ASHWORTH ENGINEERING

Committed to on-time delivery of defect-free products and services, fit for use, exactly as promised, every time.

PRODUCT TECHNICAL BULLETIN

FLAT WIRE

These belts are an assembly of automatically precision-formed flat wire pickets. A continuous belt obtained by nesting the pickets and inserting straight connector rods through nominal openings. Welded or clinched edge construction.

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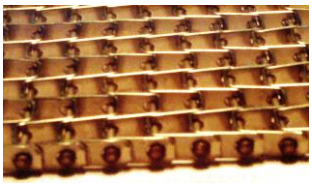
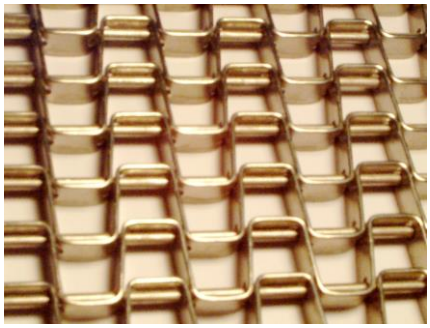
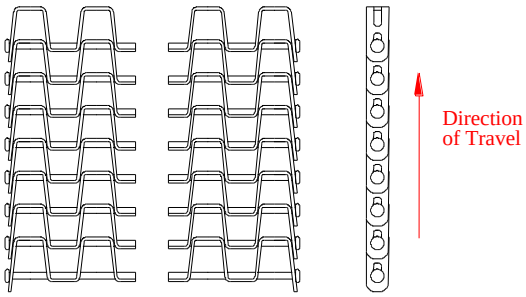


Buttonhead welds on an A5 True 1/2 x 1/2 Flat wire belt.



DEFINING CHARACTERISTICS



A5 Belt

Flat wire strip is:

- Formed into pickets with designated opening size.
- Pickets are assembled together with connector rods.
- Assembly is finished with smooth hot upset.

- **Designation:** Standard weight: FWA1, FWB1 = 1 x 1, FWA3, FWB3 = 1/2 x 1, FWA5, FWA5C, FWB5, FWB5S = 1/2 x 1/2, FWB6 = 1/2 x 1 modified. Heavy duty: FWC1 = 1 x 1, FWC1-C = 1 x 1 clinched edge, FWC2 = 1/2 x 1, FWC2-C = ½ x 1 clinched edge, FWH3 = EZ Transfer.
- **Turn Capability:** Straight run only.
- **Conveying Surface:** For FWA1, FWB1, FWA3, FWB3, FWB6, FWC1, FWC2, FWC6, FWC6SB overall belt width minus 1/4 inch [6.4 mm]; for FWC1-C and FWC2-C overall belt width minus 3/8 inch [9.5mm], for FWA5, FWA5C, FWB5, FWB5S, FWH3 overall belt width minus 3/16 inch [4.8 mm].

BELT SPECIFICATIONS

Product	Pitch (inches [mm])		Component Sizes (inches [mm])		Material (for all parts)
	Longitudinal	Lateral	Strip	Connectors	
Standard Weight 1x1,1/2x1	1.075 [27.31]	Varies By Belt Width (VBBW)	3/8 x .046 [9.5 x 1.2]	A Series: 12 Ga. = .106 [2.69] B Series: 11 Ga. = .120 [3.05]	HC Steel Galvanized Steel Stainless Steel
Standard Weight 1/2 x 1/2	.542 [13.77]	VBBW	3/8 x .046 [9.5 x 1.2]	A Series: 12 Ga. = .106 [2.69] B Series: 11 Ga. = .120 [3.05]	Stainless Steel Galvanized Steel HC Steel
Heavy Duty 1x1,1/2x1	1.084 [27.53]	VBBW	1/2 x .062 [12.7 x 1.6]	6 Ga. = .192 [4.88]	HC Steel Stainless Steel Galvanized Steel
Heavy Duty 1/2 x 1 Modified	1.084 [27.53]	VBBW	1/2 x .062 [12.7 x 1.6]	6 Ga. = .192 [4.88]	HC Steel Stainless Steel Galvanized Steel
H3 EZ Transfer 1/2 x 1	1.084 [27.53]	VBBW	3/4 x .054 [19.1 x 1.4]	9 Ga. = .148 [3.76]	Stainless Steel Galvanized Steel

