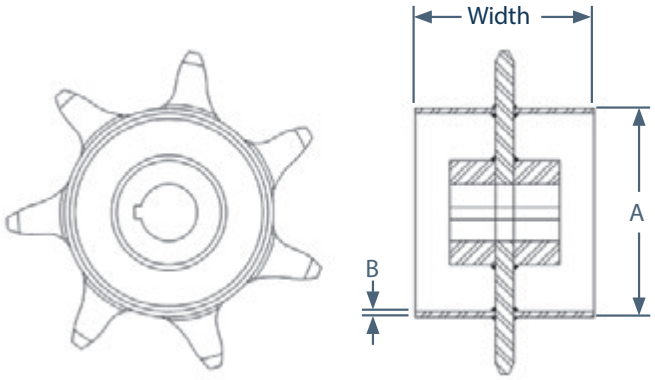
**** Oversized Ring 4036185

Integral Tooth Sprockets



Sprockets without Flanges

Pattern Number	Chain Pitch	No. of Teeth	Pitch Radius A		Hub Diameter B		Hub Length C		Bore Range D		Weight
			Min	Max	Min	Max	Min	Max	Min	Max	
X10776	6	7	12.44	13.81	8.50	12.00	8.50	11.50	3.94	9.50	290 - 479
X10777	7	7	14.56	16.12	8.50	12.50	8.50	12.50	3.94	9.00	425 - 498
X10778	8	7	16.63	18.44	10.50	10.50	10.50	10.50	4.94	8.00	565
X4164	8	7	16.63	18.44	7.00	15.00	8.00	14.00	5.00	11.00	540 - 800

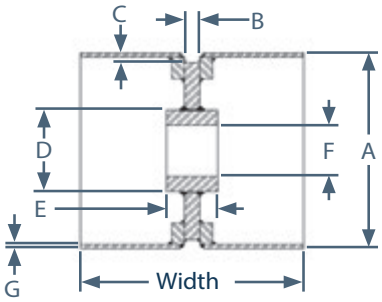


Sprockets with Flanges

Pattern Number	Chain Pitch	No. of Teeth	Diameter A	Flange Thickness B		Bore Range	
						Min	Max
X10776	6	7	20.00	0.50	To suit	3.94	9.50
X10777	7	7	22.50	0.50	flight or	3.94	9.00
X10778	8	7	26.00	0.50	conveyor	4.94	8.00
X4164	8	7	26.00	0.50	width	5.00	11.00

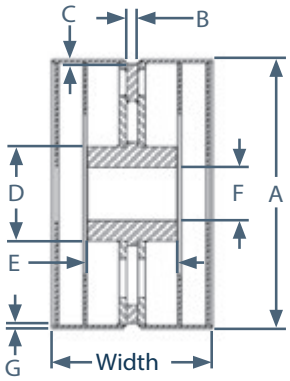
Note: ESCO recommends the Replaceable Ring Sprocket shown on the previous page.
The unique ESCO design provides the best overall value in long term maintenance.

Conveyor Drums



Heavy-duty Drum

Pattern Number	Drum Diameter A	"V" Width B	Groove Depth C	Hub Diameter D	Hub Length E	Bore Range F Min	Bore Range F Max	Flange Thickness G	Flange Width
X10897	20.00	1.56	1.12	8.50	6.00	2.44	6.00	0.50	To suit flight width or conveyor width
X10898	24.00	1.56	1.12	8.50	6.00	2.44	6.00	0.50	
X10899	30.00	1.56	1.12	8.50	6.00	2.44	6.00	0.50	



Extra Heavy-duty Drum

Pattern Number	Drum Diameter A	"V" Width B	Groove Depth C	Hub Diameter D	Hub Length E	Bore Range F Min	Bore Range F Max	Flange Thickness G	Flange Width
S3740	24.00	1.56	1.12	7.00 /12.00	6.88 /15.00	2.44	9.00	0.50	To suit flight width or conveyor width
S4107	30.00	1.56	1.12	7.00 /15.00	6.88 /15.00	2.44	11.00	0.50	
S4016	36.00	1.56	1.12	7.00 /15.00	6.88 /15.00	2.44	11.00	0.62	
X11135	42.00	2.50	1.12	16.00	16.00	5.94	12.00	0.75	
X10153	48.00	2.50	1.12	18.00	19.00	5.94	14.00	0.75	
X11122*	60.00	2.50	1.12	25.00	19.00	7.44	16.00	0.75	

Note: Drum is supplied with reinforcement discs for flange stability.

ESCO ® applies reinforcing rings for the following situations:

1. Pulpwood conveyors, head and tail drums only. The tail drum receives one ring at each end. The head drum receives two rings at each end, unless the flange width is less than 30 inches.

2. For flange strength on the extra heavy duty drum X11122.

ESCO® WDH Drag Chain

Problem Solving Material Handling Chains

ESCO WDH drag chain is a field-proven performer. WDH chain is available in standard and reverse barrel configurations to better match the application.

Cast Alloy Steel Barrels

- Large configuration increases c hain life and minimiz es w ear on chain components
- Thicker profile is designed not to split, cr ush, or cause unplanned sy stem do wntime
- Integrally cast plo w f ace pro vides bet ter scraping action

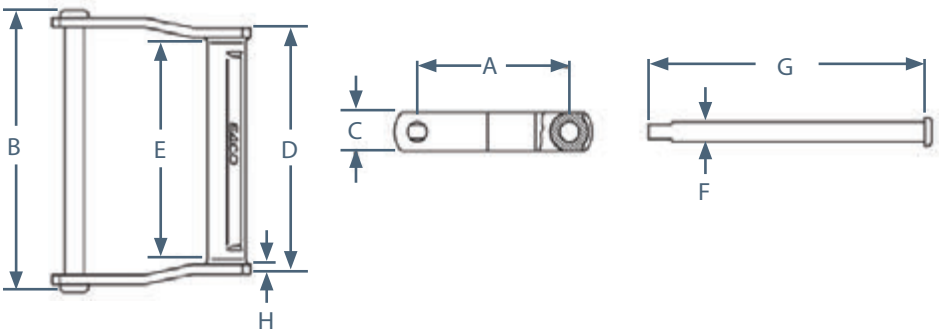
Pins Heat Treated to Exact ESCO Specifications

- Average 38 R ockw ell C hardness is an ideal matc h with full-hard allo y steel bar rels
- Side-bar pinhole and bar rel ha ve a no-step design to pro vide tot al cont act around the pin f or less pin f atigue and lo wer w ear rate
- Riv eted constr uction maximiz es strength

Optimize Chain Service

- A matched system will increase performance and reliability
- Request a quote that includes ESCO sprockets and traction wheels

Available in 10' strands with plain chain or with wings installed



ESCO Chain	A	B	C	D	E	F	G	H	Maximum Recommended Working Load (lbs)	Ultimate Strength (lbs)	Weight per Foot
WDH110	6.00	11.88	1.50	10.25	9.00	0.75	11.50	0.38	13,000	62,000	14.1
WDH580	8.00	14.50	2.00	12.75	11.25	1.00	14.50	0.50	21,000	114,500	22.8

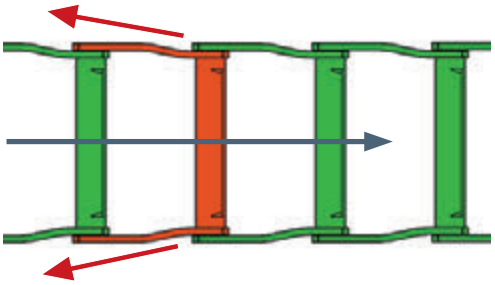
Note: WDH580 includes both Standard Barrel & Reverse Barrel

ESCO® WDH Drag Chain

ESCO® offers a reverse barrel option which may improve system performance in certain applications. Improved performance can only be determined by running a strand in the actual application. The potential benefits are as follows:

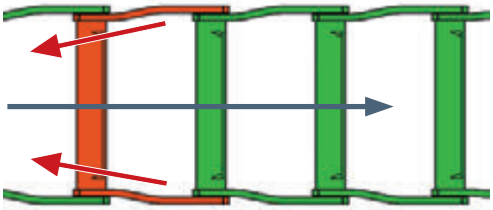
Standard barrel material flow

Chain travel direction



Reverse barrel material flow

Chain travel direction



- Barrel does not rotate against sprocket tooth for increased sprocket life
- Material is swept from the trough, reducing build-up for improved productivity
- Decreased drag load reduces energy consumption for reduced costs
- Reduced drive load for increased motor life, lowering maintenance costs

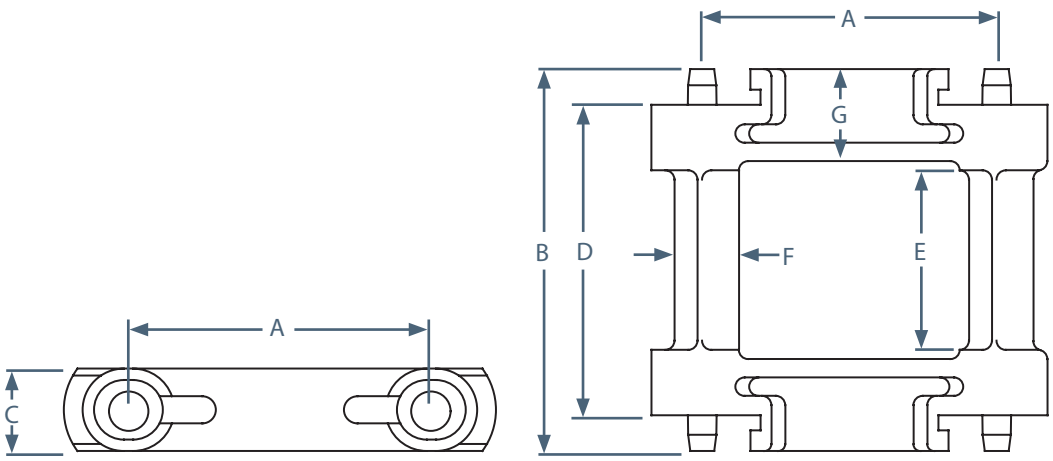
480 Class Chain Comparison

Manufacturer	Chain Number	Ultimate Strength* (lbs)	Maximum Recommended Working Load (lbs)	Width	SB Thickness	Pin Diameter	Weight per Foot
ESCO	WDH580	114,500	21,000	14.50	0.50	1.00	22.6
Rexnord	WD480	70,000	12,300	14.63	0.50	0.88	18.0
	WDH480	79,000	15,000	14.63	0.50	1.00	20.0
	WDH580	108,000	NA	14.63	0.50	1.00	20.0
Webster	WD480	70,000	11,700	14.63	0.50	0.88	18.1
	WDH480	90,000	15,000	14.63	0.50	0.88	18.1
	WDH580	123,000	20,500	14.38	0.50	1.00	19.4
Can-Am	WDH480	85,500	NA	14.50	0.50	1.00	21.5
	WDH480XHD	122,000	NA	15.25	0.63	1.00	23.0
MAC	WD480	85,000	NA	14.50	0.50	0.88	17.2
	WD480SM	85,500	NA	14.50	0.50	1.00	21.5
	WD480XHDMM	122,000	NA	15.25	0.63	1.00	25.0
Jeffrey	WD480	70,000	11,500	14.50	0.50	0.88	19.6
	WD480HP	101,000	16,500	14.50	0.50	1.00	19.9
	WD480XHDP	122,000	20,300	15.06	0.63	1.00	21.5

*Ultimate strength is based on actual pull test results.

IPC and IPC-TL Drag Chains

- Patented self-locking design mates large diameter bosses integrally cast with the sidebars with integrally cast block link sockets, eliminates old-style pins which can wear and break.
- IPC-TL style is reversible and can be turned for even longer wear life.
- Extra wear metal has been added to high wear areas, such as block link and sidebar sliding surfaces, for maximum service life.
- High hardness, high strength alloy steels —ESCO® IPC and IPC-TL drag chains are supplied in the strongest, hardest and most durable alloy steel available for conveying chains, ESCO alloy 12S.



ESCO Chain	Replaces Chain	A	B	C	D	E	F	G	Maximum Recommended Working Load (lbs)	Weight per Foot
IPC680	"H", "SD" and "WD"	8.00	15.00	2.25	13.50	11.37	1.50	1.81	20,000	26

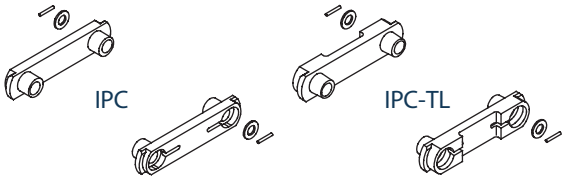
* IPC-TL design is reversible and can be flipped for added wear life.

IPC and IPC-TL Drag Chain Replacement Parts

Sidebars

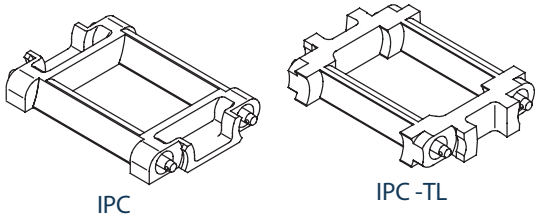
Part	Pattern	Chain	Weight	Alloy
5111701	IPC680SBM	IPC680	4.7	12S

Note: 2 each required per pitch



Block Links

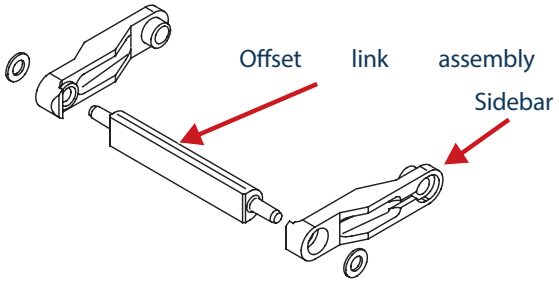
Part	Pattern	Chain	Weight	Alloy
5111700	IPC680BLM	IPC680	29	12S



Weld Type - Offset Link Assemblies

Part	Description	Chain	Weight	Alloy
4110334*	Kit	IPC680	18.0	12E
5112297	Side Bar	IPC680	5.0	12E
5106459	Offset Link Pin	IPC680	8.0	12E

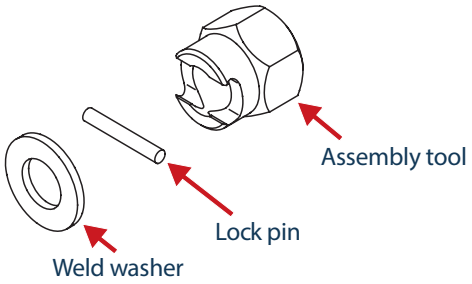
* Includes 2 each 5112297, 1 each 5106459 and 4 each 4019498.



Chain Fasteners

Weld Washer	Locking Pin	Chain	Assembly Tool
4155818	4004561	IPC680	4019381

Note: Assembly tool is required for initial installation only.



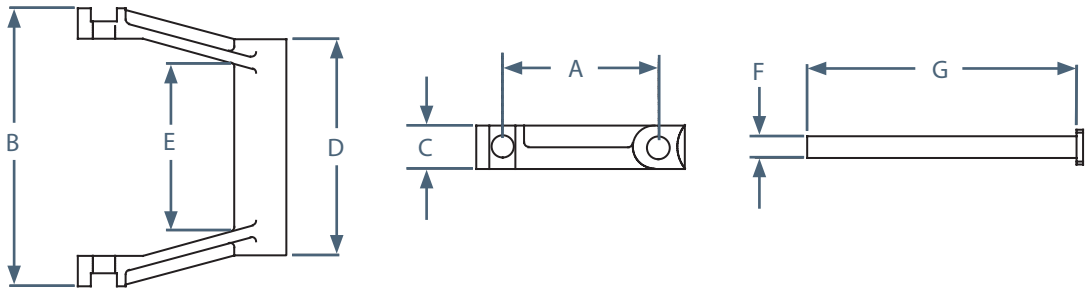
“H” Class Drag Chains

• **Design–**The face of each chain link has been designed to push materials forward

• **Extra** Thick Sidebars and Wear Pads **–** Increased service life by fighting abrasion and maximum strength.

• **Protective Wear Lugs** – Lugs have been added to protect both pin ends and yield increased bearing area and strength to combat wear and the potential for breakage.

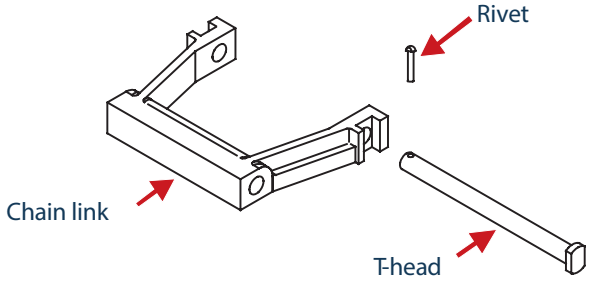
• **High Hardness, High Strength Alloy Steels** – Class drag chains are supplied in the strongest, hardest, and most durable alloy steel available for conveying chains – ESCO alloy 12S. ESCO® “H” class drag chains are also available in ESCO stainless steel alloy 49K for those applications where chains must operate between 540-960°C (1000-1750°F).



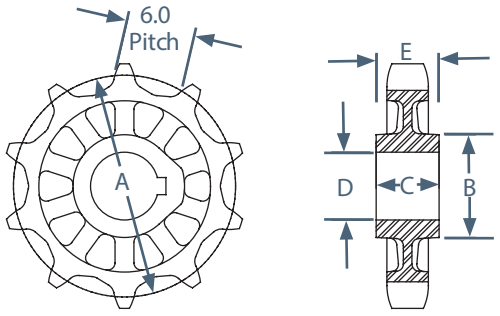
ESCO Chain	A	B	C	D	E	F	G	Maximum Recommended Working Load (lbs)	Ultimate Strength (lbs)	Weight per Foot
H123	9.00	12.00	2.50	8.50	6.50	1.25	11.50	23,500	140,000	35
H126-18	9.00	18.00	2.50	12.75	10.75	1.25	17.25	23,500	140,000	48

Replacement Parts

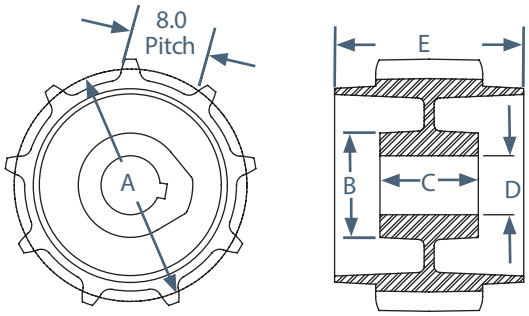
Chain Size	Chain Link	T-Head Pin	Rivet
H123	5129294	4055494	4055772
H126-18	5112774	4036501	4004139



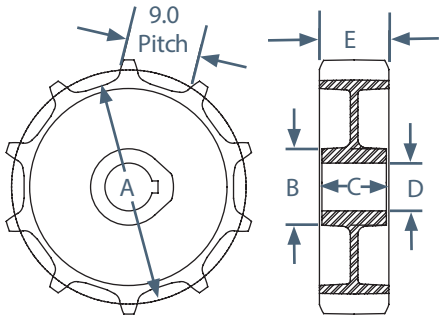
IPC/IPC-TL and “H” Class Drag Chains Sprockets and Traction Wheels



6″ Pitch chains



8″ Pitch chains



9″ Pitch chains

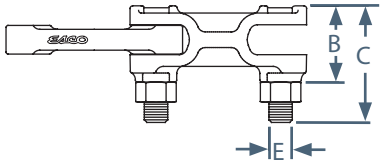
Sprockets and Traction Wheels

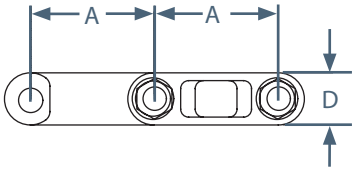
Chain Size	Chain Pitch	No. of Teeth	Pattern	Pitch Diameter A	Hub Dia min/max B	Hub Length min/max C	Bore min/max D	Overall Width E	Weight
IPC680	8"	9	FX10341	23.37	7.00 / 14.00	6.88 / 11.0	2.43 / 12.0	19.00	833
H123	9"	9	FX10806	26.25	7.00	7.00	2.94 / 4.94	6.25	590
H126	9"	9	F9T126-625	26.31	12.00	9.00	6.94 / 10.	10.00	718
H126	9"	9	F9T126-400	26.31	12.00	9.00	6.94 / 10	10.00	764
H126	9"	11	F11T126-625	31.95	9.50	8.00	6.94	10.00	725
Traction Wheels									
IPC680	8"	N/A	FX10342A	23.37	7.00 / 14.00	6.88 / 11.0	2.43 / 12.0	19.00	635

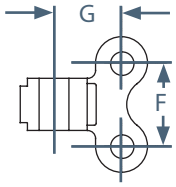
Low Flow Bath Chains

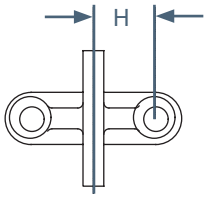
The following unique features and benefits of the patented ESCO® Low Flow Bath Chains are designed to yield the lowest cost of total operation in coal preparation plants using heavy media separation vessels.

- High hardness, high strength alloy steels resist the corrosive elements associated with most low flow bath applications.
- Patented design yields a minimum of 69% more bearing area in critical wear points for maximum service life.
- Integrally cast collars eliminate loose fits, which results in longer wear life.
- Oversized hard chrome pins offer maximum corrosion, wear and breakage resistance.



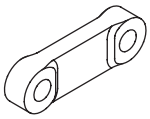


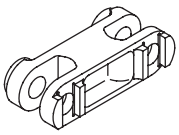


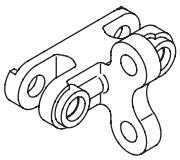


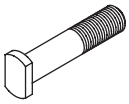
ESCO Chain	A	B	C	D	E	F	G	H	Maximum Recommended Working Load (lbs)	Ultimate Strength (lbs)	Weight per Foot
5310HD	6.0	3.66	5.63	2.50	1.125	--	--	--	34,000	240,000	17.7
5310HD-Att	--	--	--	--	--	4.0	3.25	2.98	34,000	240,000	23.2*

*Attachment weight based on 2 inch spacing; weight will vary on other spacing.


Bar link closed


Bar link open


Attachment link


T-head


Locknut

Low Flow Bath Chain Replacement Parts

Part No.	Pattern	Description	Weight
5116976	X12146	Bar Link - Closed	5.6
5116975	X12145	Bar Link - Open	8.0
5121203	E50014	Attachment	11.0
4067179	–	T-Head Pin	1.6
3015068	–	Lock Nut	–
3017457*	–	Lock Nut, Nylon	–

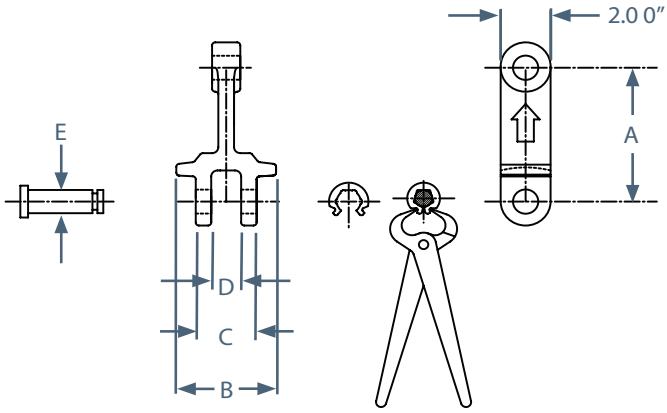
*Nylon lock nut.

142mm Bulk Material Handling Chain

This unique cast chain design offers the lowest total cost of ownership.

- Direct replacement for all 142mm fabricated chains – will work with your standard 142mm sprockets and traction wheels.
- Patented design yields a minimum of 69% more bearing area in critical wear points for maximum service life.
- Maintenance is easy with the simple snap ring assembly design – links can be removed from the chain strand one (1)line at a time.
- Performance guarantees available upon review of your application.

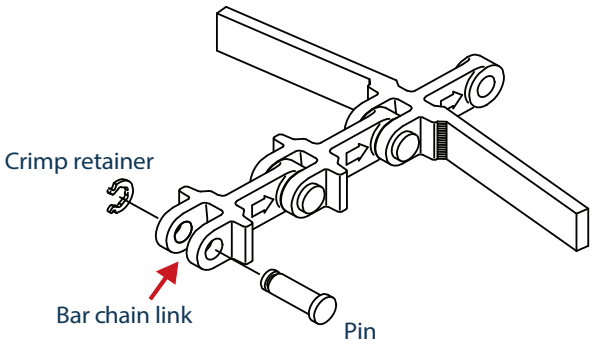
ESCO Chain	A	B	C	D	E	Weight Per Foot
142BH	5.59	4.00	2.44	1.20	0.97	12.8

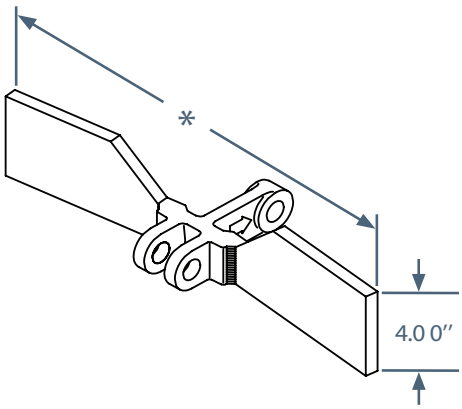


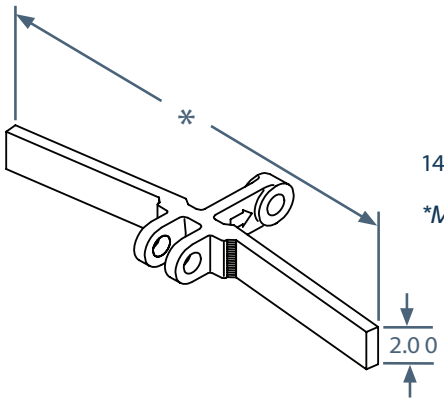
142BH Chain Replacement Parts

Part	Pattern	Description	Weight
5139589	142BH	Bar Chain Link	4.4
4114136	–	Pin	0.7
4156767	–	Crimp Retainer	0.04
5137820	Wing Attach	2" x 18"	10.4
5138621	Wing Attach	2" x 22.25"	11.7
5138622	Wing Attach	4" x 22.25"	12.9

Note: Wing Attachments can be trimmed to spec







142BH Chain Fabricated Attachment Options

**Made to width.*

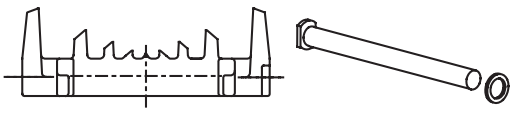
"H" Type Debarker Chains

- ESC O® heavy-duty debarker chain has been specifically designed to provide extended service life and more efficient debarker operation.
- Chairs are made with ESCO 12M alloy steel to provide maximum strength, abrasion resistance and ability to withstand severe impact.
- ESCO cast chain is specially designed with more metal on the bottom and outer running surfaces for greater bearing area on the trough.
- Pins are retained with weld washers to eliminate cracking and fatigue from riveting.

Nicholson Debarkers

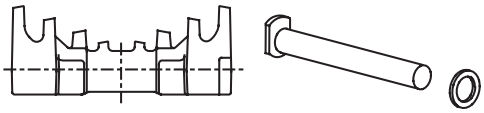
Model A1/77 (22", 27", 35"), A2 (22", 27", 35"), A6 and Early Accumat Machines (34", 43")

ESCO® Pattern No.	ESCO Part No.	OEM Part No.	Chain Pitch	Description	Weight
X10176A	4002615	B-19242	5.00	29P Strand	958
X10176A	5106377	1-2-76D112	5.00	Log Flight	27.5
--	4010965	1-2-76A113	--	T-Head	5.5
--	4010977	1-2-73A114	--	Weld Washer	0.1



18", 20", 22" and Accumat Machines

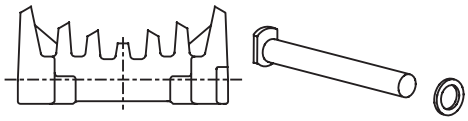
ESCO Pattern No.	ESCO Part No.	OEM Part No.	Chain Pitch	Description	Weight
X4015A	4002610	I-273C	3.13	35P Strand	519
X4015A	4002612	B19382	3.13	36P Strand	534
X4015A	5107345	1-2-73C18	3.13	Log Flight	12
--	4010809	1-2-73B19	--	T-Head Pin	2.8
--	4032765	1-2-73A23	--	Weld Washer	0.1



Salem Debarkers

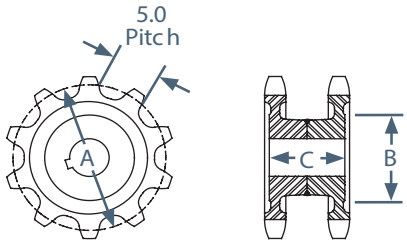
21", 27", and 35" Machines

ESCO Pattern No.	ESCO Part No.	OEM Part No.	Chain Pitch	Description	Weight
X10252	4002616	C7440	4.00	28P Strand	754
X10252	4002617	C7440	4.00	31P Strand	587
X10252	5106402	C7440	4.00	Log Flight	16
--	4010809	--	--	T-Head Pin	2.8
--	4032765	--	--	Weld Washer	0.1



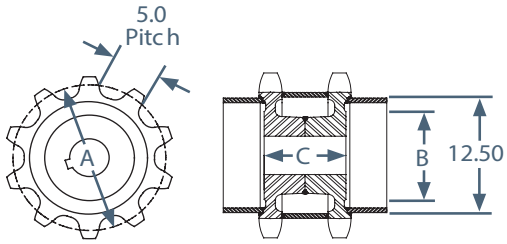
“H” Type Debarker Chain Cast Sprockets

Nicholson Debarkers



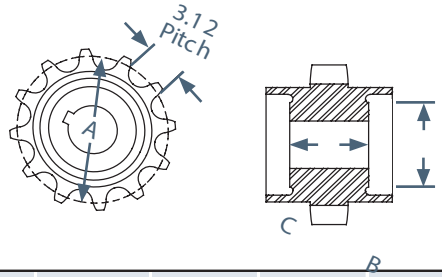
10T5P225 Sprocket without Flanges

ESCO Pattern No.	OEM Part No.	For Debarker	No. of Teeth	Pitch Dia. A	Hub Dia. B	Hub Length C		Weight
10T5P225	1-2-11D58	X10176	10	16.18	7.00	8.00	3.44	271
10T5P225	1-2-11D6B	X10176	10	16.18	7.00	8.00	2.44	271
10T5P225	1-2-31D98	X10176	10	16.18	7.00	8.00	4.19	271
10T5P225	1-2-76D49	X10176	10	16.18	7.00	8.00	4.94	271



10T5P225 with Flanges

ESCO Pattern No.	OEM Part No.	For Debarker	No. of Teeth	Pitch Dia. A	Hub Dia. B	Hub Length C	Bore Size	Weight
10T5P225	1-2-11D58	X10176	10	16.18	7.00	8.00	3.44	467
10T5P225	1-2-11D6B	X10176	10	16.18	7.00	8.00	2.44	467
10T5P225	1-2-31D98	X10176	10	16.18	7.00	8.00	4.19	467
10T5P225	1-2-76D49	X10176	10	16.18	7.00	8.00	4.94	467



ESCO Pattern No.	OEM Part No.	For Debarker	No. of Teeth	Pitch Dia. A	Hub Dia. B	Hub Length C	Bore Size	Weight
X4018	1-2-56C8	X4015A	12	12.07	7.00	6.25	3.94	171
X4018	1-2-705	X4015A	12	12.07	7.00	6.25	3.88	171

KILN CHAINS

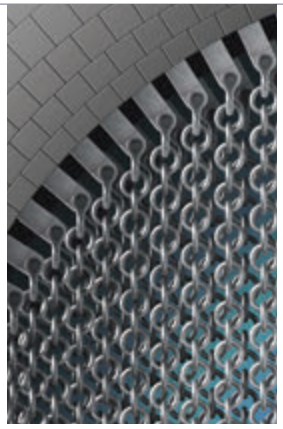
PRÜNTE Kettenwerk GmbH & Co. KG is a manufacturer of welded rotary kiln chains. The company's origins go back to the year 1887 kiln chains are used in the cement, paper, metallurgical and chemical industry. In addition to heat-resistant and standard chains from alloy stell, **PRÜNTE Kettenwerk** supplies all kinds of accessories and fastenings forrotary kiln chains. Mainly in forged execution.

PRÜNTE Kettenwerk delivers worldwide, first-class chains for wet and dry process kilns. We guarantee maximum service life for our chains and accessories, depending on the different material qualities and dimensions. Process monitoring guarantees perfect welds of the oven chains in compliance with the defined welding parameters. The oval chains are frequently used also as curtain chain / spillage protection.

Based on more than 50 years of experience in the collaboration with the cement industry all over the world, **PRÜNTE Kettenwerk** is a leading specialist for the production, design and control of kiln chain systems. With the know-how of **PRÜNTE Kettenwerk**, we are able to optimize the efficiency of the oven systems.

PRÜNTE Kettenwerk has been part of the **HEKO Group** since the year 2004.

Rotary Kilns - Kiln chains, Hangers and Shackles



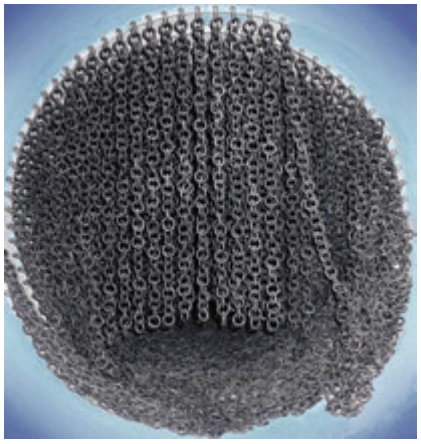
Hanger – segment type

Forged single hanger

MATERIAL SPECIFICATIONS

	German material number (DIN)	US stand-ard AISI	chemical composition average in %						heat resistance – gas stream				recommended installation in the kiln	for kilns with oil or gas firing	for kilns with coal-, pet coke- or waste firing
									min.		max.				
			C	Si	Mn	Cr	Ni	Al	°C	°F	°C	°F			
Carbon steel	1.0035	C 1008	0.20 max.	0.30 max.	0.30	–	–	–	–	–	500	932	dust curtain plastic zone	•	•
	1.0402	C 1022	0.22	0.20	0.40	–	–	–	–	–	500	932		•	•
	1.0501	C 1035	0.35	0.20	0.70	–	–	–	–	–	500	932		•	•
	1.6523	8620	0.20	0.30	0.70	0.50	0.55	–	–	–	550	1022		•	•
Ferritic material	1.4724	9F	0.10	1.00	1.00 max.	13.00	–	1.00	500	932	900	1742	preheating zone	•	–
	1.4742	10 F	0.10	1.00	1.00 max.	18.00	–	1.00	800	1472	1100	2012	hot zone	•	–
Austenitic Cr-Ni-Mn steel	1.4892	85 MA	0.20	1.00	8.00	17.00	4.00	–	500	932	850	1562	preheating zone	•	•
	1.4872-93 (1.4892)	105 MA	0.20	0.45	9.00	20.00	4.50	–	750	1382	1050	1922	hot zone	•	•
	1.4872-91 (1.4892)	115 MA	0.20	0.80	9.00	25.00	6.00	–	850	1562	1200	2192	hot zone	•	•
Austenitic steel	1.4301	304	0.05	1.00 max.	2.00 max.	18.00	8.00	–	500	932	850	1562	preheating zone	•	•
	1.4541	321	0.10	1.00	2.00 max.	18.00	10.50	–	500	932	850	1562	preheating zone	•	•
	1.4828	–	0.15	2.00	2.00 max.	20.00	12.00	–	750	1382	1050	1922	hot zone	•	•
	1.4841	310	0.15	2.00	2.00 max.	25.00	20.00	–	800	1472	1200	2192	hot zone	•	•

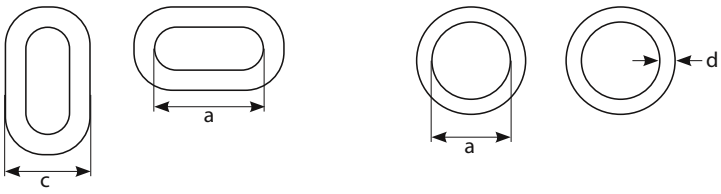
Other alloys on request.



Oval type chain for kilns and as curtain chains

Diameter (d)	mm inch	20 3/4"		23 7/8"	25 1"	26 1"	28 1 1/8"	30 1 3/16"
pitch (a)	mm	70	80	80	120	91	98	105
	inch	2 3/4"	3 1/8"	3 1/8"	4 3/4"	3 19/32"	3 7/8"	4 5/32"
outside width (c)	mm	67	69	77	100	89	101	106
	inch	2 3/5"	2 7/10"	3"	4"	3 1/2"	4"	4 1/5"
Weight per chain link	approx. kgs	0.573	0.624	0.864	1.48	1.274	1.617	1.995
	approx. pound	1.26	1.38	1.91	3.26	2.81	3.56	4.40
Weight per met er	approx. kgs	8.2	7.8	10.8	12.33	14.0	16.5	19.0
	approx. pound	18.08	17.20	23.81	27.17	30.87	36.38	41.90
Number of chain links	approx. per met er	14.3	12.5	12.5	8.33	10.99	10.20	9.52
	approx. per f oot	4.35	3.81	3.81	2.54	3.35	3.11	2.90
Surf ace each chain link	approx. per cm^3	147	159	193	295	248	288	331
	approx. per $inch^3$	22.7	24.7	30	45.7	38.4	44.6	51.2
Surf ace per	meter appr ox. cm^3	2098	1991	2415	2458	2723	2935	3147
	1 foot approx. $inch^3$	0.686	0.653	0.793	0.806	0.894	0.963	1.032

Other sizes on r equest.

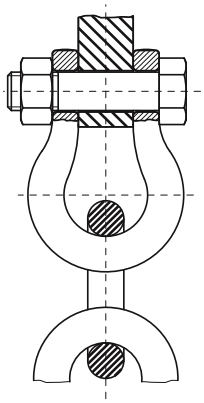


Round link type

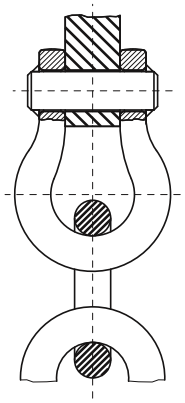
Diameter (d)	mm inch	19 3/4"		20 3/4"			22 7/8"		23 7/8"	25 1"				28 1 1/8"	30 1 3/16"
pitch (a)	mm	70	76	65	80	100	76	80	76	76	80	89	100	100	100
	inch	2 3/4"	3"	2 9/16"	3 1/8"	4"	3"	3 1/8"	3"	3"	3 1/8"	3 1/2"	4"	4"	4"
Weight per ring	approx. kgs	0.62	0.66	0.66	0.77	0.93	0.92	0.96	1.02	1.22	1.27	1.38	1.51	1.94	2.27
	approx. pound	1.36	1.46	1.45	1.71	2.05	2.02	2.11	2.25	2.69	2.80	3.04	3.33	4.27	4.99
Weight per met er	approx. kgs	8.86	8.69	10.13	9.68	9.25	12.11	12.00	13.42	16.06	15.87	15.51	15.10	19.40	22.70
	approx. pound	19.54	19.16	22.33	21.35	20.49	26.58	26.46	29.60	35.40	35.00	34.20	33.30	42.68	49.94
Number of rings	approx. per met er	14.30	13.16	15.38	12.50	10.00	13.16	12.50	13.16	13.16	12.50	11.24	10.00	10.00	10.00
	approx. per f oot	4.36	4.01	4.69	3.81	3.05	4.01	3.81	4.01	4.01	3.81	3.43	3.05	3.05	3.05
Surf ace each ring	approx. cm^3	167	178	168	197	237	213	221	224.70	249	259	281	308	353	385
	approx. each $inch^3$	26	27.6	26	31	37	33	34.3	34.8	38.6	40.1	43.6	47.8	54.8	59.6
Surf ace each	meter appr ox. cm^3	2388	2344	2580	2467	2369	2803	2766	2957	3279	3235	3161	3081	3534	3845
	1 foot approx. $inch^3$	0.786	0.769	0.847	0.810	0.778	0.917	0.907	0.970	1.075	1.06	1.039	1.012	1.160	1.262

Other sizes on r equest.