Part number components explained below. Examples: FWA1, FWB3

Part number "A" designates 12-gauge .106 [2.7 mm] inch dia. connector. Part number "B" designates 11-gauge .120 [3.1 mm] inch dia. connector. Part number "H" designates 9-gauge .148 [3.8 mm] inch dia. connector. Part number "C" designates 6-gauge .192 [4.9 mm] inch dia. connector. Part numbers "1 & 3" designate a clinched edge construction exception is FWH3. Part number "2, 4, 5, 6" designates a welded edge construction FWC1-C & FWC2-C are Heavy Duty Regular belts with clinched edges. FWB6 & FWC6 have intermediate rods inserted mid-way through pickets.	FWC6SB has free-floating mid-pitch rods and bar links. FWA5SC has special beveling for smooth transfers. FWA5 has slots for exceptional cleanability. FWB5 has a strip comprising the belt, which is identified a True 1/2 x 1/2 Omni-Flex. EZ Transfer belts (FWH3) are to be used in combination with the EZ transfer plate and have welded edge construction.

Product	Conveying Surface inches [mm]	Maximum Operating Tension* lbs./foot of belt width [Newtons/meter of belt width]	Method Of Drive inches [mm]
Standard Weight 1x1 & 1/2x1	Clinched: OA Belt Width - 1/4" [6.4 mm] Welded: OA Belt Width - 3/16" [4.8 mm]	FWA1 = 350 [5,108] FWA3 = 500 [7,297] FWB1 = 420 [6,129] FWB3 = 600 [8,756]	Either friction driven with a minimum 12" [304.8 mm] diameter flat faced drum or positively driven with matching sprockets.
Standard Weight 1/2 x 1/2	OA Belt Width - 3/16" [4.8 mm]	FWA5 = 500 [7,297] FWB5 = 600 [8,759]	Either friction driven with a minimum 7.50" [190.5 mm] diameter flat faced drum or positively driven with matching sprockets.
Heavy Duty Welded Edge 1 x 1, 1/2 x 1 & 1/2 x 1 Modified	OA Belt Width - 1/4" [6.4 mm]	FWC1 = 1,350 [19,702] FWC2 = 1,750 [25,540] FWC6 = 1,700 [24,810]	Same as Standard Weight Flat Wire
Heavy Duty Clinched Edge 1 x 1, 1/2 x 1	OA Belt Width - 3/8" [9.5 mm]	FWC1-C = 1,350 [19,702] FWC2-C = 1,750 [25,540]	Same as Standard Weight Flat Wire
EZ Transfer 1/2 x 1	OA Belt Width - 3/16" [4.8 mm]	FWH3 = 780 [11,383]	Belt normally used with sprockets to insure line up with transfer plate fingers. Sometimes friction driven with a minimum 12" [304.8 mm] diameter flat faced drum.

*Values are for drum driven applications. Consult the Product Engineering Dept. with sprocket drive applications.

Maximum allowable tension is only one factor influencing expected useful life of all flat wire belting. Field experience shows that the most common cause of failure in flat wire belts is caused by repeatedly applying tension onto the belt pickets creating wear. **The rate of wear is dependent upon the environment (cleanliness, temperature, etc.), speed of the conveyor, and the belt tension.**

BELT WEIGHT

Formula: Belt width ÷ 12 x Weight lbs/ft^2 = lbs/linear ft

STANDARD WEIGHT FLAT WIRE SPECIFICATIONS									
Part No.	Mesh	% Open Area	Approx. Wt. lbs/ft^2	Edge	Width min. inches	Width min. mm	Width max. inches	Width max. mm	Allowable Tension lbs/ft
Picket: 3/8 x .046 inch Flat wire Round Edge (Connector: #12 gauge .105 inch diameter)									
A1	1 x 1	78	1.69	Clinched	16.0	406.4	208	5283.2	350
A3	1/2 x 1	77	2.00	Clinched	16.0	406.4	208	5283.2	500
A5	True 1/2 x 1/2	65	3.03	Welded	16.0	406.4	208	5283.2	500
A5SC	True 1/2 x 1/2	65	3.03	Welded	16.0	406.4	208	5283.2	500
Picket: 3/8 x .046 inch Flat wire Round Edge (Connector: #11 gauge .120 inch diameter)									
B1	1 x 1	77	1.87	Clinched	16.0	406.4	208	5283.2	420
B3	1/2 x 1	76	2.19	Clinched	16.0	406.4	208	5283.2	600
B5	True 1/2 x 1/2	64	3.18	Welded	16.0	406.4	208	5283.2	600
B6	Modified 1/2 x 1	66	2.40	Welded	16.0	406.4	168	4267.2	600
HEAVY DUTY WEIGHT FLAT WIRE SPECIFICATIONS Picket: 1/2 x .0625 inch Flat wire Round Edge (Connector: #6 gauge .192 inch diameter)									
C1	1 x 1	68	3.47	Welded	3.25	82.6	208	5283.2	1350
C2	1/2 x 1	62	3.85	Welded	3.25	82.6	208	5283.2	1750
C1-C	1 x 1	68	3.50	Clinched	24	609.6	96	2438.4	1350
C2-C	1/2 x 1	62	3.87	Clinched	24	609.6	96	2438.4	1750
C6	Modified 1/2 x 1	51	5.00	Welded	3.25	82.6	208	5283.2	1700
C6SB	Modified 1/2 x 1	51	5.00*	Welded	3.25	82.6	208	5283.2	1700
Picket: 3/4 x .054 inch Flat wire Round Edge (Connector: #9 gauge .148 inch diameter)									
H3	1/2 x 1	72	4.38	Welded	6.02	152.8	168	4267.2	780

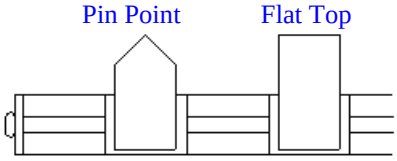
NOTES: *Allowable tension per foot of belt width for drum driven belt applications. When sprocket drive is used, the number of sprockets and other factors must be considered in the determination of the maximum allowable tension, consult our Engineering Department.*
Consult our Product Engineers for approval of wider belt widths.

BELT OPTIONS

PIN UP ATTACHMENTS

Purpose:

- The flat wire strip lifts the product from the belt surface to prevent undesirable marking and keeps the product from sliding on inclines of declines.



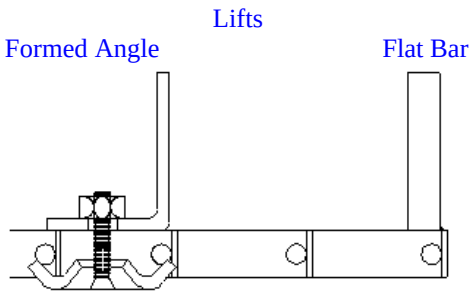
Limits for Use:

- Locate Pin Ups in even numbered belt openings only.
- Maximum height above belt surface for Standard weight = 3/8" [9.5 mm].
- Maximum height above belt surface for Heavy weight = 1" [25 mm].

Application Notes:

- Belt must be supported such that it allows pin up passage through return path.

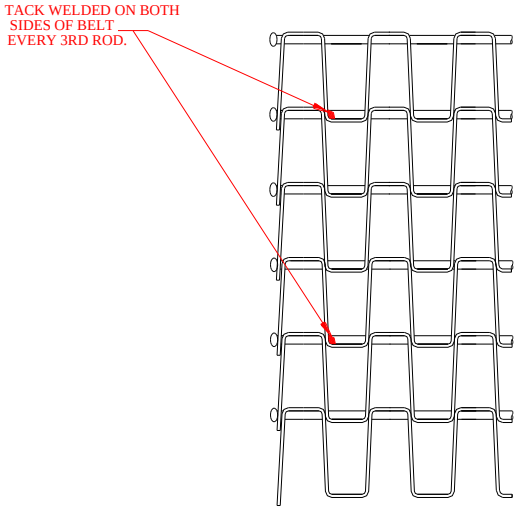
LIFTS



Purpose:
- These attachments keep the product from sliding on inclines or declines
- The Formed Angle Lift uses a flight clip to fasten to the belt (not A5/B5 belts). The Flat Bar Lift is welded to the belt.

Limits for Use:
- Lift Width = OA Belt Width - 1/2" [12.7 mm] unless specified by customer.
- Lift Thickness: Check with engineering if greater than 3/16" [4.8 mm] or smaller than 16 Ga.
- Lift Height: Check with engineering if greater than 6" [152 mm]
- Minimum Lift Spacing = 2" [51 mm].

Application Notes:
- Belt must be supported such that it allows lift passage through the return path.



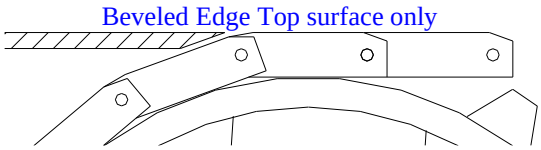
TACK WELDING (welded edge belts only)

Purpose:
- This process prevents picket compression or belt narrowing associated with high tension typically associated with belt widths 60" [1524] and greater.

Limits for Use:
- Customer must ask for the tack weld option if the belt width is less than 60" [1524 mm].
- All belts will be tack welded or brazed if the belt width is 60" [1524 mm] or greater unless otherwise specified by customer.
- Two tack welds per row located in the second opening from each belt edge. Belt widths 60" through 144" are welded every third longitudinal pitch. Belt widths 144" or greater are welded every longitudinal pitch.