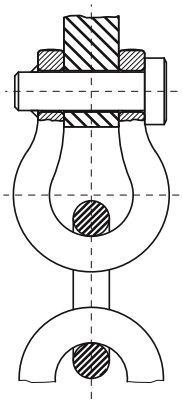
Shackles for Chain Fastening



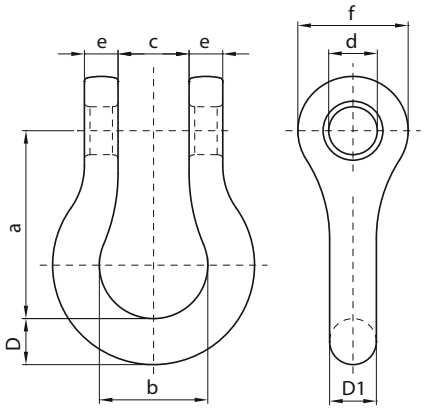
Execution (A)
with bolt and thr ead



Execution (B)
with plain pin



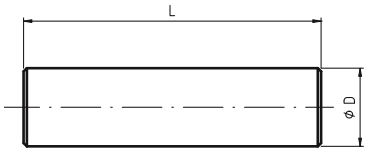
Execution (C)
with head bolt



Shackle number	weight (kg)	dimensions (mm) a	b	c	d	D / D1	e	f
1216	0.75	95	50	34.0	22	19	14	45
947	1.05	100	55	36.5	26	22	16	52
947-30	1.05	100	57	30.0	25	24	17	52
947-37	1.05	100	57	37.0	28	24	17	52
950	1.50	102	58	38.0	29	25	18	59

Other sizes on r equest.

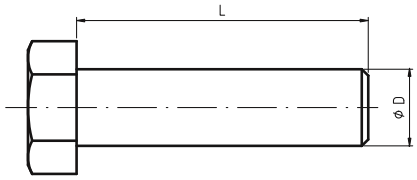
Bolts for the shackle, hangers and segments



Plain bolt

For shackle no.	dimensions (mm) D Ø	L	weight (kg)
1216	20	85	0.210
947	24	92	0.327
950	27	100	0.450

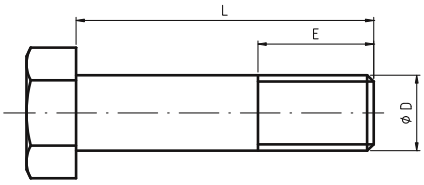
Other sizes on r equest.



Bolt without thr ead

For shackle no.	dimensions (mm) D Ø	L	weight (kg)
1216	20	80	0.300
947	24	90	0.480
950	27	95	0.640

Other sizes on r equest.



Bolt with thr ead

For shackle no.	dimensions (mm) D Ø	L	E	weight (kg)
1216	20	90	30	0.330
947	24	100	35	0.547
–	24	220	50	0.800
950	27	105	35	0.750

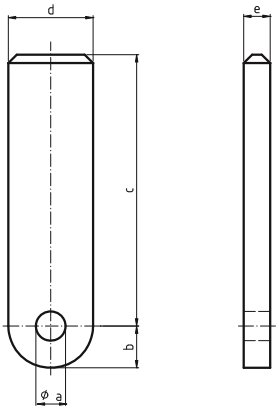
Other sizes on r equest.

Hanger for kiln shell fastening

Hanger type	dimensions (mm) a Ø	b	c	d	e	weight (kg)
Mod. 1	30.0	60	195	80	25	3.6
Mod. 2	30.0	70	70	100	25	2.0
Mod. 3	29.0	60	220	88/120	25	6.1
Mod. 4	29.0	60	150	88/120	25	4.6

Other dimensions (f or example, the segment) on r equest

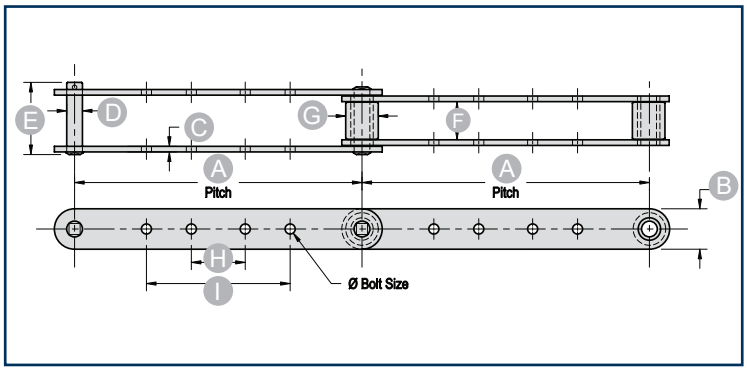
Tolerances f or all w eights and measur ements: +/- 6%



STEEL BUSHED ROLLER CHAIN

Extended Pitch Sorter Chain 3939 Series

- Fully Heat-Treated Superior Alloy Steel
- Solid Bushings and Rollers
- Quad Staked Rivet Design



Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Max. Sprocket Thickness	G Roller Diameter	H Inner Holes C - C	I Outer Holes C - C	0 Bolt Size
M3939	8.000	24,000	1 1/8	5/32	7/16	2 1/8	1	29/32	1 1/2	4	9/32
M3939-HD	8.000	37,000	1 1/8	5/32	7/16	2 9/16	1	29/32	1 1/2	4	9/32

All dimensions shown in inches unless noted otherwise.

Extended Pitch Sorter Chain 9" Pitch

- Fully Heat-Treated Superior Alloy Steel
- Solid Bushings and Rollers
- Quad Staked Rivet Design

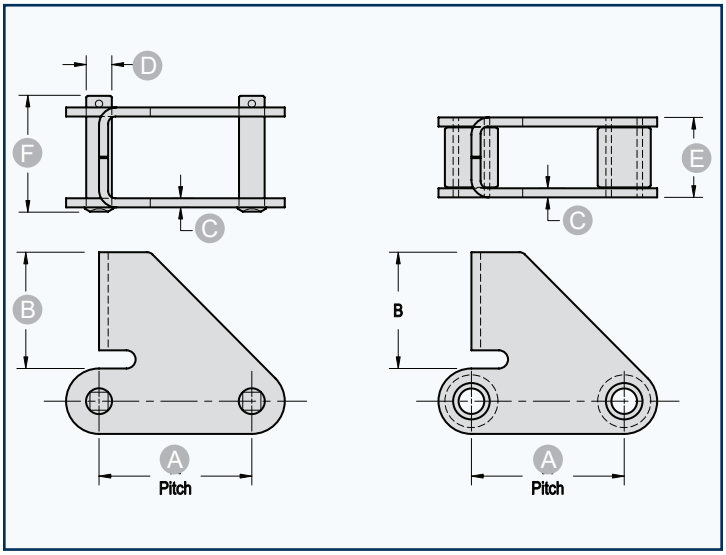
Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C1 Sidebar Thickness	C2 Sidebar Thickness	D Rivet Diameter	E Overall Width	F Max. Sprocket Thickness	G Roller Diameter	H Inner Holes C - C	0 Bolt Size	Links per Foot	AVG Weight per Foot (pounds)
M900	9.000	28,000	1.580	.170	.200	3/4	2 3/16	5/8	1 7/8	4	3/8	1.33	3.1

All dimensions shown in inches unless noted otherwise.

STEEL BUSHED ROLLER CHAIN ATTACHMENTS

81X Integral Pusher Lug

81X Integral Pusher Lugs are used in many sawmill applications.



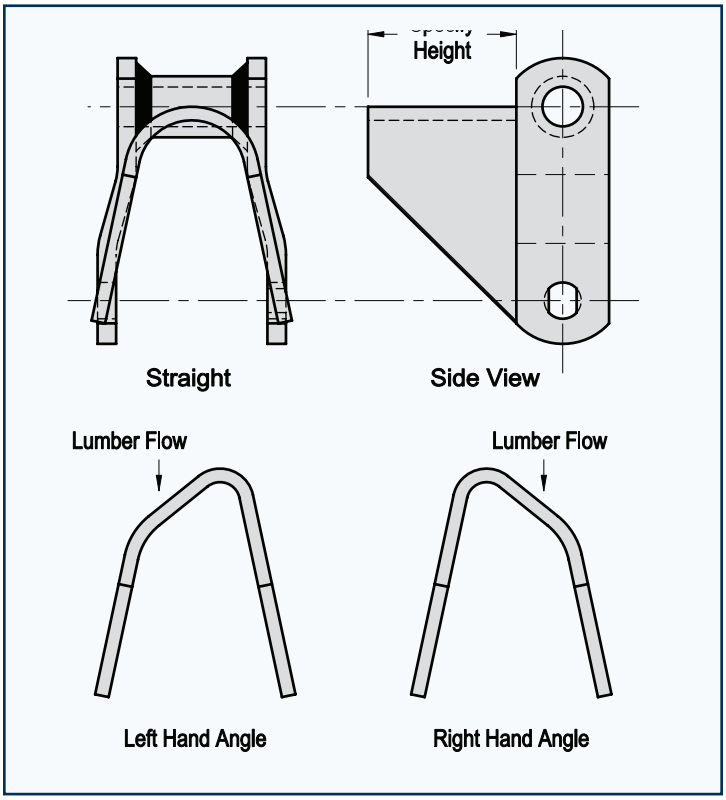
Part Number	For Chain Number	A AVG Pitch	B Pusher Height	C Sidebar Thickness	D Rivet Diameter	E Roller Link Width	F Conn Link Width	Links per Foot	AVG Weight per Foot (pounds)
81X Integral Pusher Lug	81X	2.609	2	5/32	7/16	1 3/8	2 1/8	4.6	1.0

All dimensions shown in inches unless noted otherwise.

Fabricated Steel Bullnose Pusher Lug

Fabricated Steel Bullnose Pusher Lugs are used in many sawmill applications.

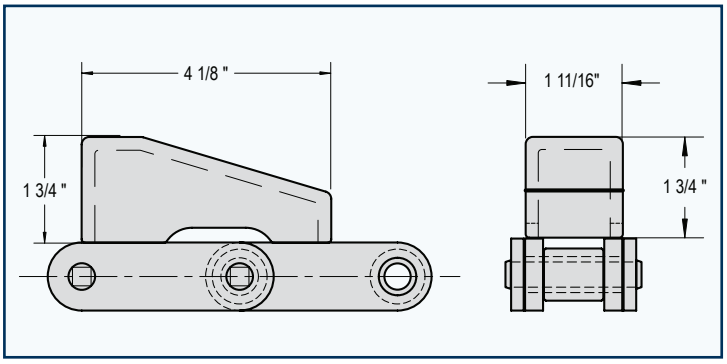
- Taper or Square Back
- Standard Heights: 2", 2.5", 3"
- Custom sizes available
- For Chain Numbers: 81X1, 81XHD, 81XXHD, WR78, LXS882



TRIMMER
CHAIN ATTACHMENTS

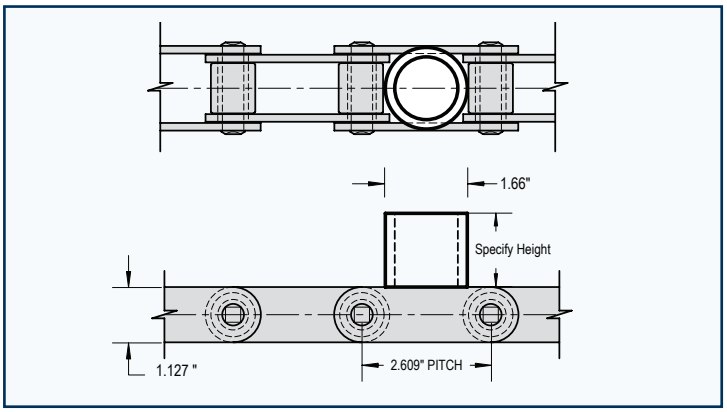
"327"Cast Steel Pusher Lug

327 Cast Steel Pusher Lugs are used in many sawmill applications. The 327 Pusher Lugs are best suited for 81X, 81XHD, 81XXHD, WR78 and LXS882 series chain.



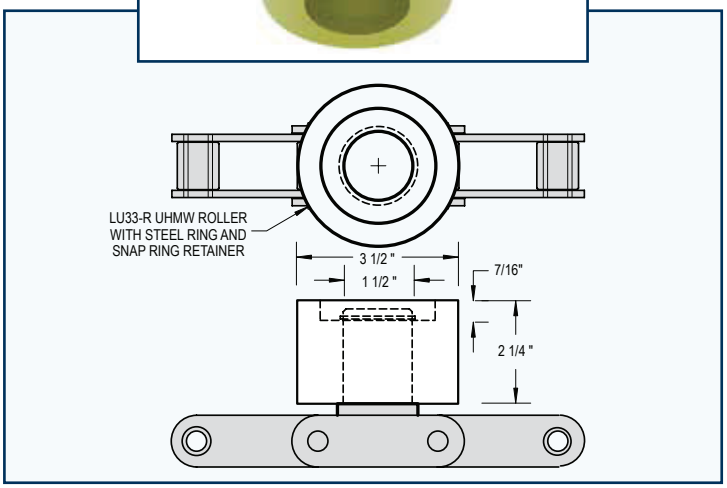
Pipe Pusher Lugs

- For Chain Numbers: 81X1, 81XHD, 81XXHD, WR78, LXS882

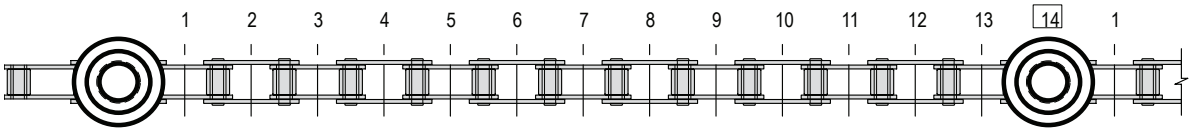


UHMW Roller Lugs

- Outside diameter and heights can be manufactured to specific requirements
- Rollers can be attached by snap ring or weld washer
- Ideal for use on the following chains: C2060H, C2080H



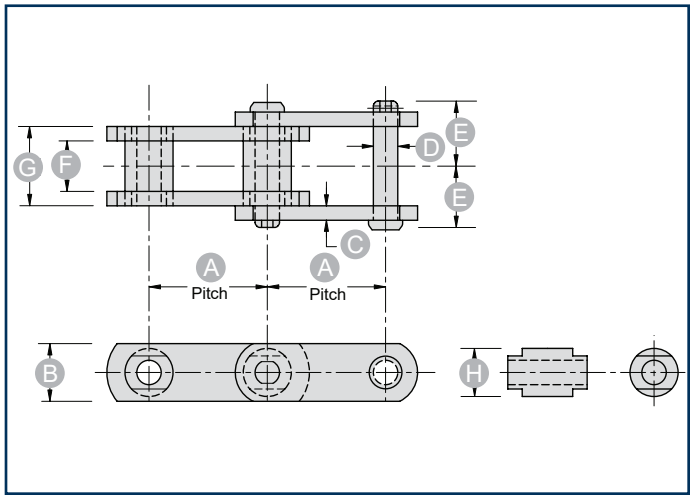
HOW TO DETERMINE SPACING



ENGINEERED CLASS CHAIN

Steel Bushed

Engineering Class Chains are designed to withstand rigorous operating conditions across a range of applications.

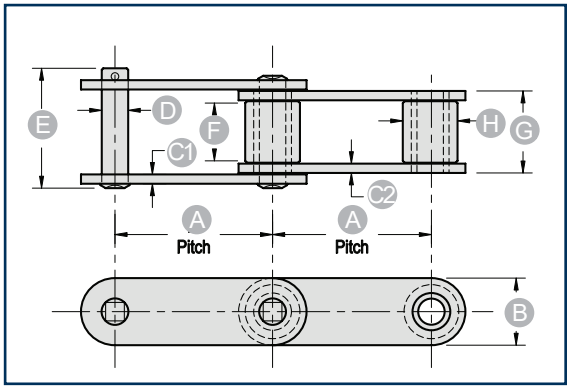


Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C1 Outer Sidebar Thickness	C2 Inner Sidebar Thickness	D Rivet Diameter	E Overall Width	F Max. Sprocket Thickness	G Length of Bearing	H Bushing Diameter	Links per Foot	AVG Weight per Foot (pounds)
MS188	2.609	25,000	1 ⅛	¼	¼	½	2 11/16	1	1 9/16	⅞	4.6	3.8
MS131	3.075	40,000	1 ½	⅜	⅜	⅝	3 9/16	1 ⅛	2	1 ¼	3.9	8.3
MS102B	4.000	40,000	1 ½	⅜	⅜	⅝	4 11/32	2	2 ⅞	1	3.0	6.9
MS110	6.000	40,000	1 ½	⅜	⅜	⅝	4 11/32	2	2 ⅞	1 ¼	2.0	6.3

All dimensions shown in inches unless noted otherwise.

Steel, Bushed, Roller - Straight Sidebar

- Fully heat-treated superior alloy steel
- Solid bushings and rollers
- Quad staked rivet design

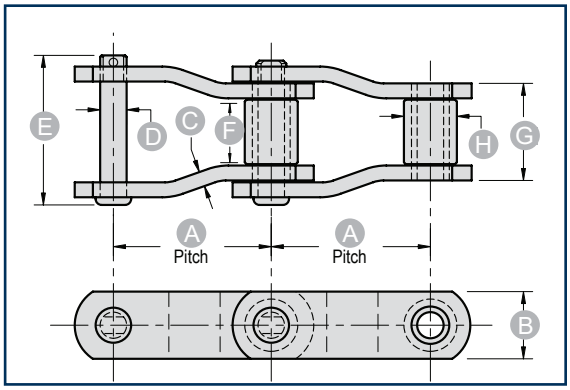


Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C1 Outer Sidebar Thickness	C2 Inner Sidebar Thickness	D Rivet Diameter	E Overall Width	F Max. Sprocket Thickness	G Length of Bearing	H Roller Diameter	Links per Foot	AVG Weight per Foot (pounds)
81X	2.609	24,000	1 ⅛	5/32	5/32	7/16	2 ⅛	⅞	1 ⅜	29/32	4.6	2.6
81X-HD	2.609	42,800	1 ¼	7/32	5/16	7/16	2 9/16	⅞	1 11/16	29/32	4.6	4.0
81X-XHD	2.609	42,800	1 ¼	5/16	5/16	7/16	2 ¾	⅞	1 ⅞	29/32	4.6	4.5

All dimensions shown in inches unless noted otherwise.