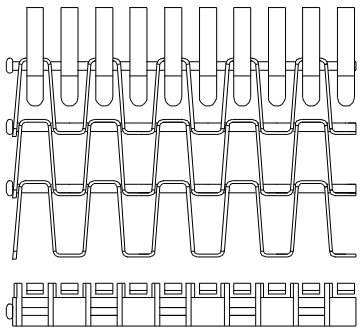
BEVELED EDGE (A3/B3 STANDARD WEIGHT 1/2 X 1 ONLY)

Feature facilitates product transfer by eliminating or reducing tippage of sharp edge cans or bottles.
Feature offers advantages on all transfer operations where the terminal roll or sprocket diameter is smaller than 10" [254 mm].



H3 EZ TRANSFER PLATE

The main consideration will be proper clearance for the 3/4 inch thick belt and mounting the EZ Transfer Finger Plate, because the plates are produced in standard modular sizes. The belt widths must be in intervals coincidental with the finger spacing.



Application notes for H3EZ Transfer:
- Transfer plates are purchased parts.
- Unfinished plates require material removal and chamfer at comb time ends
- At terminals where the finger plate is used, sprocket teeth must be reduced to 3/8 inch [9.5 mm] overall height
- Track belt before installing plates to prevent damage to the plates' tines

CAUTION:
Severe can damage may occur;
If the belt is installed upside down or backwards.
If these instructions are not carried out the belt will be ineffective.

SPROCKETS

Standard Stainless Steel sprockets** for 1/2 x 1 and 1 x 1 [12.7 x 25.4 and 25.4 x 25.4mm] standard weight belts

No. of Teeth	Overall Diameter		Pitch Diameter		Flange Diameter		Flange Width		Hub Width		Hub Diameter		Bore Minimum		Bore Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Mm
13	4.75	120.7	4.49	114.1	3.98	101.1	1.75	44.5	1.75	44.5	3.98	101.1	.75	19.1	2.63	66.8
							2.00	50.8	2.00	50.8					2.75	69.9
18	6.48	164.6	6.17	156.7	5.70	144.8	1.50	38.1	2.13	54.1	3.00 – A	76.2	.75	19.1	2.50	63.5
											4.00 – B	101.6	2.50	63.5	3.50	88.9
23	8.20	208.3	7.89	200.4	7.42	188.5	1.50	38.1	2.13	54.1	3.00 – B	76.2	1.00	25.4	2.50	63.5
											4.50 – A	114.3	2.50	63.5	4.00	101.6
37	12.98	329.7	12.64	321.1	12.22	310.4	1.50	38.1	2.13	54.1	3.50 – A	88.9	1.50	38.1	3.00	76.2

**Available on order only – not normally stocked.

Standard Cast Iron sprockets for 1/2 x 1 and 1 x 1 [12.7 x 25.4 and 25.4 x 25.4mm] standard weight belts.

No. of Teeth	Overall Diameter		Pitch Diameter		Flange Diameter		Flange Width		Hub Width		Hub Diameter & Type		Bore Minimum		Bore Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Mm
13	4.75	120.7	4.49	114.1	3.98	101.1	1.75	44.5	1.75	44.5	3.98	101.1	.75	19.1	2.63	66.8
18	6.48	164.6	6.17	156.7	5.70	144.8	1.50	38.1	2.13	54.1	3.00 – A	76.2	.75	19.1	2.50	63.5
											4.00 – B	101.6	2.50	63.5	3.50	88.9
23	8.20	208.3	7.89	200.4	7.42	188.5	1.50	38.1	2.13	54.1	3.00 – A	76.2	1.00	25.4	2.50	63.5
											4.50 – B	114.3	2.50	63.5	4.00	101.6
31	10.98	278.9	10.59	269.0	10.17	258.3	1.50	38.1	2.13	54.1	3.50 – A	88.9	1.25	31.8	3.00	76.2
											4.50 – B	114.3	3.00	76.2	4.00	101.6
37	12.98	329.7	12.64	321.1	12.22	310.4	1.50	38.1	2.13	54.1	3.50 – A	88.9	1.50	38.1	3.00	76.2
											5.00 – B	127.0	3.00	76.2	4.50	114.3
42	14.69	373.1	14.34	364.2	13.92	353.6	1.50	38.1	2.13	54.1	3.50 – A	88.9	1.75	44.5	3.00	76.2
											5.00 – B	127.0	3.00	76.2	4.50	114.3

Standard Cast Iron sprockets for 1/2 x 1/2 [25.4 x 25.4 mm] standard weight belts.