Steel, Bushed, Roller - Offset Sidebar

- Fully heat-treated superior alloy steel
- Solid bushings and rollers
- Quad staked rivet design



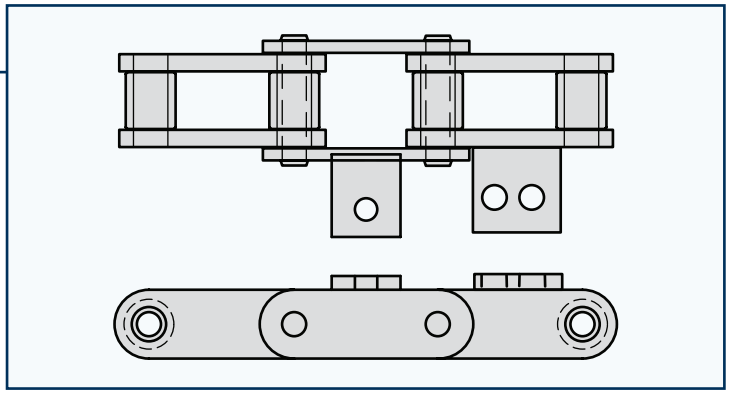
Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Max. Sprocket Thickness	G Length of Bearing	H Roller Diameter	Links per Foot	AVG Weight per Foot (pounds)
LXS882	2.609	29,000	1 ⅛	¼	7/16	2 ½	⅞	1 21/32	⅞	4.6	3.6

All dimensions shown in inches unless noted otherwise.

BUSHED ENGINEERED CLASS CHAIN ATTACHMENTS

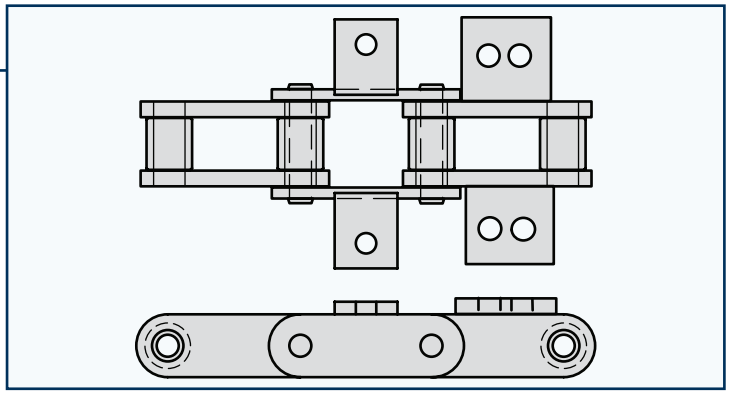
A1 + A2 Attachments

- Lug One Side
- A1: One Hole
- A2: Two Holes
- For Chain Numbers: MS188, MS131, MS102B, MS110



K1 + K2 Attachments

- Lugs Both Sides
- K1: One Hole
- K2: Two Holes
- For Chain Numbers: MS188, MS131, MS102B, MS110



STEEL PINTLE CHAIN

Pintle Chain

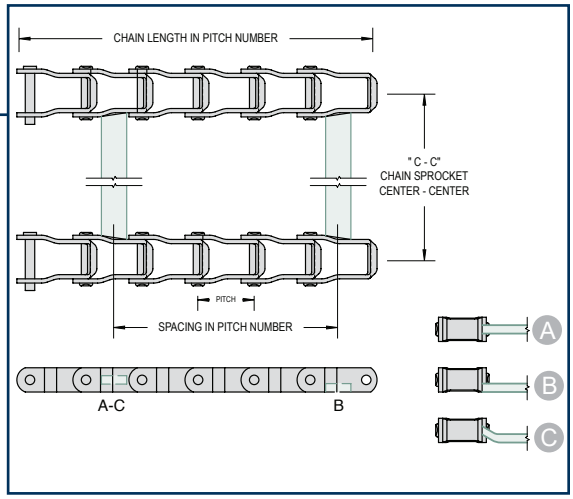
Steel Pintle Chain (open barrel design) are recommended for a wide range of applications such as spreaders, feeder systems, hay handling equipment and spray box applications.

- One-piece fully heat-treated steel link
- Quad-Staked pin construction
- Open barrel design will eliminate chain freezing
- A full line of custom attachments and sprockets are available

Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Max. Sprocket Thickness	Links per Foot	AVG Weight per Foot (pounds)
M662	1.664	11,000	.720	.125	.281	1.720	.750	7.2	1.05
M667X	2.250	21,000	.938	.170	.437	2.156	.875	5.3	1.86
M667H	2.313	12,500	.875	.125	.312	1.906	.875	5.2	1.65
M667KC	2.250	30,000	1.062	.200	.437	2.359	.875	5.30	2.56
M667XH	2.250	28,000	1.05	.225	.465	2.414	.875	5.30	2.8
M88K	2.609	24,500	1.063	.200	.437	2.315	1	4.6	2.3
M88C	2.609	38,000	1.125	.250	.500	2.842	1	4.6	3.3
M308C	3.075	50,000	1.500	.312	.625	2.859	1.125	3.9	5.63

All dimensions shown in inches unless noted otherwise.

Sander Chain



Steel Pintle Chain (open barrel design) is ideal for salting and sanding applications. The open barrel design virtually eliminates freeze-up due to corrosion. The open barrel design allows easy access for lubrication and wear inspection. Our factormanufactures, ready-to-use, completely customized assemblies for any truck within a few days.

Part Number	A AVG Pitch	Ultimate Strength (pounds)	B Sidebar Height	C Sidebar Thickness	D Rivet Diameter	E Overall Width	F Max. Sprocket Thickness	Links per Foot	AVG Weight per Foot (pounds)
M662-A	1.664	11,000	.720	.125	.281	1.720	.750	7.2	1.4
M667X-A	2.250	21,000	.938	.170	.437	2.156	.875	5.33	1.92
M667H-A	2.313	12,500	.875	.125	.312	1.906	.875	5.2	1.65
M667K-A	2.250	24,500	1.062	.200	.437	2.359	1	5.33	2.56
M667KC-A	2.250	30,000	1.062	.200	.437	2.359	1	5.33	2.56
M667XH-A	2.250	28,000	1.05	.225	.465	2.414	1	5.33	2.8
C77SS	2.308	11,000	.875	.1875	.4375	2.125	.750	4.6	3

All dimensions shown in inches unless noted otherwise.

HAZARD MONITORING SYSTEM

HAZARD MONITORING & EXPLOSION PREVENTION

Preventative maintenance can help reduce the risk of equipment failure and consequent downtimes. When it comes to monitoring your bucket elevators and belt conveyors, 4B can recommend you the ideal combination of sensors and monitoring systems to suit your requirements and budget.

4B provides an extensive range of their own ATEX / IECEx / CSA / CCC / EAC approved hazard monitoring systems, misalignment switches and bearing temperature monitors and level controls. We can offer you anything from a replacement sensor to a fully integrated hazard monitoring system which can be operated either as a stand-alone system or connected to your PLC.

We can offer you a scalable solution starting with correctly chosen equipment and systems that can be expanded at a later date to encompass other machines in the plant.

4B provides installation service and after-sales technical support to help you overcome any technical problems with your monitoring equipment.

CONTENTS

COMBINED HAZARD MONITORING SYSTEMS
Watchdog Super Elite, T500 Elite, IE-NODE

BEARING TEMPERATURE MONITORS
T400 Elite, T400N Elite

BELT ALIGNMENT MONITORS
B400 Elite, A400 Elite

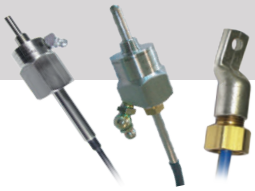
MISALIGNMENT SENSORS FOR BUCKET ELEVATORS
Touchswitch, WDA, BAP

MISALIGNMENT SENSORS & SAFETY SWITCHES FOR BELT CONVEYORS
Bulldog, Pullswitch

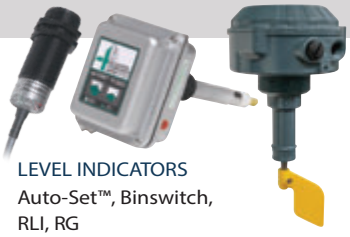
SPEED SWITCHES
M100, M300, M800, Millispeed

INDUCTIVE SENSORS
P100, P300, Whirligig

ENCO DERS
Shaft Encoders, Wheel Encoder



BEARING TEMPERATURE SENSORS
ADB, Millitemp, WDB8, MDB, WDB7



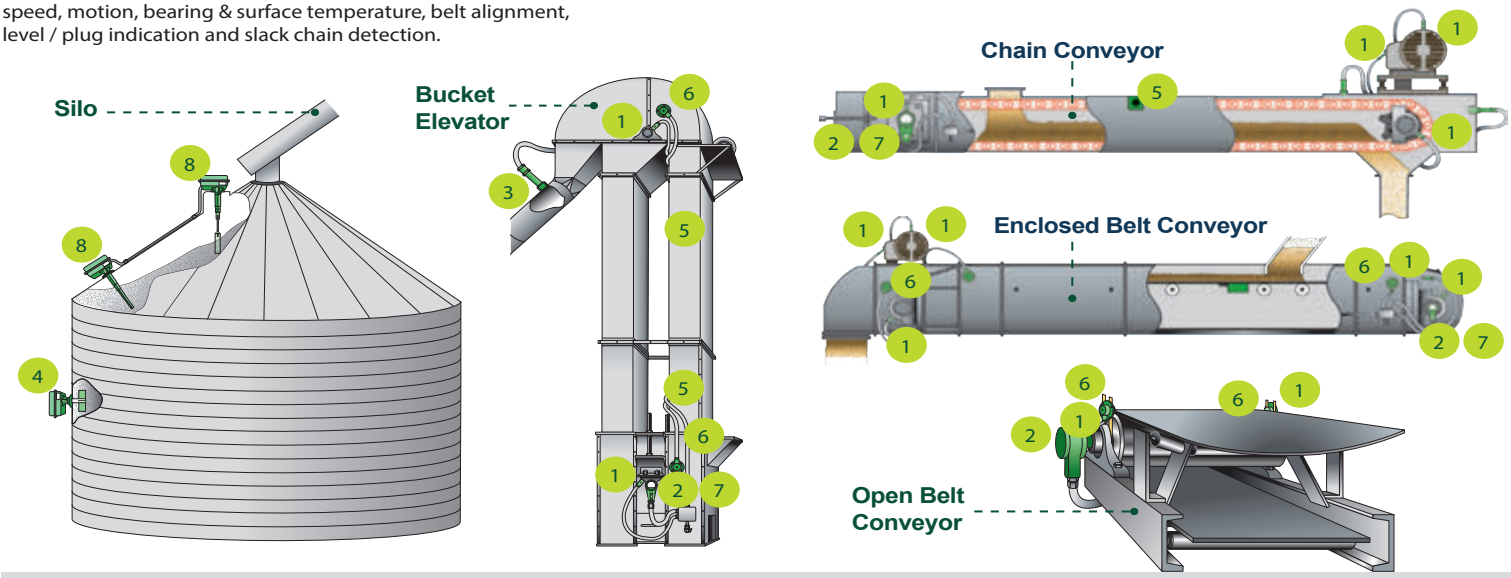
LEVEL INDICATORS
Auto-Set™, Binswitch, RLI, RG

JUNCTION BOXES

BROKEN OR SLACK CHAIN DETECTION

SENSOR APPLICATIONS

These illustrations show typical sensor placements for monitoring: speed, motion, bearing & surface temperature, belt alignment, level / plug indication and slack chain detection.



SENSORS

1 BEARING TEMPERATURE SENSORS

The ADB, MDB, and WDB Series bearing temperature sensors are designed to screw directly into an existing grease zerk fitting on a bearing housing. Each sensor is fitted with a grease nipple to allow lubrication of the bearing without the need for removal of the sensor. Most series are available with either a PTC thermistor with various factory set trip points, or a NTC thermistor with a user adjustable trip point, or as a Pt100 RTD version.

2 SPEED SWITCHES

Monitors rotating machinery for dangerous underspeed conditions. An inductive sensing device located in the nose of the enclosure will detect a metal target. Set to the normal machine RPM, 4B Speedswitches provide alarm and shutdown signals underspeed and stopped motion.

3 BINSWITCH

The Binswitch detects level or plug conditions for bulk granular solids in tanks, bins, or silos and can be used as a plug or choke detector in chutes, conveyors and elevator legs.

4 ROTO LEVEL SERIES

The Roto Level Series are rotary paddle switches designed to detect high and low levels of bulk granular solids in bins, tanks, silos, and as blockage detectors in spouts.

5 WDA 3

The WDA Series are non-contacting extended range magnetic sensors used to detect ferrous targets at a distance of up to 75mm from the sensor. They can be used on chain conveyors to detect slack or broken chain. They can also be used on bucket elevators where they can detect bucket bolts and steel buckets to monitor belt misalignment.

6 TOUCHSWITCH

The Touchswitch is an electro-mechanical limit-switch style sensor with no moving parts. It is designed to detect belt tracking and misalignment problems on bucket elevators and conveyors. Unlike a rub block that utilises friction (heat) to activate, the Touchswitch is pressure sensitive for safer and more reliable monitoring.

7 INDUCTIVE SENSORS

4B inductive proximity sensors are designed to detect shaft speed, shaft position, gate position, or object presence. No contact is made between the sensor and the target being monitored.

8 AUTOSET SERIES

The Autoset Series are self-contained point level monitors with digital displays for high, intermediate, or low-level detection of liquids, powders or free-flowing granular solids. The Autoset Series incorporates simple push-button calibration with microprocessor enable/disable switch for total protection of stored values. Once the unit is calibrated for a specific application, it never has to be re-calibrated.

ELEVATOR / CONVEYOR MONITORING SYSTEMS

COMBINED MONITORING SYSTEMS

PRODUCT	WATCHDOG SUPER ELITE™	T500 ELITE - HOTBUS™	IE-NODE
			
Bearing temperature	✓ (continuous) max. 6 sensors + 2 ambient temp. sensors	✓ (continuous) max. 256 inputs*	8 dual use inputs (contact or NTC temperature)
Belt speed	✓ (continuous) max. 2 inputs – Differential speed monitoring	✓ (continuous) max. 256 inputs*	2 pulse or 4-20mA
Belt alignment	✓ Pulses / Contact / Rub* Blocks 4 inputs	✓ max. 256 sensors*	8 dual use inputs (contact or NTC temperature)
Plugged condition	✓	✓	✓
Pulley alignment	✓	✓	✓
Communication interfaces	Ethernet with Modbus TCP protocol	All major industrial protocols supported via F500 Gateway	Ethernet IP, Profinet, Modbus TCP
Test function	✓	✓	✖
Alarm & shutdown function	✓	✓	✖
Applications	Single elevator or conveyor	Multiple elevators & conveyors; remote monitoring across site	Bucket elevators & conveyors, plant-wide monitoring
Hazardmon.com (Cloud based hazard monitoring)	✓ (Ethernet onboard)	✓ (via F500)	✓ (Ethernet onboard)
Certifications	UKEx / EAC / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC

* total number of inputs / sensors, all sensors combined.

SPECIALISED MONITORING SYSTEMS

PRODUCT	T400N ELITE	T400 ELITE	A400 ELITE	B400 ELITE
				
Bearing temperature	✓ (continuous) max. 8 sensors	✓ (discreet PTC) max. 16 sensors	✖	✖
Belt speed	✖	✖	✓	✖
Belt alignment	✖	✖	✓	✓
Plugged condition	✖	✖	✖	✓
Pulley alignment	✖	✖	✖	✓
Communication interfaces	Modbus RTU (RS-485)	✖	✖	✖
Test function	✓	✓	✓	✓
Alarm & shutdown function	✓	✓	✓	✓
Applications	Elevator & conveyors	Elevator & conveyors	Elevators	Elevator & conveyors
Hazardmon.com (Cloud based hazard monitoring)	✖	✖	✖	✖
Certifications	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC

HAZARD MONITORING SYSTEMS

COMBINED MONITORING SYSTEMS

WATCHDOG SUPER ELITE™

Combined belt speed, belt alignment, continuous bearing temperature, pulley alignment and plugged condition monitoring system

The Watchdog Super Elite™ is a complete elevator and conveyor monitoring system with inputs for most of the types of sensors standard in the industry. Offers top-of-the-class flexibility and approvals. Unprecedented user friendliness via a 3.5" full colour bespoke design graphics screen. Controller settings can be set up either directly on the unit or via a PC application and transferred between the WDC4s and PC via a SD card. In-built Ethernet port with full support for the Hazardmon.com cloud based monitoring service. WDC4 has multi-lingual support. MODBUS/TCP Support with the application notes for Rockwell, Siemens and Mitsubishi PLCs is available.

Features

- Be lt speed monitoring (single and differential speed)
- Belt alignment monitoring (contact, pulsed and rub blocks)
- Bearing temperature monitoring
- Pulley alignment monitoring
- Plug condition monitoring
- Acceleration monitoring
- Jog prevention
- 3.5" Colour graphics LCD display
- SD card for settings save / restore and firmware updates
- Ethernet RJ45 port
- Multi-lingual display
- Hazardmon.com support for real-time remote monitoring and historical ana lysis

Input supply voltage

- 100 to 2 40 VAC
- 24 VDC (u niversal supply)

Sensor supply

- 24 VDC

Sensor options

- AD B, MDB, and WDB: bearing temperature
- WDA Series: motion alignment
- Touchswitch: belt alignment
- Inductive Proximity Sensors: speed (P1003V34AI / P3003V34AI)
- Binswitch: plu gswitch

Approvals

- UK - UKEx
- Euro pe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi / CCC
- Russia - EAC
- Worldwide – IECEx

H x W x D

- 308 x 241 x 137mm

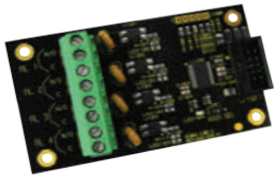
Applications

- Buc ket elevators and con veyors

WATCHDOG EXPANSION CARDS

The Watchdog Super Elite comes with standard 15 sensor inputs. However, it can be extended to up to 27 via the use of expansion cards. Cards can be pre-installed at the factory when ordering a new Watchdog WDC4, or installed into existing control units already in the field.

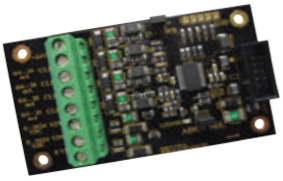
WDC4-AUXO-SSR



4 x solid state alarm relay outputs for the following conditions:

- Speed
- Temperature
- Misalignment
- Auxiliary Inputs

WDC4-AUXI-6AN



Additional analogue inputs:

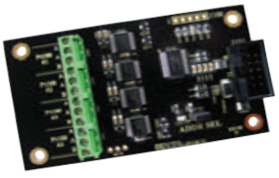
- 4 x 4-20mA current loop inputs (0-20mA range supported)
- 2 x 0-10VDC analogue inputs
- Individually enabled and configured in WDC4

WDC4-AUXI-6NTC

Ad ditional NTC type temperature inputs:

- 6 x NTC inputs
- 2 x Sensor power supply (+24VDC)
- Individually enabled and configured in WDC4

WDC4-AUXI-4PT100



Additio nal Pt-100 type temperature inputs:

- 4 x Pt-100 inputs
- Temperature range: -200 to 535 degrees C
- Three-wire configuration
- Individually enabled and configured in WDC

COMBINED MONITORING SYSTEMS

IE-NODE (INDUSTRIAL ETHERNET-NODE)

Remote Sensor Monitoring for PLC's & Automation Systems

The Industrial Ethernet Node (IE-NODE) is a remote monitoring interface designed to provide sensor data to PLC's or other automation and control systems. The IE-NODE is available in two versions, both with a total of 10 sensor inputs. Version 1 has 8 contact or NTC temperature inputs, and 2 pulse or 4-20 mA (current loop) inputs. Version 2 has 10 inputs for 4-20 mA (current loop) sensors. Both units can be expanded to 16 sensor inputs with the installation of optional expansion boards. The IE-NODE operates by reading its sensor inputs and sending processed data when requested by another system (e.g. PLC). The units are equipped with RJ45 Ethernet sockets and support PROFINET, EtherNet/IP and Modbus TCP/IP protocols for easy integration with Siemens, Allen-Bradley Rockwell, Delta V, Modicon and other PLC's or automation devices.