No. of Teeth	Overall Diameter		Pitch Diameter		Flange Diameter		Flange Width		Hub Width		Hub Diameter		Bore Minimum		Bore Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Mm
22	4.13	104.9	3.19	81.0	3.39	86.0	2.00	50.8	2.00	50.8	3.39	86.0	.75	19.1	2.25	57.2
38	6.89	175.0	6.56	166.6	6.17	156.7	2.00	50.8	2.00	50.8	3.50	88.9	.75	19.1	3.00	76.2
46	8.27	210.1	7.95	201.9	7.55	191.8	2.00	50.8	2.00	50.8	3.50	88.9	1.00	25.4	3.00	76.2
62	11.05	280.7	10.70	271.8	10.31	261.9	2.00	50.8	2.00	50.8	3.50	88.9	1.25	31.8	3.00	76.2
											4.50	114.3	3.00	76.2	4.00	101.6

Standard Stainless Steel Cast for True 1/2 x 1/2 [25.4 x 25.4 mm] standard weight belts.

No. of Teeth	Overall Diameter		Pitch Diameter		Flange Diameter		Flange Width		Hub Width		Hub Diameter & Type		Bore Minimum		Bore Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Mm
22	4.13	104.9	3.81	96.8	3.39	86.1	2.00	50.8	2.00	50.8	3.39	86.1	.75	19.1	2.25	57.2
38	6.89	175.0	6.56	166.6	6.17	156.7	2.00	50.8	2.00	50.8	3.50	88.9	.75	19.1	3.00	76.2

Fully Machined for True 1/2 x 1/2 [25.4 x 25.4 mm] standard weight belts.

No. of Teeth	Overall Diameter		Pitch Diameter		Flange Diameter		Flange Width		Hub Width		Hub Diameter & Type		Bore Minimum		Bore Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Mm
22	4.13	104.8	3.81	96.7	3.39	86.1	2.00	50.8	--	--	--	--	.75	19.1	2.25	57.2
38	6.89	175.0	6.56	166.7	6.17	156.7	1.00	25.4	--	--	--	--	.75	19.1	4.00	101.6
46	8.27	209.9	7.94	201.7	7.59	192.9	2.00	50.8	--	--	--	--	1.00	25.4	3.00	76.2
62	11.05	280.6	10.7	271.9	10.32	262.0	2.00	50.8	--	--	--	--	1.25	31.8	3.00	76.2

Standard Cast Iron for heavy-duty belts (#6 gauge connectors).

No. of Teeth	Overall Diameter		Pitch Diameter		Flange Diameter		Flange Width		Hub Width		Hub Diameter & Type		Bore Minimum		Bore Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Mm
18	6.66	169.2	6.25	158.8	5.66	143.8	1.50	38.1	2.13	54.1	3.00 – A	76.2	.75	19.1	2.50	63.5
											4.00 – C	101.6	2.25	57.2	3.50	88.9
											4.00 – B	101.6	2.50	63.5	3.50	88.9
23	8.39	213.1	7.97	202.4	7.39	187.7	1.50	38.1	2.13	54.1	3.00 – A	76.2	1.00	25.4	4.50	114.3
											5.00 – B	127.0	2.50	63.5	3.00	76.2
31	11.17	283.7	10.72	272.3	10.17	258.3	1.50	38.1	2.13	54.1	3.50 – A	88.9	1.25	31.8	3.00	76.2
											5.00 – E	127.0	2.25	57.2	4.50	114.3
											5.00 – B	127.0	3.25	82.6	4.50	144.3
											6.00 – C	152.4	4.25	108.0	5.50	139.7
											6.00 – D	152.4	5.25	133.4	5.50	139.7

Standard Stainless Steel for heavy duty belts.

No. of Teeth	Overall Diameter		Pitch Diameter		Flange Diameter		Flange Width		Hub Width		Hub Diameter & Type		Bore Minimum		Bore Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Mm
18	6.66	169.2	6.25	158.8	5.66	143.8	1.50	38.1	2.13	54.1	3.00 – A	76.2	.75	19.1	2.50	63.5
											4.00 – B	101.6	2.50	63.5	3.50	88.9
23	8.39	213.1	7.97	202.4	7.39	187.7	1.50	38.1	2.13	54.1	3.00 – A	76.2	1.00	25.4	4.50	114.3
											5.00 – B	127.0	2.50	63.5	3.00	76.2

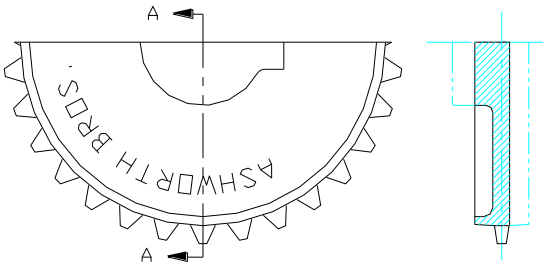
Standard UHMW for standard weight and heavy duty belts.