Features

- Sensor Interface for PLC's & Automation Systems
- Supports PROFINET, EtherNet/IP and Modbus TCP/IP
- Up to 16 Total Sensor Inputs with Available
- Expansion Boards
- Configuration Software for Easy Network
- Set Up and Visual Overview of All Devices

Input supply voltage

- 100 to 2 40 VAC
- 24 VDC (u niversal supply)

Sensor supply

- 24 VDC

Sensor options

- Temperature (Bearing & Surface) - ADB Series (NTC Type) & Milli-Temp Series (4-20 mA)
- Belt Misalignment - Touchswitch (Contact) or Rub Block (NTC Type)
- Belt Speed & Slip - Milli-Speed Switch (4-20 mA), P300 Proximity Sensor (Pulse), P800 Proximity Sensor (Pulse), M800 Elite Speed Switch (Pulse)
- Level Indication: Auto-Set™ or Rotary Paddle Series
- Plug or Level Indication: Binswitch Elite or Auto-Set™

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 248 x 188 x 133mm

Applications

- Buc ket elevators and con veyors, plant-wide monitoring

IE-NODE EXPANSION CARDS

The IE-NODE comes with standard 10 sensor inputs. However, it can be extended to up to 16 via the use of expansion cards. Cards can be pre-installed at the factory when ordering a new IE-Node, or installed into existing control units already in the field.

ETH-NODE-AUXSW-4P

Expansion board for use with 4B's IE-Node Monitors:

- Allows an additional 4 Ethernet Ports to be added to the IE-Node
- Enables flexible cable routing for reduced material costs and installation time

ETH-NODE-AUXI-6AN

Additional analogue inputs:

- Supports 6 extra 4-20 mA CLI (Current Loop Input) sensors
- RS485 Modbus RTU connection capability

ETH-NODE-AUXI-6NTC

Additional NTC type temperature inputs:

- 6 extra NTC temperature sensors or 6 contact sensors, or any combination of 6
- RS485 Modbus RTU connection capability

ETH-SWITCH1V4C-5P (IE-SWITCH)

An unmanaged switch with 5x RJ45 Ethernet sockets for 10/100 Mbps Ethernet Communications. Designed to work with 4B's IE-Nodes or any other devices requiring 10/100 Mbps Ethernet communications.

COMBINED MONITORING SYSTEMS

T500 ELITE - HOTBUS

Serial network system for continuous monitoring of bearing temperature, belt misalignment, and more

The T500 Elite - Hotbus™ is a serial communication system specially designed to monitor up to 256 sensors, including continuous bearing temperature and belt misalignment. With automatic machine shutdown capability and PLC/PC compatibility this advanced microprocessor based system offers low cost installation, versatility and easy system expansion.

Features

- Contin uous bearing temperature monitoring with user adjustable trip points
- RS485 serial communication
- Monitors up to 256 sensors
- 4 second scan time with 256 sensors installed
- Works with many types of sensors
- Enter your own sensor/location names for easy identification
- Alarm and shutdown features
- Gateways available for various PLC connections
- HazardMon.com® cloud based hazard monitoring compatibl e

Sensor options

- ADB, MD B, and WDB: bearing temperature
- Touchswitch: belt alignment
- P3003V34AI + SN2 Node: speed
- Autoset Series: level indicator
- Roto-Level Series: level indicator
- Binswitch: level and plug indicator

Input supply voltage

- 100 to 240 VAC
- 24 VDC (unive rsal supply)

Sensor supply

- Use external 24 VDC supply

Approvals

- UK - UKEx
- Euro pe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwid e – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Bucket elevators and conveyors

ACCESSORIES

HazardMon.com®

HazardMon.com® is a secure cloud based hazard monitoring solution providing status notifications and data logging for bucket elevators and conveyors. Live system status, graphs and historical data can be viewed on any web-enabled device (smartphone, tablet PC, desktop or laptop computer). Emails can be sent to notify users whenever a change in the system's health is detected. An automated maintenance feature allows site operators to verify that all sensors on the system are operational and working correctly.

F500 Elite Fieldbus Gateway

The F500 is a communications gateway that allows for single point access to a maximum of four T500 Elite Hotbus™ systems via Fieldbus protocol. Fieldbus communication protocols supported include: Ethernet IP, Modbus TCP, Modbus RTU, DeviceNet, Profibus and others.

R500 Elite Alarm Relay Interface

The R500 is a microprocessor-controlled unit, which accepts signals from the T500 Elite Hotbus™ monitor, and is able to cause alarm or shutdown of equipment when a sensor exceeds its programmed alarm tolerance.

Hotbox Node – TN4 (Input Node)

The TN4 is a four input sensor node, powered by 24 VDC. Each input can be an NTC thermistor, PTC thermistor or Volt-Free Contact input; the types may be interchanged on a single node. The Node has a unique 4 digit address which is used to communicate to the T500 via a two wire serial RS485 connection. The TN4 Node processes information from electrical inputs into network data inputs for ADB, WDB , Binswitch or Touchswitch.

Hotbox Node – SN2 (Speed Node)

The SN2 is a two input speed node, powered by 24 VDC. The node is able to monitor two independent pulse (speed) sources for dangerous under speed conditions. The SN2 will support pulses which are PNP or sourced. The Node has a unique 4 digit address which is used to communicate to the T500 via a two wire RS485 connection. The SN2 processes information from electrical inputs into network data.

Hotbus™ Node Tester

The Hotbus Node Tester is a portable testing unit that can be used in the field to determine the operational status of any Hotbus communications node and network to quickly identify wiring or node issues.

Simply plug the network connection cable directly to the node. A digital display on the tester will show the status of the node which can determine if the node is operating correctly.

CLOUD-BASED HAZARD MONITORING

HAZARDMON

HazardMon.com ® is a secure cloud based hazard monitoring solution providing status notifications and data logging for bucket elevators and conveyors. Live system status, graphs and historical data can be viewed on any web-enabled device (smartphone, tablet PC, desktop or laptop computer). Emails can be sent to notify users whenever a change in the system's health is detected. An automated maintenance feature allows site operators to verify that all sensors on the system are operational and working correctly.

Features

- Secure Cloud Based Hazard Monitoring
- Works with T500 Elite Hotbus™ & Watchdog Super Elite
- Data Logged Automatically
- Real Time System Status & Alert Email Notifications
- Automated Maintenance
- View on Any Web-Enabled Device

HazardMon.com ® enables the WDC4 and T500 systems to become Industry 4.0 enabled. It offers real-time visualization and notifications for connected users anywhere in the world. All the data is collected with a two second latency and everything is saved for historical analysis.

Live View

Real-time remote view of your factory from anywhere in the world. Support mobile and desktop views. Data is dynamically updated and presented in most efficient view for operators and managers to understand.

Data Chartin g

Any sensor data can be charted in a matter of two clicks. Time range is selectable between 1h and 30 days. There is also a live chart function for real-time maintenance of site.

Data Analysis

Comprehensive reports for the management to make quick data-driven decisions. With the help of Hazardmon analytics factory management can make maintenance budgeting decisions in matter of minutes. All the Hazardmon reports are exportable and can be easily incorporated into internal health and safety and performance reports.

Automated Maintenance

Completely automated sensor testing process, which allows factory maintenance staff and management to comply with the annual or bi-annual test schedule. Just click on a sensor which needs testing, cause and alarm and clear the alarm. All of the conditions are logged along with the sensor location, name, operator full name, date and time, as well as the test outcome. The maintenance report can then be easily generated and exported in .CSV format.

Continuous Improvements

Hazardmon is updated several times a year with feedback from existing and new customers driving the changes. There is a constant flux of new industry-leading features.

Hazardmon together with the innovative sensing solutions allows 4B Group to stay a technology and solutions leader in the industry and at the forefront of Industry 4.0 and IoT research.

TEMPERATURE MONITORING

T400N ELITE HOTSWITCH

Bearing temperature monitor

The T400N Elite Hotswitch is a microprocessor controlled temperature monitor, which works in conjunction with NTC temperature sensors to monitor up to 8 bearings and can provide an alarm and automatic shutdown when a high bearing temperature condition is detected.

Features

- Monitors up to 8 NTC bearing sensors
- Includes 2 separate alarm and 2 separate stop relays (2 machines monitored).
- Short circuit / open circuit fail-safe detection
- Status LEDs provide quick location of the hot bearing condition
- A range of alarms temperatures available from 45°C to 80°C
- Alarm mute with automatic time delayed reactivation
- PLC board (optional)

Sensor options

- ADB, MDB, and WDB Series: bearing temperature
- Extensive range of sensors available from 50 - 100°C
- Continuous temperature sensors
- Modbus RTU connection

Input supply voltage

- 100 to 240 VAC
- 24 VDC (universal supply)

Sensor supply

- 24 VDC

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Bucket elevators and conveyors

T400 ELITE HOTSWITCH

Bearing temperature monitor

The T400 Elite Hotswitch is a microprocessor controlled temperature monitor, which works in conjunction with PTC temperature sensors to monitor up to 48 bearings and can provide an alarm and automatic shutdown when a high bearing temperature condition is detected.

Features

- Monitors 8 zones with up to 6 PTC sensors in each zone (48 total)
- Status LEDs provide quick location of the hot bearing condition
- Sensors are positively mounted grease through
- Alarm mute
- PLC board with 8 contact outputs (optional)
- Cold / hot status only

Sensor options

- ADB-MDB-WDB Series: bearing temperature
- Extensive range of sensors available from 50 - 100°C
- PTC type - step sensors

Input supply voltage

- 100 to 240 VAC
- 24 VDC (universal supply)

Sensor supply

- 24 VDC

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Bucket elevators and conveyors

BELT ALIGNMENT MONITORING

B400 ELITE

Conveyor or bucket elevator belt alignment monitoring system

The B400 Elite is a microprocessor based control unit which uses sensors to detect belt misalignment by pressure (Touchswitch) from one or two elevators/conveyors. The unit is able to provide an alarm and automatic shutdown of the elevator/conveyor when a belt misalignment condition is detected.

Features

- Uses u p to 4 touch sensors
- Monitors alignment of belts in two separate machines or top and bottom alignment in one machine
- Includes 2 separate alarm and 2 separate stop relays
- Simple, reliable, consistent
- Fully functional test via push button on front panel for general testing

Sensor options

- Touchswitch: force activated

Input supply voltage

- 100 to 240 VAC
- 24 VDC (univ ersal supply)

Sensor supply

- 24 VDC

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Belt bucket elevators and conveyors

A400 ELITE

Bucket elevator belt alignment monitoring system

The A400 Elite is a microprocessor based control unit which uses high power magnetic sensors that detect moving metallic buckets or bolts from either one or two bucket elevators. The unit is able to provide an alarm and automatic shutdown of the elevator when a belt misalignment/ underspeed condition is detected.

Features

- Use s up to 4 magnetic (reluctance) alignment sensors
- Monitors alignment of belts in two separate elevators or top and bottom alignment in one elevator
- Includes 2 separate alarm and 2 separate stop relays
- Simple, reliable, consistent
- Fully functional test via push button on front pan el

Sensor options

- WD A Series: motion alignment
- BAP Series: motion align ment

Input supply voltage

- 100 to 240 VAC
- 24 VDC (u niversal supply)

Sensor supply

- 24 VDC

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Belt bucket elevators

BELT MISALIGNMENT MONITORS

TOUCHSWITCH

Touchswitch
Belt/pulley misalignment sensor

The Touchswitch is an electro-mechanical limit switch with no moving parts, that detects the misalignment of both pulleys and belts in conveyors and bucket elevators. The sensor detects the lateral force of the belt or pulley and activates a volt-free solid state relay. Sensor output can be used to activate an alarm or shutdown the machine. The sensors are normally installed in pairs on opposite sides of the belt/pulley.

Features

- Hardened stainless steel face
- External test wheel for quick and simple sensor/system testing
- Not affected by dust or material build up
- No calibration or sensitivity adjustment needed
- No calibration needed
- No moving parts
- Food Grade (TS2V34AI-FG) type available.

Supply voltage

- 12-24 VDC

Compatible 4B control unit

- Watchdog
- T500
- B400

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Russia - EAC (all TS except TS2V34AI)
- Worldwide – IECEx

Applications

- Belt/pulley misalignment on elevators and conveyors

WDA HIGH POWER SENSOR

WDA
Belt alignment/ speed and chain break monitor.

High temperature version

The WDA sensor detects moving ferrous material and is designed for use with bucket elevators to detect buckets, for measurement of speed and alignment. WDA is a non-contact sensor, detecting metallic targets at up to 100mm range. It can also detect ferrous bolts where plastic or 316 stainless buckets are used. The sensor is used in conjunction with a PLC or with a Watchdog or A400 Elite control unit.

Features

- Long ran ge magnetic sensor unaffected by material build up
- Continuously monitors the moving elevator, with visual indication by an LED
- 25-75mm range depending on the size of the target, easily adjusted from the sensor itself or from the optional independent control unit
- Mounting bracket included
- Stainless steel construction
- High temperature version available (not ATEX approved)

Supply voltage

- 24 VDC

Compatible 4B control unit

- Watchdog

Approvals

- UK - UKEx
- Europe – ATEX (standard version)
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi
- Worldwide – IECEx

Applications

- Belt alignment
- Belt speed (when used with Watchdog)
- Chain slack / break monitor (page 21)

BAP

BAP
Belt alignment/ speed monitor

The BAP detects moving ferrous material and is designed for use with bucket elevators to detect belt misalignment condition. It can also detect ferrous bolts where plastic or 316 stainless buckets are used . The sensor is used in conjunction with a PLC or with a Watchdog or A400 Elite control unit.

Features

- Mag netic sensor unaffected by material build up
- Continuously monitors the moving elevator, with visual indication by an LED
- 12-50mm range depending on the size of the target, easily adjusted from the sensor itself or from the optional independen t control unit

Supply voltage

- 12/24 VDC

Compatible 4B control unit

- Watchdog

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Russia - EAC
- Worldwide – IECEx

Applications

- Belt alignment sensor

BELT ALIGNMENT & RIP DETECTORS

BULLDOG

Bulldog
Belt Alignment
& Rip Detection
Switch

The Bulldog alignment and rip detection switch is an electro-mechanical system designed to detect dangerous belt misalignment and belt tear damage on open belt conveyors. The switch will detect misalignment of belts when contact is made with the roller; the roller arm will be forced to pivot by the belt activating a switch at 20° to trigger an alarm, and 35° to trigger a shut down. The sensors are usually installed in pairs on opposite sides of the belt. A flexible wire is set below the running conveyor belt attached by a rare earth magnet at each end. If the belt is ripped or damaged the wire is pulled away releasing the magnet connection which in turn will activate a switch to trigger an alarm or shut down.

Features

- E asy installation without calibration
- Solid construction
- Triggers an alarm at 20° and a shutdown of the machine at 35°
- Wire rope for optional belt rip detectio n

Supply voltage

- 110-240 VAC

Compatible 4B control unit

- Watchdog
- T500
- B400

Approvals

- UK - UKEx
- Europ e – ATEX
- China - CCC
- Worldw ide – IECEx

Applications

- Op en belt conveyor alignment monitoring
- Belt rip detection

CONVEYOR SAFETY STOP SWITCH

PULLSWITCH

Pullswitch
Conveyor Safety Stop Switch

The Pullswitch is a failsafe taut wire emergency pull cord stop switch for open conveyors. PVC coated steel pull wires and pigtails connect between the switches to provide easy installation and continuous emergency stop access along the length of the entire conveyor. Pullswitches can be installed at 60m intervals, reducing overall system cost. Quick location of a tripped switch is provided by a flag marker or optional reflector, and the tripped signal can be wired back to a PLC or one of 4B's controllers.

Features

- Pullwi re safety switch provides a safe and reliable means of stopping conveyors
- Double ended pull mechanism as standard
- Slack or taut wire operation
- Tough UV stabilised lightweight polycarbonate enclosure
- Designed for arduous environments e.g. quarries, open cast mines

Approvals

- UK - UKEx
- Euro pe – ATEX
- USA, C anada – CSA

Applications

- Safety stop switch for open belt conveyors

Pullswitch installed on open belt conveyor

SPEED SWITCHES

M100 STOPSWITCH

Stopped motion monitor

The Stopswitch is a straightforward shaft speed monitoring device. The 2-wire technology saves you time and makes installation hassle-free. If the shaft stops rotating, the Stopswitch will provide an output. It requires no calibration to operate and is a great tool for process control, motion verification and stopped shaft indication.

Features

- Small 1 8mm diameter
- Totally sealed
- 3m cable
- Status LED's

Style

- 18mm cylindrical

Supply voltage

- 24 to 240 VAC/VDC

Output

- Stopped motion detection

Approvals

- UK - UKEx
- Europe - ATEX
- Brazil - InMetro
- Russia - EAC
- China - Nepsi, CCC
- Worldwide – IECEx

Applications

- Proc ess control
- Provides a signal when the shaft has stopped rotating

M300 SLIPSWITCH 2 OR 5-WIRE

Intelligent underspeed switch 2 or 5-wire version available

User friendly and easy to install, the Slipswitch is a simple shaft speed monitoring device. Available in 2-wire and 5-wire models, the Slipswitch is self-calibrating and provides a 20% underspeed output to protect against dangerous belt slip and underspeed conditions.

Features

- Totally sealed
- Auto calibration
- 2 or 5-wire connection
- 3m cable
- Status LED's

Style

- 30mm cylindrical

Supply voltage

- 24 to 240 VAC/VDC

Output

- 20% underspeed detection

Approvals

- UK - UKEx
- Europe - ATEX
- Brazil - InMetro
- Russia - EAC
- China - Nepsi, CCC
- Worldwide – IECEx

Applications

- Convey ors, bucket elevators, any speed sensitive shaft for automatic 20% underspeed detection

M800 SPEEDSWITCH

Intelligent underspeed switch with three outputs

A solid state unit with no moving parts, the M800 is maintenance free. The unit operates using an inductive sensing device and requires no contact with the monitored machine. The M800 is calibrated to the machine's normal RPM. If the shaft speed falls by 10%, the M800 will alarm, and by 20% it will shut the machine down.

Features

- Totally sealed
- Auto calibration
- 1/2-inch conduit entry with 2m cable
- Status LE D's

Style

- DIN (40mm x 40mm)

Supply voltage

- 24 - 240 VAC/VDC

Output

- 1 x 10% underspeed relay
- 1 x 20% underspeed relay
- 1 x opto-isolated pulse (All 3 outputs in 1 unit)

Approvals

- USA, Canada - CSA

Applications

- Conveyors, bucket elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown and pulsed output.

All 4B speed and inductive sensors are compatible with the Whirligig universal shaft sensor mount.

SPEED SWITCHES

MILLISPEED - EU

Intelligent underspeed switch with three outputs

The Milli-Speed Switch with 4 - 20 mA output is designed to detect belt slip, belt underspeed, stop motion, and zero speed on bucket elevators, conveyors, airlocks, mixers, fans, grinders and many other rotating machines. Totally sealed and simple to calibrate.

Features

- 4 - 20 mA output
- Normalised output
- Simple magnetic calibration
- Loop powered (2 wire)
- Totally sealed construction: submersible
- Easy installation with Whirligig® mount
- SpeedMaster™ compatible for accurate testing

Style

- 30mm cylindrical

Supply voltage

- 24 to 240 VAC
- 17-30 VDC

Output

- Over s peed 20 mA (of calibrated speed)
- Calibrated speed 17 mA (100%)
- Zero speed 4 mA (0 - 10% of calibrated speed)

Approvals

- UK - UKEx
- Europe - ATEX
- Brazil - InMetro
- Russia - EAC
- China - Nepsi, CCC
- Worldwide – IECEx

Applications

- Conveyors, elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown

MILLISPEED - US

Monitors Rotating Machinery for Dangerous Underspeed Conditions

The Milli-Speed Switch with 4 - 20 mA output is designed to detect belt slip, belt underspeed, stop motion, and zero speed on bucket elevators, conveyors, airlocks, mixers, fans, grinders and many other rotating machines. Totally sealed and simple to calibrate.