No. of Teeth	Overall Diameter		Pitch Diameter		Flange Diameter		Flange Width		Hub Width		Hub Diameter & Type		Bore Minimum		Bore Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Mm
13	4.90	124.5	4.53	115.1	3.90	99.1	2.00	50.8	--	--	--	--	1.00	25.4	2.19	55.6
18	6.65	168.9	6.24	158.5	5.65	143.5	2.00	50.8	--	--	--	--	1.00	25.4	3.75	95.3
23	8.39	213.0	7.96	202.2	7.39	187.6	2.00	50.8	--	--	--	--	1.00	25.4	4.94	125.4
31	11.16	283.5	10.72	272.3	10.16	258.1	2.00	50.8	--	--	--	--	1.00	25.4	7.13	183.0
37	12.97	329.4	12.68	322.1	12.22	310.4	2.00	50.8	--	--	--	--	1.00	25.4	8.94	277.0

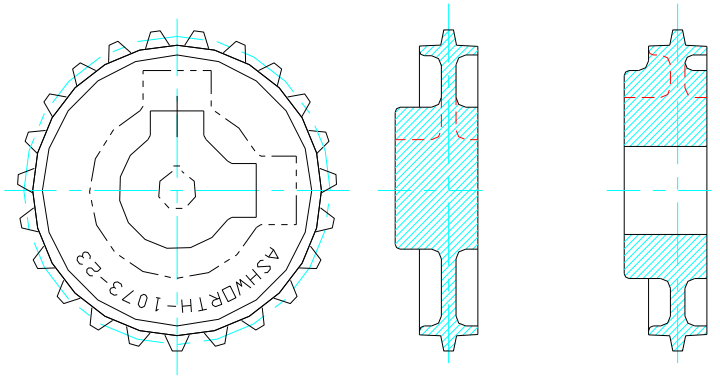
NOTES:

- *UHMWPE material type components have a 150°F [66°C] maximum operating temperature.*
- *13 through 31 tooth sprockets must have tooth height reduced to 3/8 inch [9.5 mm] for use with standard weight belts.*
- *Maximum bore sizes listed for UHMW material is based on 1/2 inch [12.7 mm] of material above keyway.*

MODIFIED SPROCKET FOR NARROW HUB WIDTH



NO. 8-23 TOOTH SPROCKET



"A" HUB **"B" HUB**

SPROCKETS

NOTES:

- *Maximum bores provide adequate material thickness for standard Keyway. Specify special sizes to be used when necessary.*
- ***Narrow Hub: Available on all sprockets when sprockets are required in every other opening (odd-numbered for drive, even-numbered for idle), sprocket width must be reduced. Standard width is 1-1/16 inch [27.0 mm] unless otherwise requested.***

Bore: Bores are typically circular, but square bores may be special ordered. Size of the bore depends on the sprocket size and application.

Keyway: American standard keyways are provided unless specified otherwise. Quantity: 0, 1, or 2

Set Screw: If extreme temperature gradient is present and tracking problems occur, suggest customer only set the middle sprockets onto shaft as outer sprockets may need to "float" along the shaft allowing for expansion and contraction of the belt. Quantity: 0, 1, or 2

Flame Hardened Teeth: Recommended where unusually severe abrasive conditions are encountered. Flame hardened sprockets should not be used as a remedy for excessive tooth wear under normal operating conditions. This will merely transfer the excessive wear to the belt. Available only with cast iron material.

SUPPORT

Sprockets are to be spaced on a maximum of 6 inch centers. Supports are required on a maximum of 6 inches apart on load side and 12 inches maximum on return side. Rollers may also be used.

NOTE: For heavier load applications, additional sprockets and/or idlers may be required.

The A5SC belt is used with standard Ashworth machined dual tooth sprockets or single tooth cast sprockets. Good supports for the A5SC belt are normal support rails or rollers on the loaded side and rollers on the return side. The belt works best when used in conjunction with a good adjustable dead plate on the discharge end.

FRICTION DRIVE

A friction drive over lagged flat-faced pulleys is recommended for heavy loads and long belt lengths. Under these conditions, the use of a lagged drum drive permits the full utilization of the allowable working tension of the belt. This condition, with sprocket drive is attainable only the use of a specially designed sprocket having teeth engaging every mesh of the belt across the full belt width.