Features

- 4 - 20 mA output
- Normalised output
- Simple magnetic calibration
- Loop powered (2 wire)
- Totally sealed construction: submersible
- Built in conduit adaptor (1/2" NPT)
- Easy installation with Whirligig® mount
- SpeedMaster™ compatible for accurate testing

Style

- DIN (40mm x 40mm)

Supply voltage

- 17 - 30 VDC

Output

- Over speed 20 mA (123% or more of calibrated speed)
- Calibrated speed 17 mA (100%)
- Zero speed 4 mA (0 - 10% of calibrated speed)

Approvals

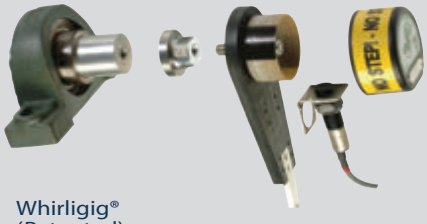
- USA, Canada - CSA

Applications

- Conveyors, elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown

ACCESSORIES

WHIRLIGIG



Whirligig® (Patented)

The Whirligig is the new standard for shaft speed monitoring. It is a three-in-one universal shaft sensor mount that makes installation simple and more reliable for all inductive shaft speed sensors.

Your sensor mounts to the Whirligig and the complete assembly bolts to the machine's shaft. Machine and shaft vibration does not affect the performance of the sensor, as the whole assembly moves with the shaft. Personal safety is also improved since the rotating target is completely enclosed behind a tough plastic cover.

- Fully Guarded Target for Easy Mounting of Motion Sensors
- For DIN Style and Standard Cylindrical Inductive Sensors
- Easy Installation – Only Requires M12 Tapped Hole in the Machines Shaft or Use a Mag-Con™ for Magnetic Connection
- Available with 1, 2 or 4 Targets
- Imperial version available
- ATEX, UKEx, EAC

MagCon™ Magnetic Connector (Patented)

50mm diameter magnetic coupler with 150 lb/660N of pulling force for connecting M12 thread to rotating shaft. Saves on drilling and tapping.

>Imperial version available

TEST TOOLS

SpeedMaster™ Speed Switch Tester

The Speedmaster is a calibration and testing device that accurately tests the calibration of a speed switch, and allows testing of the 10% alarm and 20% shutdown features of the sensor while installed on the machine shaft.

INDUCTIVE SENSORS

P100 INDUCTIVE SENSOR

Inductive Proximity Sensor

Inductive proximity sensors used to signal the position of equipment in conveyors, elevators and other mechanical assemblies. Also used as pulse generators for speed detection.

Features

- IP 65
- Watchdog and PLC compatible
- Visual indication of output state by LED

Style

- 18mm cylindrical

Supply voltage

- 24 to 240 VAC/VDC
- 10-30VDC

Output

- FET transistor output
- PNP or NPN output

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Russia - EAC
- Worldwide – IECEx

Applications

- Conveyors, elevators and other mechanical assemblies, and other proximity detection and speed applications.

P300 INDUCTIVE SENSOR

Inductive Proximity Sensor

Inductive proximity sensors used to signal the position of equipment in conveyors, elevators and other mechanical assemblies. Also used as pulse generators for speed detection.

Features

- IP 65
- Watchdog and PLC compatible
- Visual indication of output state by LED

Style

- 30mm cylindrical
- 2 and 4 wire

Supply voltage

- 24 to 240 VAC/VDC
- 10-30VDC

Output

- FET transistor output
- PNP or NPN output

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Russia - EAC
- Worldwide – IECEx

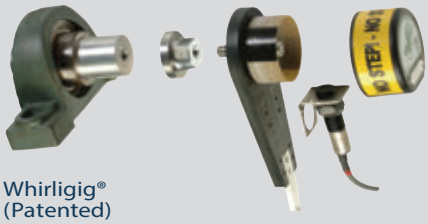
Applications

- Conveyors, elevators and other mechanical assemblies, and other proximity detection and speed applications.

Compatible with the Whirligig speed sensor mount

ACCESSORIES

WHIRLIGIG



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Your sensor mounts to the Whirligig and the complete assembly bolts to the machine's shaft. Machine and shaft vibration does not affect the performance of the sensor, as the whole assembly moves with the shaft. Personal safety is also improved since the rotating target is completely enclosed behind a tough plastic cover.

- Fully Guarded Target for Easy Mounting of Motion Sensors
- For DIN Style and Standard Cylindrical Inductive Sensors
- Easy Installation – Only Requires M12 Tapped Hole in the Machines Shaft or Use a Mag-Con™ for Magnetic Connection
- Available with 1, 2 or 4Targets
- Imperial version available
- ATEX, UKEx, EACEx

MagCon™ Magnetic Connector (Patented)

50mm diameter magnetic coupler with 150 lb/660N of pulling force for connecting M12 thread to rotating shaft. Saves on drilling and tapping.

- Imperial version available

TEST TOOLS

SpeedMaster™ Speed Switch Tester

The Speedmaster is a calibration and testing device that accurately tests the calibration of a speed switch, and allows testing of the 10% alarm and 20% shutdown features of the sensor while installed on the machine shaft.

ROTECH ENCODERS

The 4B heavy duty Rotech rotary shaft encoders are used primarily for protecting equipment and personnel from dangerous underspeed/belt slip conditions in extreme environments. Other applications include accurate speed control, direction of rotation detection, gate position indication and counting the number of revolutions of the shaft.

POLYPROPYLENE SHAFT ENCODER

Features
- Heavy duty design
- 1 to 1,000 PPR
- Multiple outputs
- Intrinsically safe option available
- IP66

Style
- Polypropylene (reinforced with 30% glass)
- Totally self-contained (no guards required)

Supply voltage
Model dependent:
- 10-30Vdc
- 20-240VAC

Output
Model dependent:
- Intrinsically safe
- NPN
- PNP
- Quadrature

Approvals
- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx
- USA & Canada - CSA

Applications
- Conveyors, bucket elevators or any shaft speed measurement

ALUMINIUM SHAFT ENCODER

Features
- Ultra heavy duty
- 1 to 1,000 PPR
- Multiple outputs
- Intrinsically safe option available
- IP67

Style
- Cast aluminium construction
- Totally self-contained (no guards required)

Supply voltage
Model dependent:
- 8.2Vdc for intrinsically safe version
- 10-30Vdc
- 20-240VAC

Output
Model dependent:
- Intrinsically safe
- NPN
- PNP
- Quadrature

Approvals
- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx
- USA & Cana da - CSA

Applications
- Conveyors, bucket elevators or any shaft speed measurement

STAINLESS STEEL ENCODER

Features
- Ultra heavy duty
- 1 to 1,000 PPR
- Multiple outputs
- Intrinsically safe option available
- IP67

Style
- 304 or 316 stainless steel
- Totally self-contained (no guards required)

Supply voltage
Model dependent:
- 8.2Vdc for intrinsically safe version
- 10-30Vdc
- 20-240VAC

Output
Model dependent:
- Intrinsically safe
- NPN
- PNP
- Quadrature

Approvals
- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx
- USA & C anada - CSA

Applications
- Conveyors, bucket elevators or any shaft speed measurement

WHEEL ENCODER

Features
- Heavy duty design
- 1 to 1,000 PPR
- Multiple outputs
- Intrinsically safe option available
- IP67

Style
- Trailing arm and wheel

Supply voltage
Model dependent:
- 8.2Vdc for intrinsically safe version
- 10-30Vdc
- 20-240VAC

Output
Model dependent:
- Intrinsically safe
- NPN
- PNP
- Quadrature

Approvals
- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx
- USA & Canada - CSA

Applications
- Belt speed monitoring applications

ACCESSORIES

MAGCON

MagCon™ Magnetic Connector (Patented)

50mm diameter magnetic coupler with 150 lb/660N of pulling force for connecting M12 thread to rotating shaft. Saves on drilling and tapping.

- Imperial version available

SPEED RELAY

DIN rail mounted speed relay can be used with any PNP or NPN pulsed output sensor for providing a user adjustable underspeed relay contact output to alarm or shutdown machinery.

TACHO DISPLAY

Bright 25mm high 4-digit LED display unit for connection to any PNP or NPN transistor output sensor to indicate shaft speed. The unit incorporates a user-adjustable under speed relay contact output. Quadrature display also available.

ACCESSORIES

The ADB Sensor Tester has been designed to test 4B adjustable depth bearing (ADB) temperature sensors in the field. This hand held test unit features an integrated heating block specifically designed to have a 4B ADB sensor directly inserted. With integral controls and temperature display, the unit heats the sensor to the desired trip point, and allows quick and easy real life testing of the sensor and temperature monitoring system.

During planned maintenance or periodic testing, the ADB Sensor Tester can be used as a diagnostic tool to verify the alarm and shutdown sequences of the control unit are functioning as expected. To test, the heater block should be set above the control units alarm operating temperature. Remove the ADB bearing sensor probe from the housing and insert it into the heater block. As the heater block reaches the alarm temperature, the ADB sensor will relay this data to the control unit, allowing you to verify that the alarm and shutdown sequences run as expected.

Features

- ADB Bearing Sensor Tester
- Hand Held Portable Unit
- Exact Alarm Point Testing
- Exact Shutdown Point Testing
- Easy To Read Display

ADB WRENCH

Used to loosen and tighten the ADB bearing temperature probe for proper depth adjustment.

ADB Sensor Installed on Conveyor Bearing

BEARING TEMPERATURE SENSORS

ADB

The ADB series have been designed toallow the depth of the sensor to be adjustable depending on your application. Three standard versions are available with probe lengths of 50, 100 and 200mm (other lengths available for special order). The sensors screw directly into a bearing housing through the existing grease zerk thread. Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The ADB style sensors are available with a standard NTC thermistor for 4B's Hotbus and Watchdog systems, or a Pt100 - RTD type for PLC and DCS systems.

Features

- Screw in positive mount installation
- Grease zerk for bearing lubrication
- Adjustable depth (50, 100, 200mm probes)
- 1/4" NPT (brass body)
- NTC or Pt100 RTD versions – continuous temperature

Sensor options

- NTC Thermistor
- Pt-100 4-wire RTD
- Selectable probe length: 50, 100 and 200 mm

Input supply voltage

- 12/24 VDC (current limited)

Compatible 4B control unit

- Watchdog
- T500
- T400
- IE-NODE

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- China - CCC
- Russia - EAC
- Worldwide – IECEx

Applications

- Bearing temperature control
- Temperature measurement

MILLITEMP

The Milli-Temp is a loop powered analog sensor with a 4-20 mA linear output that is scaled across a temperature range for continuous temperature monitoring. The sensor has been designed to allow the depth of the probe to be adjustable depending on your application. The sensor screws directly into a bearing housing through the existing grease zerk thread. Each sensor is fitted with a zerk to allow lubrication of the bearing without the need for removal of the sensor.

Features

- 4-20 mA output
- Screw in positive mount installation
- Grease zerk for bearing lubrication
- Lug style adaptor (surface temp.)
- 1/2" NPT conduit entry
- 304 stainless steel body

Sensor options

- Selectable probe length: 50, 100 and 200mm
- 4-20 mA loop

Input supply voltage

- 15-28 VDC (24VDC nominal)

Compatible 4B control unit

- Watchdog
- IE-NODE

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- China - CCC
- Worldwide – IECEx

Applications

- Bearing temperature control
- Temperature measurement

BEARING TEMPERATURE SENSORS

WDB7 LUG STYLE

The WDB7 series is a lug style NTC, Pt-100 or PTC thermistor type for surface temperature monitoring and has been designed to bolt directly onto a bearing housing, motor, gearbox, or machine casing. The mounting hole is 8mm from the factory, but can be drilled up to 13mm if needed. The sensor can be connected to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 Elite. The connections are not polarity sensitive therefore special connections requirements are eliminated.

Features

- Surface mount installation
- 8mm to 13mm bolt entry
- 1/2" NPT conduit entry
- Continuous temperature monitoring

Sensor options

- NTC Thermistor
- Pt-100 4-wire RTD
- PTC (trip temperature selected at time of purchase)

Input supply voltage

- 12/24 VDC (current limited)

Compatible 4B control unit

- Watchdog
- T500
- T400
- IE-NODE

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Worldw ide – IECEx

Applications

- Surface temperature measurement and control

MDB

The MDB series is a range of bearing sensors manufactured to screw directly into a bearing housing through the existing 1/4" BSP threaded grease zerk (can be installed in 1/8" NPT grease zerk fitting with an adapter). Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The sensor is fitted with a M12 connector for use with a separately supplied cable and socket assembly which can be connected directly to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 Elite. The connections are not polarity sensitive therefore special connection requirements are eliminated.

Features

- Screw in installation
- Grease zerk for bearing lubrication
- Wiring connector

Sensor options

- NTC Thermistor
- Pt-100 4-wire RTD
- PTC (trip temperature selected at time of purchase)

Input supply voltage

- 12/24 VDC (current limited)

Compatible 4B control unit

- Watchdog
- T500
- T400

Approvals

- UK - UKEx
- Euro pe – ATEX

Applications

- Bearing temperature control
- Temperature measurement

WDB8

The WDB8 series is a range of bearing temperature sensors designed to screw directly into an existing 1/4" BSP grease zerk fitting on a bearing housing. Each sensor is fitted with a grease nipple to allow lubrication of the bearing without the need for removal of the sensor. The WDB Series is available with either a PTC thermistor with various factory set trip points or an NTC thermistor with a user adjustable trip point.

Features

- Screw in positive mount installation
- Grease zerk for bearing lubrication
- 1/4" BSP (brass body)
- Cable with protective anti-bend cover

Sensor options

- NTC Thermistor
- PTC (trip temperature selected at time of purchase)

Input supply voltage

- 12/24 VDC (current limited)

Compatible 4B control unit

- Watchdog
- T500
- T400
- IE-NODE

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Worldwide – IECEx

Applications

- Bearin g temperat ure control

LEVEL INDICATORS

AUTO-SET™

A user friendly, reliable point level indicator for bulk granular solids, powders and liquids. Digital display, push-button calibration and material build-up compensator make this unit the elite point level sensor.

A selection of screw-on stainless steel probes to suit your application.

AUTO-SET™ REMOTE

A user friendly, reliable point level indicator for bulk granular solids or powders where there is high vibration and/or temperature involved. Remote electronic display/control unit allows for remote calibration/set-up away from vibration or heat.

ATS8

ATS8
RF capacitance point level indicator

Features
- Push button calibration
- Digital display
- Internal timer
- Automatic material build-up compensator
- Attachable SS probes

Style
- 1 inch BSP

Supply voltage
- 120/240 VAC
  24 VDC
  (universal supply)

Output
- 1 set of voltage-free changeover relay contacts

Approvals
- UK - UKEx
- Europe - ATEX
- USA, Canada - CSA

Applications
- Material point level indication in silos, bins and other vessels.

ATS8 & EXTENDED POWER SHIELD

ATS8 with Extended Power Shield
RF capacitance point level indicator for thick-walled silos

Features
- Push button calibration
- Digital display
- Internal timer
- Automatic material build-up compensator, 12 or 16 inches long
- Attachable SS probes

Style
- 1 inch BSP

Supply voltage
- 120/240 VAC
  24 VDC
  (universal supply)

Output
- 1 set of voltage-free changeover relay contacts

Approvals
- UK - UKEx
- Europe - ATEX
- USA, Canada - CSA

Applications
- Material point level indication in thick-walled concrete silos.

ATS8 FLUSH PROBE

ATS8 Flush Probe
RF capacitance heavy-duty plugswitch

Features
- Push button calibration
- Digital display
- Internal timer
- Automatic material build-up compensator
- No moving parts

Style
- 100mm dia. probe with integral mount

Supply voltage
- 120/240 VAC
  24 VDC
  (universal supply)

Output
- 1 set of voltage-free changeover relay contacts

Approvals
- UK - UKEx
- Europe - ATEX
- USA, Canada - CSA
- Worldwide - IECEx

Applications
- Plug condition in chutes, discharges and pipes.

AUTO-SET™ REMOTE PROBE

Auto-Set™ Remote Probe
Polyprop probe - 120°C
PEEK probe - 250°C
Ceramic probe - 600°C

Features
- No moving parts
- No electronic components
- Automatic material build-up compensator
- Attachable SS probes
- High temp available

Style
- 1 inch BSP

Supply voltage
- From control unit

Output
- To control unit

Approvals
- Not approved

Applications
- Material point level indication in surge bins, vibratory feeders and high temperature processes.

AUTO-SET™ REMOTE CONTROL

Auto-Set™ Remote Control
Remote control unit with digital display and calibration push buttons

Features
- Push button calibration
- Digital display
- Internal timer
- DIN rail mountable

Style
- DIN rail mountable enclosure processes

Supply voltage
- 120/240 VAC
  24 VDC
  (universal supply)

Output
- 1 set of voltage-free changeover relay contacts

Approvals
- Not approved

Applications
- Material point level indication in surge bins, vibratory feeders and high temperature processes.

LEVEL INDICATORS

BINSWITCH

The Binswitch is a capacitive sensor for the detection of blockages in chute, discharges and pipes. Available in 2-wire and 5-wire models. Simple semi-automated calibration process using magnets.

Features

- Capacitance probe
- Detects presence or absence of liquids & free-flowing bulk granular materials
- Easy installation & self-containing
- Magnet calibration

Style

- 30mm cylindrical
- 2 or 5 wire options

Supply voltage

- 24 to 240 VAC/VDC

Output

- Programmable high or low level detection

Approvals

- UK - UKEx
- Europe - ATEX
- China - CCC
- Russia - EAC
- Worldwide – IECEx

Applications

- Plug condition in chutes, discharges and pipes.

RLI

The RLI is designed to signal the presence or absence of bulk materials such as: chemical products, wood chips, grain, granules and powders. It is ideal for use as a point level indicator in tanks and silos as well as a blockage detector in conveyor chutes.

Features

- High or low level indication
- Automatic power shut off
- Limit switch contact output
- 14 foot vertical extensions (maximum)

Style

- Rotary level indicator with 1 1/4-inch NPT mounting thread
- Glass-fibre reinforced nylon housing

Supply voltage

- 24 VDC
- 110VAC
- 240VAC

Output

- 1 set of voltage-free changeover relay contacts

Approvals

- No explosive environment approvals

Applications

- Material point level indication in surge bins, vibratory feeders and high temperature processes

RG SERIES

The RG Level Sensors series is designed to indicate the presence or absence of bulk materials such as grains, pellets, chemicals, wood chips and other powders.If material impedes the rotation of the paddle, the motor topples of its axis and triggers an alarm. The RG has a variety of compatible paddles which offer the ability to detect a wide range of products.

Features

- Can be top and side mounted
- Easy installation
- Wide range of paddles available
- Optional extensions and shard guards for more challenging applications

Style

- Rotary level indicator

Supply voltage

- 10/240 VAC
- 24 VDC

Output

- 1 set of voltage-free changeover relay contacts

Approvals

- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx

Applications

- Material point level indication in surge bins, vibratory feeders and high temperature processes

ACCESSORIES

BINSWITCH ACCESSORIES

BAS3 Abrasion Shield

Polyethylene abrasion shield for ATEX Binswitch.

Mounting Plate

Powder-coated mild steel mounting plates with 11/4-inch NPT or 1 inch BSP, half or full coupling. Use with Autoset, Roto-Level / RG Series Indicators and Binswitches with adapters. (Also available in stainless steel.)

PADDLE SWITCH ACCESSORIES

Rotary Level Paddles

Complete range of stainless steel paddles for Roto-Level Indicators.

Binswitch Installed on Bucket Elevator Spouting (with SMP, BAS & conduit adapter)

Auto-Set™ Flush Probe Installed on Belt Conveyor Discharge

Auto-Set™ Flush Probe Installed on Screw Conveyor Discharge

4B COMMISSIONING SERVICE

After 4B products have been installed by a qualified electrician, 4B's commissioning service is available to inspect and certify proper installation of our sensors and control units prior to operation. A brief overview of the service is listed below -

Features

- All rigid and flexible conduits inspected for: cracks, breaks, tightness of connections, and suitability for purpose.
- All wiring inspected for: ground faults, shorts, suitability for purpose.
- All sensors and controls inspected for correct installation and wiring.
- All sensors and controls inspected for any signs of damage, and tested to insure proper working order.
- Detailed written inspection and testing report with any recommendations given to client.

Belt & Pulley Alignment Sensors

- Sensors are removed from their location to ensure that they were centered on the belt.
- Each sensor is physically inspected for damage and wear.
- Sensor LED and alarm contacts are tested.
- Wire terminations are inspected.

Temperature Sensors

- All sensors are inspected and resistance is checked.
- Sensors are also checked for correct identification, location and sensor type.
- Sensors are checked for proper temperature alarm and shutdown trip points using 4B's ADB Tester.
- Wire terminations are inspected.

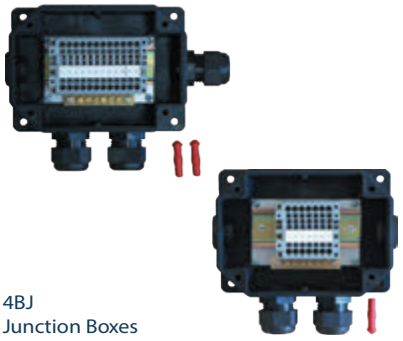
Speed Switches

- All speed switches are checked for proper installation.
- Sensors are checked for proper underspeed alarm and shutdown set points using 4B's SpeedMaster™.
- Wire terminations are inspected.

Warning: 4B recommends that all sensors are wired to provide automatic shutdown of monitored equipment, when a hazardous condition is detected.

JUNCTION BOXES

4BJ JUNCTION BOXES



4BJ
Junction Boxes

4B Atex approved junction boxes allow for the easy installation of sensors in potentially explosive dust hazard environments.

Features

- Rob ust glass reinforced nylon casing
- Up to 4 gland inputs
- Dust and water tight seal
- Detachable cover for easy terminal access

Terminal springs

- 6 x 2.5mm ^{2} or 12 x 2.5mm ^{2}

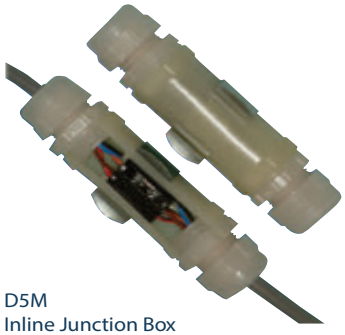
Approvals

- UK - UKEx
- Europe – ATEX
- Worldwide – IECEx

Applications

- Electrical installations in dust – explosive environments

D5M INLINE JUNCTION BOX



D5M
Inline Junction Box

The D5M's unique moulded body with Atex approved glands and mounting clip/ bracket allows for in-line connection closer to the sensors simplifying connections and reducing the time of intervention during maintenance operations or repairs.

Features

- Ideal for extending sensor cables within Atex hazard areas
- Complete with Atex glands and mounting bracket

Terminal springs

- 5 x 2.5mm ^{2}

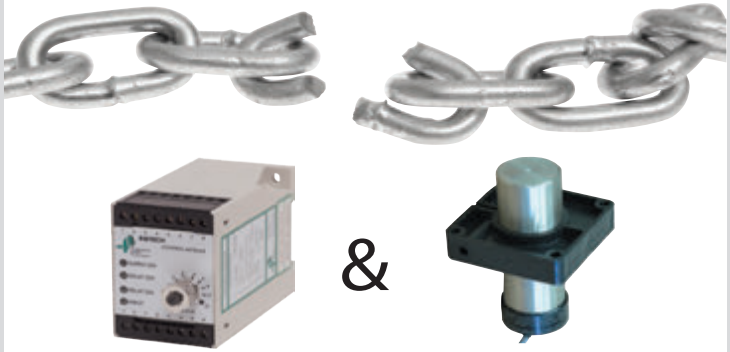
Approvals

Applications

- Electrical installations in dust – explosive environments

BROKEN OR SLACK CHAIN

MONITORING FOR DRAG CHAIN CONVEYORS



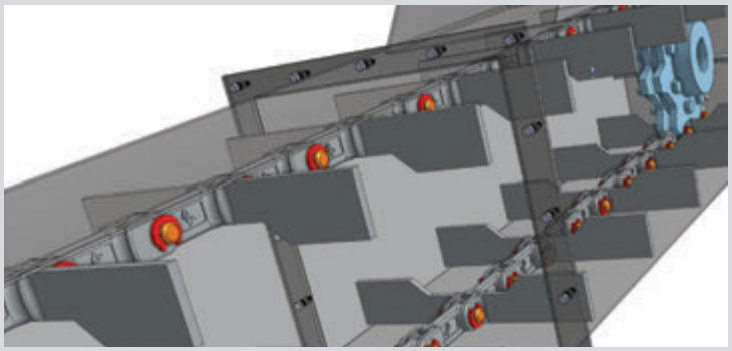
Speed Relay & WDA Sensor

By using a WDA sensor in combination with a speed relay, ferrous steel flights or bolts on plastic paddles are used to monitor for broken or slack chain issues on drag conveyors.

The WDA is a non-contacting extended range magnetic proximity sensor, not affected by dust or material build up, used to detect moving ferrous material up to 75mm away from the sensor. The speed relay is used to monitor the speed of a rotating shaft and detect if it rises or falls below a preset safety level.

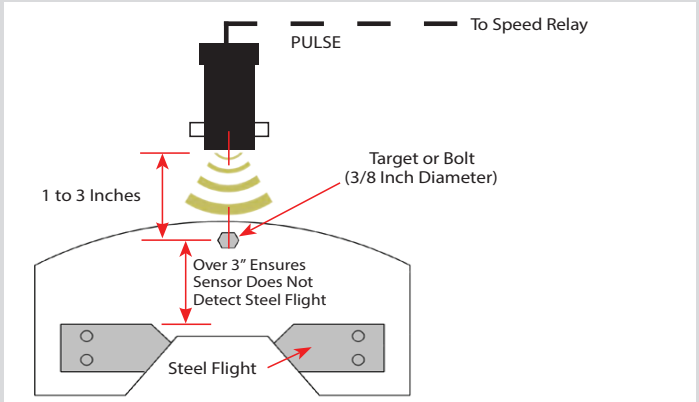
Features

- Solutio n for drag chain conveyors
- Monitor for chain slack or breakage
- Detects movement of steel flights or bolts on plastic paddles
- Prevent costly equipment damage and downtime
- Simple sensor and speed relay solution



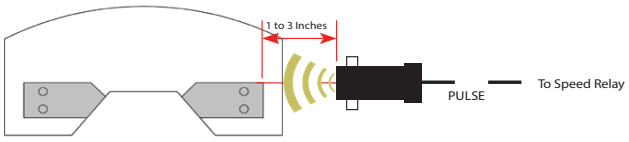
OPTION 1 > Sensor Detecting Bolt Installed on the Paddle

Under normal running conditions, the target bolt passes through the sensor's field and a pulse is sent to the speed relay. If the chain becomes slack, the target bolt will drop below the field and the pulses will stop, causing the relay contact to change state.



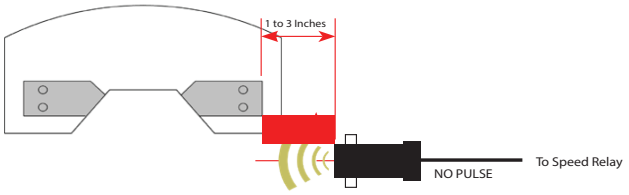
OPTION 2 > Sensor Detecting Steel Flight

Under normal running conditions, the steel flight passes through the sensor's field and a pulse is sent to the speed relay. If the chain becomes slack, the steel flight will drop below the field and the pulses will stop, causing the relay contact to change state.



OPTION 3 > Sensor Waiting to Detect Steel Flight

Under normal running conditions, the steel flight is out of the sensor's field, so no pulses are sent to the speed relay. If the chain becomes slack, the steel flight comes into the sensor's field and a pulse is sent to the speed relay, causing it to change state.



Warning: - Make sure that there is no ferrous steel (such as the machine's frame) within the sensing field.

TECHNICAL INFORMATION

AVAILABLE OPTIONS

1

Through Heat Treating. Where not standard through heat treated sidebars barrels or rivets are an excellent option to increase chain life.

2

Induction Hardening. Where not standard induction hardening can be added to specific components to greatly increase chain life.

3

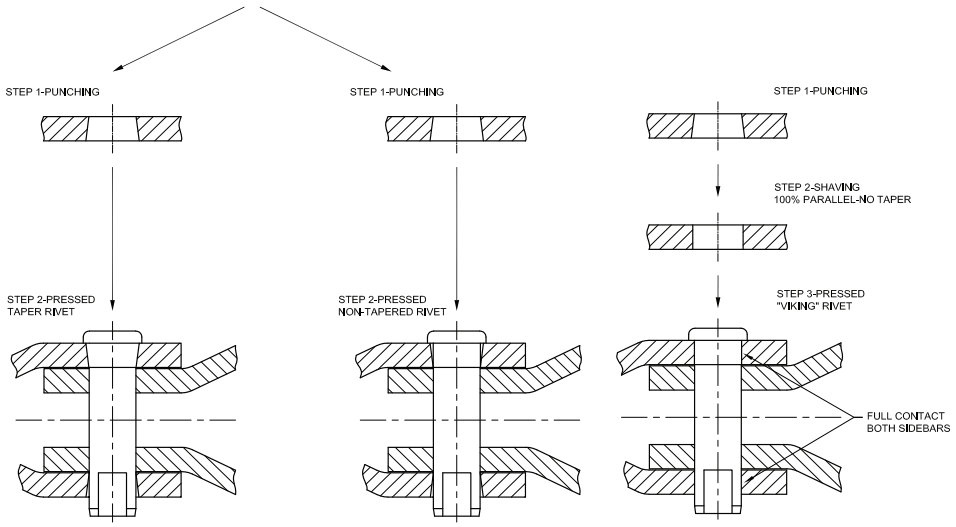
Pregreasing. Factory pregreasing with premium polymer grease is an excellent way to extend the life of welded steel chain. Pregreasing will greatly reduce initial break in wear increasing overall chain life by 25% or more.

4

Double-Locking. Double locking rivets is the process of welding the rivet head and rivet end to the sidebars locking the rivet in place. This reduces possible rivet and sidebar hole wear that can lead to chain elongation in heavy load or severe applications.

5

Punched and Shaved Rivet holes. Welded steel chains can also be supplied with punched and shaved rivet holes for 100% contact between the rivets and sidebars resulting in reduced elongation due to better stress dissipation around the rivets.



Chain Designation

WR - Welded Steel Chain c/w Heat-Treated rivets
WH - Welded Steel Chain fully Heat-Treated
WD - Welded Steel Drag Chain
WDH - Welded Steel Heat-Treated Drag Chain
XHD - Extra heavy duty

Heat-treated + Induction-hardened Chain

For maximum chain life in severe applications including heavy impact loading and high-speed applications or abrasive conditions specific heat treating may be required.

Induction-hardened Pins

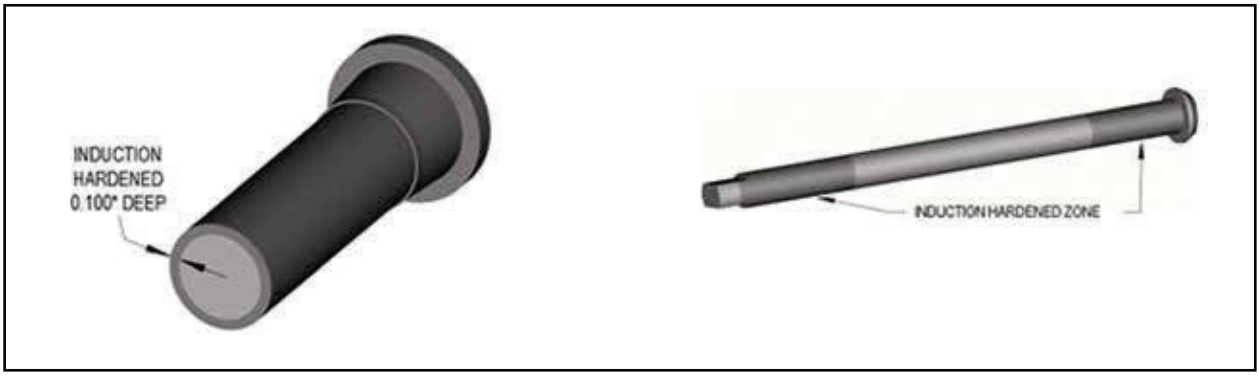
Mill chain come available with through Heat-Treated rivets. Mill chain with a 1" rivet diameter and larger can come with an additional induction hardening.Drag Chain with a ¾" and 7/8" diameter rivet can come with zone induction hardening. Drag Chain with a 1" diameter rivet can come standard with through heat treating.

Precision Taper-fit Pins

All Mill Chain with a ¾" – 1 1/8" diameter rivet are constructed with Precision Taper Fit Rivets. These rivets are superior in design compared with conventional rivets. When the PTF rivet is pressed into the link, it provides 100% contact between the rivet and the sidebar, reducing wear and increasing chain life.

Through Heat-treating and Induction-hardening

SIDEBAR Heat-Treated 32-36 Rc
BARRELS Heat-Treated 32-36Rc or Induction Hardened 44-50 Rc
RIVETS Heat-Treated 32-36Rc or Induction Hardened 44-50 Rc



Wear

In a non-abrasive environment Heat-Treated and/or Induction Hardened chain may have a greater working life expectancy up to 50 % longer than non heat-treated.

Impact and Strength

Through Heat-Treated chain will improve impact resistance strength and ultimate strength.

ENGINEERING FORMULA + HELPFUL TABLES

Horsepower

Horsepower equals 33,000 foot pounds per minute, or 550 pounds per second, In terms of chain load and speed.

$$HP = \frac{\text{Working Load x Ft. Per Min}}{33{,}000}$$

or

$$HP = \frac{\text{Working Load x T x P x R.P.M.}}{396{,}000}$$

T = *number of sprocket teeth*; P = *chain pitch*

Chain working load

When the horsepower input is known and the chain working load is desired, this can be calculated as follows:

$$\text{Working Load} = \frac{\text{HP x 33,000}}{\text{Ft. Per Min.}} \quad \text{or} \quad \text{Working Load} = \frac{\text{HP x 396,000}}{\text{T x P x R.P.M.}}$$

Factor of safety

Factor of Safety is determined as follows:

$$F.S. = \frac{\text{Chain Ultimate Strength}}{\text{Chain Working Load}}$$

Chain speed

Chain Speed can be determined from the following formula:

$$\text{Chain Speed (Ft. Per Min.)} = \frac{\text{T x R.P.M.}}{\text{K}}$$

T = n*umber of sprocket teeth*; K = *pitches of chain per foot*

Chain lengths in pitches (approx)

$$\text{Chain Length} = \frac{S}{2} + 2C =$$

S = *sum of teeth, both sprockets*; C = *center of distance in pitches*

Chain approx workload

$$\text{Divide} = \frac{\text{Ultimate Strength in lbs.}}{6\ (\text{safety factor})}$$

Example:

$$\text{WR 132} = \frac{85{,}000\#}{6} = 14{,}167\#$$

Theoretical weights of steel

1) $\frac{\text{cubic inches of steel}}{\text{x 0.28334}} = \text{Pounds}$

2) $\frac{\text{cubic feet of steel}}{\text{x 489.6}} = \text{Pounds}$

Approx. Weights of Wood in Lbs./Cu Ft.

species	green	airdry
Alder, *red*	46	28
Ash, *black*	52	34
Ash, *commercial white*	48	41
Ash, *Oregon*	46	38
Aspen	43	26
Basswood	42	26
Beech	54	45
Birch	57	44
Birch, *paper*	50	38
Cedar, *Alaska*	36	31
Cedar, *eastern red*	37	33
Cedar, *northern white*	28	22
Cedar, *southern white*	26	23
Cedar, *western red*	27	23
Cherry, *black*	45	35
Chestnut	55	30
Cottonwood, *eastern*	49	28
Cottonwood, *northern black*	46	24
Cypress, *southern*	41	32
Douglas Fir, *coast region*	38	34
Douglas Fir, *Rocky Mtn. Region*	35	30
Elm, *American*	54	35
Elm, *rock*	53	44
Elm, *Slippery*	56	37
Fir, *balsam*	45	25
Fir, *commercial white*	46	27
Gum, *black*	45	35
Gum, *red*	50	34
Hemlock, *eastern*	50	28
Hemlock, *western*	41	29
Hickory, *pecan*	62	45
Hickory, *true*	63	51
Honeylocust	61	..
Larch, *western*	48	36
Locust, *black*	58	48
Maple, *bigleaf*	47	34
Maple, *black*	54	40
Maple, *red*	50	38
Maple, *silver*	45	44
Maple, *sugar*	56	44
Oak, *red*	..	44
Oak, *white*	63	47
Pine, *lodgepole*	39	29
Pine, *northern white*	36	25
Pine, *Norway*	42	34
Pine, *Ponderosa*	45	28
Pines, *southern yellow:*		
Pine, *lobolly*	53	36
Pine, *longleaf*	55	41
Pine, *shortleaf*	52	36
Pine, *sugar*	52	25
Pine, *western white*	35	27
Poplar, *yellow*	38	28
Redwood	50	28

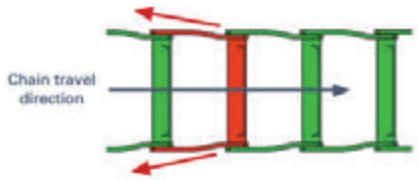
CHAIN CARE & TROUBLESHOOTING

Problem	Possible Causes	What To Do
Excessive noise	■ Misalignment of sprocket ■ Loose casings or bearings ■ Too little or too much slack ■ Chain and/or sprocket wear ■ Inadequate lubrication or no lubrication ■ Chain pitch size too large	■ Realign sprockets and shafts ■ Tighten set-bolts ■ Adjust center or idler take-up ■ Replace chain and/or sprocket ■ Lubricate properly ■ Check chain drive recommendation
Chain vibration	■ Resonance to the vibration cycle of machine to be installed ■ High load fluctuation	■ Change vibration cycle of chain or machine ■ Use torque converter or fluid coupling
Wear on inside of link plate and one side of sprocket teeth	■ Misalignment	■ Realign sprockets and shafts
Chain climbs sprockets	■ Excessive chain slack ■ Heavy overload	■ Adjust center or idler take-up ■ Reduce load or install stronger chain
Broken pins, bushings or rollers	■ Chain speed too high for pitch and sprocket size ■ Heavy shock or suddenly applied loads ■ Material build-up in sprocket tooth pockets ■ Inadequate lubrication ■ Chain or sprocket corrosion	■ Use shorter pitch chain or install larger diameter sprockets ■ Reduce shock load or install stronger chain ■ Remove material build-up or install side gashed sprockets ■ Lubricate properly ■ Install anti-corrosive chain or sprockets
Chain clings to sprocket	■ Center distance too big or high load fluctuation ■ Excessive chain slack	■ Adjust the center distance or install idler take-up ■ Same as above
Chain gets stiff	■ Misalignment ■ Inadequate lubrication ■ Corrosion ■ Excessive load ■ Material build-up in chain joint ■ Peening of link plate edges	■ Realign sprockets and shafts ■ Lubricate properly ■ Replace with anti-corrosive chain ■ Reduce load or replace with chain of suitable strength ■ Shield drive from foreign matter ■ Check for chain interference
Breakage of link plate	■ Subjected to shock load ■ Vibration ■ Moment of load inertia is too big	■ Reduce shock (e.g., install a shock absorber) ■ Install a device to absorb vibration (e.g., tightener, idler wheel) ■ Chain section should be checked (increase number of strands or select next larger size chain)

DIRECTION OF CHAIN TRAVEL

Narrow End Forward

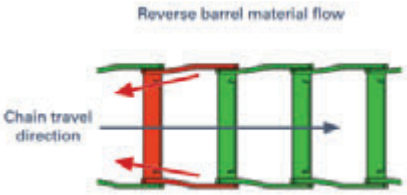
When the narrow end of the offset link faces the sprocket (whether entering or leaving) the sliding that produces wear mostly takes place between the barrel O.D. and the sprocket tooth face. Articulation between the rivet and barrel bore also occurs, but the load quickly decreases between these parts as articulation starts and the full load between the sprocket tooth and the tight side strand is transferred from sprocket tooth face, to barrel O.D. Therefore narrow end forward will produce more wear on the sprocket tooth.