The idler pulley should provide support for the full belt width. Terminal pulleys should be adjustable.

- GEOMETRY - Use flat faced circular drums, crowned are unacceptable.
- SIZE - Use a minimum 12 in. [305 mm] diameter for 1 in. [25 mm] pitch belts and a 7.50 in. [190.5 mm] for True ½ x ½ pitch belts.
- LAGGING - Sometimes drums are covered with urethane to increase friction between belt and drum. This covering is lagging.

POSITIVE DRIVE - TYPICAL

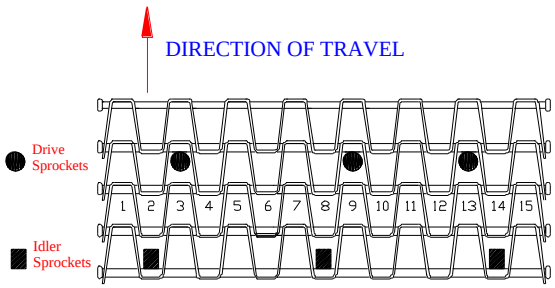
- **TYPES**
  1) Sprockets
  2) Waffle Roll - a continuous across belt width toothed member - special order.
- **SIZE** - Overall diameters range from 4-1/8 in. [104.8 mm] to 14-11/16 [373.1 mm].
- **HUBS** - Must be oriented in the same direction to keep teeth perfectly lined up and distribute stress evenly across belt width.
- **QUANTITY** - Determined for belt tension, but always a maximum spacing of 6 inches. [152 mm].

  Sprockets for heavy duty belts are rated for 50 lbs [222 N] maximum pull each and sprockets for standard weight are rated for 35 lbs [156 N] maximum pull each.

  Example:

  Heavy duty sprockets for 36 inch [914 mm] wide belt (C2), having a calculated tension of 450 lbs [2002 N].

  450/50 = 9 or 36/6 maximum spacing = 6
  Use the larger of the two.
  ∴ 9 sprockets recommended



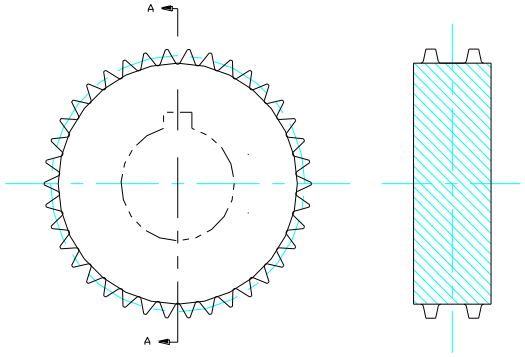
LOCATION OF DRIVE AND IDLER SPROCKETS

Proper location and placement of the sprockets is important as it results in smoother belt operation, reduced wear on the sprockets and better distribution of belt wear. Teeth of the sprockets should ***always*** drive against the round connector. This condition is fulfilled by placement of the *Drive* and *Idler* sprockets. Drive in odd numbered openings insuring outside sprockets is located in the third openings from each belt edge. (Assists belt in resisting fatigue fractures by providing two load-carrying legs.) Idle in even numbered openings insuring outside sprockets are located in the second openings from each belt edge.

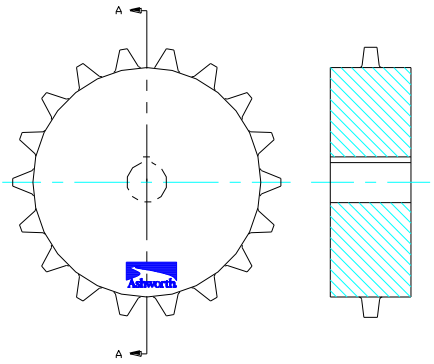
Space sprockets evenly along drive and idler shafts ensuring that the outside drive sprockets are located exactly three mesh openings from each belt edge. Drive sprockets are located in odd numbered mesh openings. Idler sprockets are located in even numbered mesh openings.
Ensure that the hubs of all sprockets on the same shaft are facing in the same direction. This will ensure that each drive sprocket tooth will be contacting the round connecting wire and sharing in its part of the load.

SPROCKET DRIVE
Sprockets provide Positive drive of the flat wire belt design. Sprockets will, to some extent, tend to keep the belt properly aligned; however, sprocket drive should not be selected as a "cure all" for belt control problems. True belt travel for all belt designs is a combination of belt manufacture of to close tolerances plus correct conveyor design and proper belt installation.

NO. 6-38 DUAL TOOTH SPROCKET



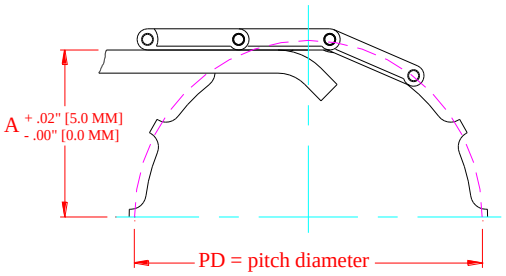
18 TOOTH UHMW PE SPROCKET



WEARSTRIP PLACEMENT

A = ½ X PD – {0.188 inch [4.8 mm] Standard Weight or .250 inch [6.4 mm] Heavy Duty}

- This is only a guideline; it does not take into account the influence of speed.
- At speeds above 75 ft/min [23 m/min] Ashworth recommends increasing the distance A and shortening the wear strips as much as one belt pitch in length. (Nominal Belt Pitch = 0.542 inches [13.8 mm] for True 1/2 x ½, 1.084 inches [27.5 mm] for heavy duty flat wire and 1.075 inches [27.3 mm] for standard weight flat wire)



ENGINEERING CALCULATIONS

Friction Factors By Product Type and UHMW Wear Strips	
PRODUCT	***fr***
Clean and/or Packaged Product	0.20
Breaded or Flour Based Product	0.27
Greasy, Fried Product below 32°F	0.30
Sticky, Glazed, Sugar Based Product	0.35
• Coefficient of Friction (*fr*) with Stainless Steel Belt Supports = 0.40 • Coefficient of Friction (*fr*) with Free Turning Rollers Belt Supports = 0.10	
Friction Factors By Temperature and Mild Steel Belt Supports	
TEMPERATURE °F [°C]	***fr***
to 1000 [538]	0.35
1001 to 1200 [538 to 649]	0.37
1201 to 1400 [649 to 760]	0.40
1401 to 1600 [760 to 871]	0.44

True 1/2 x 1/2
Flat wire sprocket

QUANTITY OF DRIVE SPROCKETS
To determine the required number of drive sprockets:

STEP 1. Calculate number of sprockets assuming maximum allowable spacing of 6 inches [152 mm].
Round up to nearest whole number. If sprockets are spaced greater than 6 inches [152.4 mm] on the crankshaft, the round connectors and may render the belt unserviceable.

For all Flat Wire the recommended number of sprockets:
(BW/6) + 1, or [(BW/152 mm) + 1]

STEP 2. Calculate number of sprockets to carry belt tension. Round up to nearest whole number.
Let BS = Belt Speed, feet per minute [meters per minute]
BT = Belt Tension at drive shaft, pounds [Newtons]

STEP 3. Larger of the two calculated values is the recommended number of drive sprockets.

QUANTITY OF TAKE UP AND IDLER SPROCKETS

Calculate number of sprockets using the maximum allowable spacing. Round up to nearest whole number. If sprockets are not spaced correctly on the crankshaft and positioned correctly on the round connectors, this may render the belt unserviceable.

NOTE: Consult our Product Engineers for approval of sprocket spacing according to belt width and belt tension.

For all Flat Wire the minimum recommended number of sprockets:
(BW/6) + 1, or [(BW/152 mm) + 1]

	Belt Speed (BS)		
Belt Type (BT)	BS<20 [6.1]	20<BS<75 [6.1]<BS<[22.9]	BS>75 [22.9]
Standard Weight Flat Wire	BT/50 [BT/222]	BT/35 [BT/156]	BT/35 [BT/156]
Heavy Duty Flat Wire	BT/100 [BT/445]	BT/50 [BT/222]	BT/50 [BT/222]

SYSTEM REQUIREMENTS

To Reduce Belt Tension and Wear:

- Clean product debris from support rails.
- Clean ice and product debris from belt, sprockets, and filler rolls to prevent belt damage.
- Observe effect of temperature on coefficient of friction between the supports and the belt. Products may leave a slick residue at room temperature that turns into a tar like substance as temperature decreases. At freezing temperatures the debris may become slick again or leave a rough surface depending upon its consistency.
- Lubricate support rails to reduce friction between rails and belt.
- Clean lubricants off belts inside edge. (This applies to spirals not fixed turns.)
- Replace worn wear strips on supports and on inside edge of turns.
- Remove weight from take-up loop. Align sprockets properly and insure that they do not migrate on shaft.
- Load belt so that belt weight, product loading, friction factors, and belt path does not cause belt tension to exceed maximum allowable limit.
- Decrease belt speed.

Consult our Product Engineers for other options specific for your application and system design.

Reference: *Product Technical Bulletin "Conveyor Design Guidelines".*

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