SHORT RUN CONVEYOR- - -NARROW END FORWARD

Wide End Forward

When the wide end or pin end of the link faces the sprocket tooth (entering or leaving) the articulation is entirely between rivet and barrel bore.Wear between rivet and barrel bore causes the chain to elongate in pitch. This elongation is probably the major factor for chain replacement. Thus the direction of travel which gives the least amount of wear between rivet and barrel bore, should be the correct direction for the chain to travel.



LONG RUN CONVEYOR- WIDE END FORWARD

ELONGATION FORMULA

Standard length = Chain Pitch x Number of Links

$$\text{Chain Elongation}(\%) = \frac{\text{Measured Length}^{*} - \text{Standard length}}{\text{Standard length}} \times 100$$

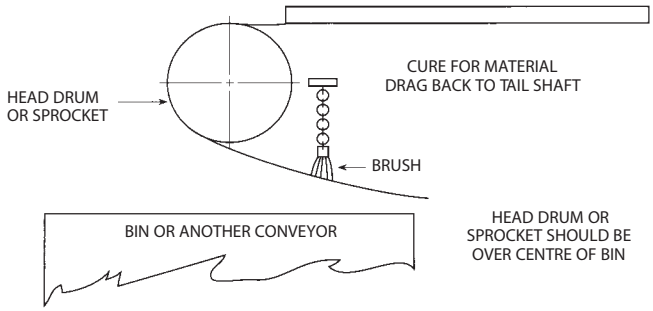
* *It is recommended to measure as many pitches possible to get a good reading.*

EXAMPLE:

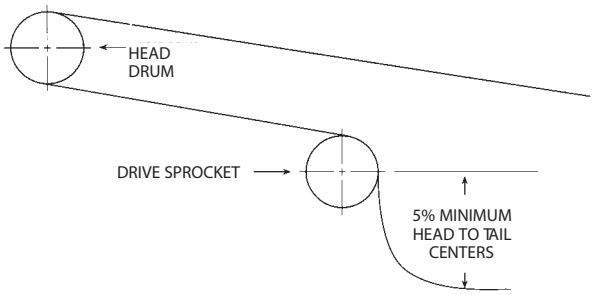
- WH157 chain has a standard pitch of 6.050in per pitch
- Standard length of 10 pitches = 60.5in
- Measured length of 10 pitches = 61.25in
- Measured length – Standard length = 0.75in / Standard length = 0.0124
- 0.0124 x 100 = 1.24% Chain Elongation

Elongation of 3% or less is acceptable. Anything above 3% elongation indicates that chain has reached functional service life and plans for replacement are now recommended. Past 5%, the chain tries to skip the teeth of the sprocket.

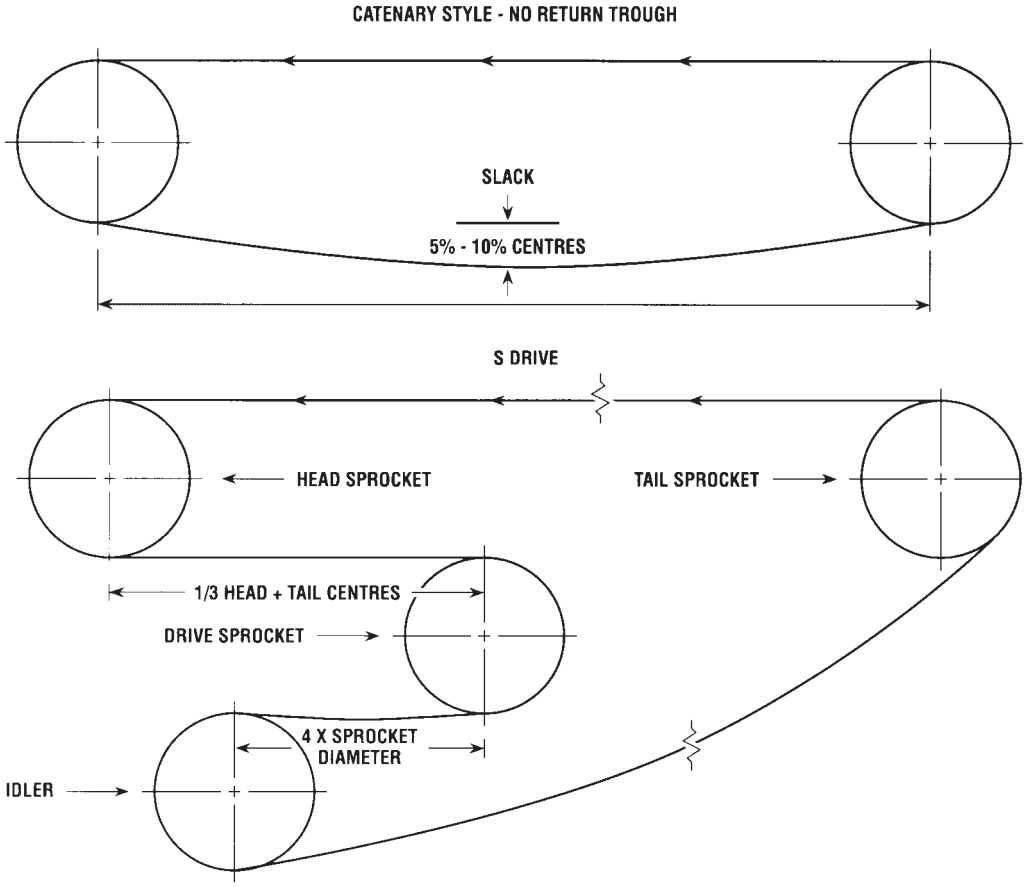
HEAD END DRIVE FOR CHAIN CONVEYORS



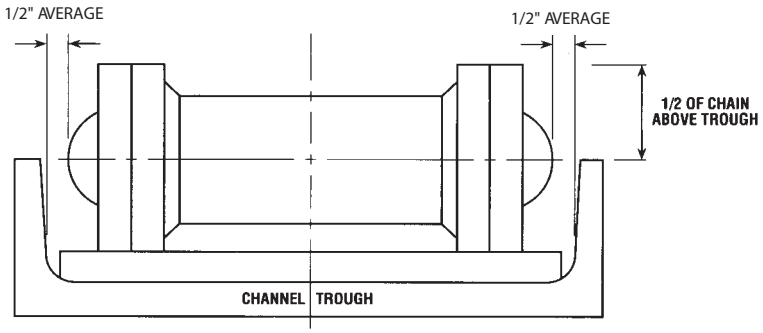
"WATERFALL" DRIVE FOR CHAIN CONVEYORS



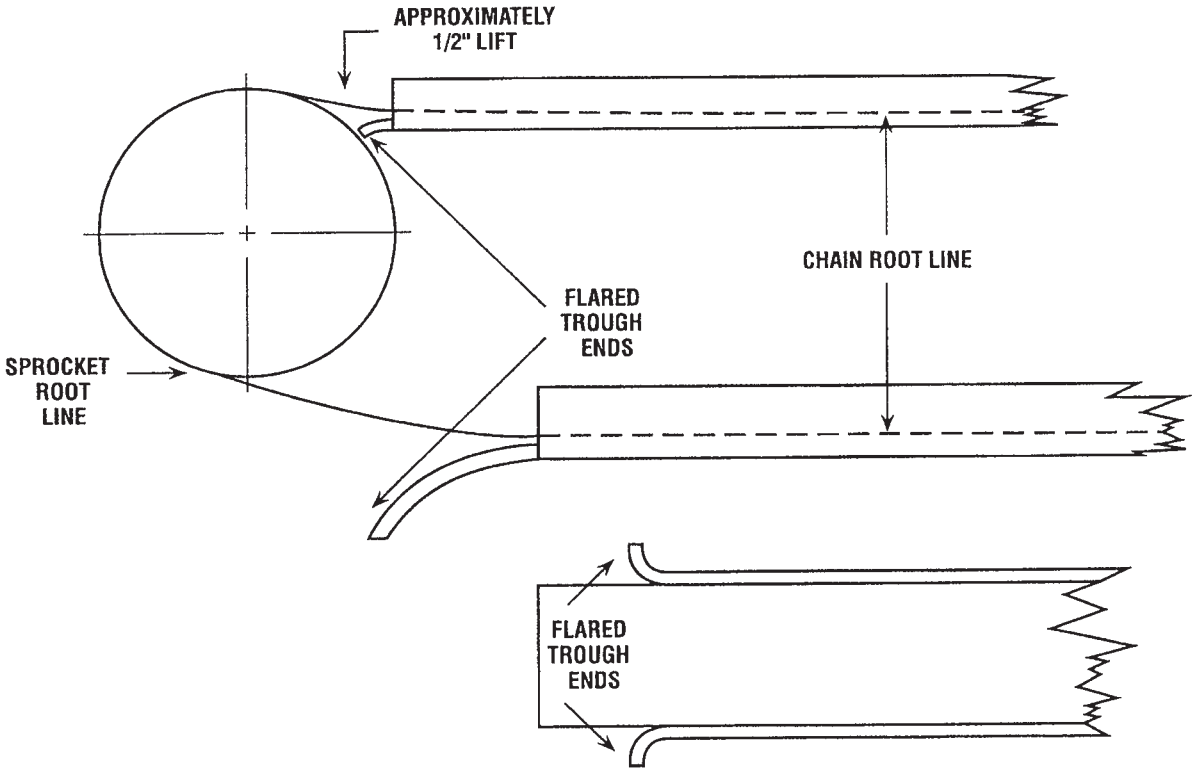
TYPICAL MILL CHAIN DRIVE ARRANGEMENTS



MILL CHAIN FIT IN TROUGH



SPROCKET TO TROUGH ALIGNMENT



PREVENTATIVE MAINTENANCE CHECKLIST

Chain and sprockets should be inspected after **three** months service and **six month** intervals thereafter. These mostly visual inspections will uncover potential problem areas before they become more serious. Always correct apparent problems as they are uncovered to assure all steps are taken to guarantee long life and trouble free service.

INSPECTION CHECK LIST

☐ 1. Wash chain and sprockets with a heavy stream of clean water or steam to remove excess material buildup which can cause improper seating on the sprockets resulting in accelerated wear. Direct the water spray to flush out the joints that could clog and prevent the entry of lubricants, or cause tight joints through a buildup of corrosion.

☐ 2. Inspect the sprockets for usual or excessive wear, or an uneven wear pattern on the sprocket teeth, deep grooves in the pockets, a hooking wear pattern on the teeth, or for any other indications of misalignment. Inspect for cracked welds, and retighten set screws or other ring bolts if you are using segmental sprockets.

☐ 3. Check the inner face of the sidebars of the chain for a shiny surface which could signal a misalignment problem, especially if the wear is more prevalent on one side than the other. Misalignment problems should be corrected as soon as possible. The chain should run freely and without interference with the sprocket teeth. (note: We frequently see poor sprocket / chain interaction because the sprockets are not properly matched to the chain). It is a good idea to purchase chain and sprockets from the same source and to have the chain wrap checked prior to shipment.

☐ 4. Check for loose, cracked, or unseated or rotating pins. Any of these conditions indicate a danger signal that can lead to chain breaks, work stoppages, and lost productivity. Check for signs of corrosion, or corrosive buildup which can lead to tight joints, and fatigue breaks. If a bad situation is present, the condition may require some special action to reduce the corrosion causing conditions, or possibly special pin treatment to reduce the damaging effects of corrosion. Corrosive conditions are one of the leading causes of pin

breakage in Welded Steel Chains. (Note: See appendix for an in depth discussion of the effects of corrosion on pin life with some suggestions for corrective actions.)

☐ 5. Check bushings for signs of uneven or excessive wear, cracks, or broken welds. These conditions usually indicate sprocket scrubbing, misalignment, overload, or improper tooth design. The conditions can sometimes be corrected by adjusting the take-ups, and by paying more attention to the amount of chain sag, but usually trial and error, or just plain good judgment are all that it takes once there is understanding that chain sag is necessary for good chain performance.

☐ 6. Check the chain joints for signs of "wallowing out", which is excessive wear of the sidebars at the pin location. This condition can cause chain stretch, jumping of sprocket teeth, a conveyor surge, early pin breakage, and also create a dangerous situation. When a condition like this is noticed, the link should be removed and replaced. If there are several links with this problem, the chain should be replaced. Wallowing out usually occurs because of a poor press fit of the pin in the sidebars. This could occur because of poor control of the pin diameter, or more likely improper piercing of the sidebars.

Frequently maintenance personnel replace pins in chain, to increase chain life. Because of the difficulty in maintaining a press fit, some grind or turn the pin to get an easier replacement. This, of course, reduces the life of the chain and the loose pins begin turning, which then leads to the wallowing out process.

☐ 7. Lubricate the chain immediately. To be effective, the lubricant should be directed into the chain joint area where it is most effective. Adequate lubrication is the most important element in long chain life, so care should be taken to insure the lubricant seeps between the pin and bushing, and between the pins and the sidebars. The extra time it takes to do a complete job pays very big dividends in trouble free operation.

If possible, some type of oiling system should be installed to keep the joints in contact with some type of lubricant. Because clean water has some lubricating qualities, some run a stream of water over the joints with enough force to remove buildup, and to keep the joints clean. A petroleum based lubricant is better, but clean water can also be used effectively.

☐ 8. Run the chain to seat the joints and to check for any signs of pulsing, or surging. The chain should run smoothly over the sprockets and along the tracks. Tight joints will not articulate over the sprockets and can be readily observed and

immediately replaced or repaired. Usually surging chain indicates a potential problem and the need for corrective action. Some possible causes of surging:

A. Take-up tension is too tight or too loose. Best solution is to try to adjust the take-up until the chain runs smoothly without jerks or surges.

B. Improper sprocket design or number of teeth. As a general rule, use sprockets with as many teeth as practical, and use a sprocket with a diameter of 3-4 times the chain pitch.

C. If the conveyor is running at a very slow speed, try increasing the speed to overcome the frictional forces that could cause the surges.

D. Check sprockets for excessive wear patterns. Worn sprockets can cause chain to jump teeth or catch in the pockets.

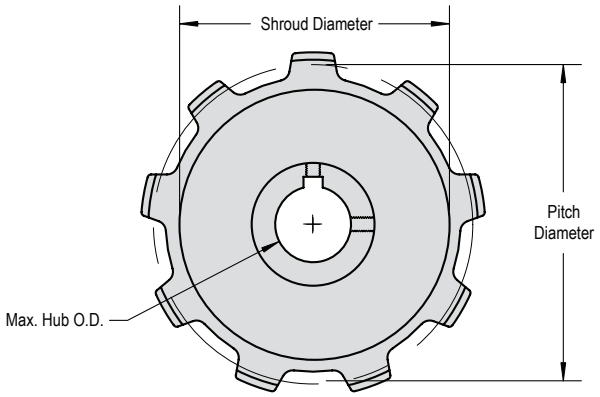
E. Check the loading of the chain and try to eliminate very rough loading onto the chain. Dropping heavy logs onto the chain is very destructive. A better method is to slide the load onto the chain without the impact of a high drop. Chains were not designed to accept a rough loading that causes the chain to jump or bounce.

☐ 9. Check all the attachments for cracked welds, tighten bolts, and look for signs of inappropriate wear. Loose attachments are particularly dangerous so make sure they are properly welded. Because most chain sidebars are heat treated, the welding of attachments becomes more critical. Use a low hydrogen rod, pre-heat the parts to be welded, and then slow cool. A good method is to toss a heavy blanket or canvass over the new weld until it cools naturally in this controlled atmosphere. Rapid cooling will cause stress cracks with will lead to premature fatigue failures.

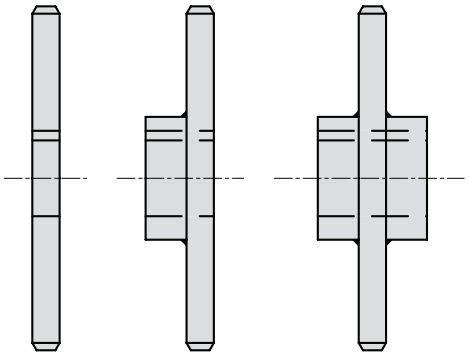
☐ 10. Remember the importance of the **three** and **six** month inspections, and remember to keep the chains well lubricated. These rules are guidelines that are sure to increase chain life, reduce failures, and improve the productivity of your operation.

ORDERING GUIDES

MILL CHAIN SPROCKET ORDERING GUIDE



FLAME CUT

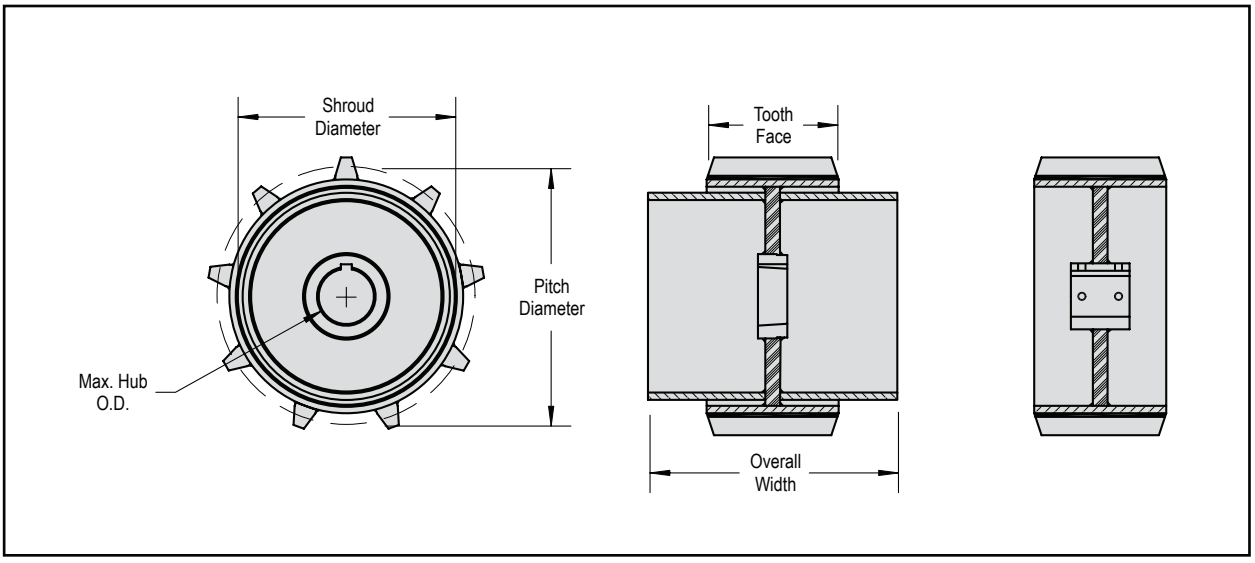


(A) (B) (C)

Quantity	Chain Number	# of Teeth	Material	P.D.	O.D.	Profile	Standard	Split to Bolt

Hub Type	Bore Size	Hub O.D.	L.T.B.	Keyed or Bushed	Comments

DRAG CHAIN SPROCKET ORDERING GUIDE



Quantity	Chain Number	# of Teeth	Material	P.D.	O.D.	Profile	Standard	Split to Bolt

Hub Type	Bore Size	Hub O.D.	L.T.B.	Keyed or Bushed	Comments

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