CALCULATE ELEVATOR BELT WORKING TENSION

B = Belt weight in pounds per lineal foot. Start with belt that is adequate for bucket projection given, obtain belt weight in pounds P.I.W. and multiply times belt width

C = Weight of each bucket in pounds

D = Discharge height of elevator (use 1/2 of belt length if discharge height is not given).

K = Capacity of each bucket in CUBIC FEET.

S = Bucket spacing in inches

W = Weight of material being elevated in pounds per cubic foot.

1. Tension due to weight of belt B x D = _____
2. Tension due to weight of buckets (12 x C x D) ÷ S = _____
3. Tension due to load in each bucket (12 x K x D x 2) ÷ S = _____
4. Tension due to scoop factor {(12 x K x W) ÷ 12 } X 25 = _____

TOTAL TENSION = Add lines 1 thru 4 = _____

Divide by belt width to obtain MINIMUM belt tension rating. Check rating selected to be sure maximum bucket projection is not exceeded.

NOTE: For belts with more than one row of buckets, calculate the tension for one row only using the appropriate percentage of belt width in step 1. Ex. A 30" wide belt with 2 rows of buckets should figure the tension using 15" of belt width.

Information Needed for Ordering Correctly Sized Belt

1. Pulleys Center-to-Center: _____ Ft.
2. Head Pulley Diameter: _____ Inches
3. Tail Pulley Diameter: _____ Inches
4. Head Shaft RPM: _____
5. Belt Width: _____ Inches
6. Material Handled _____
7. Material Weight _____ Lb./cu ft
8. Rows of Bucket on Belt: _____
9. Bucket Spacing _____ Inches

BUCKET DETAIL

A. Manufacturer _____
B. Construction Material _____
C. Size _____
D. Style _____
E. Number of Bolt Holes _____
F. Bolt Size _____
G. Bolt Hole Centers _____
H. Bucket Capacity _____

GENERAL TECHNICAL INFO

For best results, the diameter of the head pulley should be at least 5 times the projection of the bucket - with the diameter increasing for taller legs.

The chute or discharge box should be located at least 2 inches below the bottom of the head pulley. The throat to the down-leg should be closed as much as possible with a piece of rubber. Venting on the roof is optional but some form of air relief is recommended. The head pulley to tail pulley ratio also affects the performance of an elevator. A small tail pulley decreases the loading efficiency as well as increases the wear and tear on the buckets and belt. Feeding on the up leg above the tail shaft is preferred.

TABLE OF SPEED - CC BUCKETS

Pulley Inch Dia	RPM Range	FPM - Belt Range
8	85-170	176-352
10	85-170	224-448
16	55-100	230-418
20	55-85	286-443
22	55-80	316-460
24	42-80	264-502
30	42-80	330-628
36	42-80	395-753
42	40-70	439-769
48	40-65	503-817
54	40-65	565-919
60	40-60	628-942
72	40-55	754-1036

All formulas and charts are for reference only and does not necessarily mean that the calculations will represent actual results.

INSTALLATION TOOLS

HAND TOOLS

Hammer-driven punch, wrench used with carpenter's brace, boring bit used in electric drill.

Bolthorn
Used with either power or hand tool method to ease bolts into Flexco top plates, except Nos. 2½ & 3.

FASTENER NUMBER	PUNCH	BORING BIT	WRENCH	BOLT BREAKER
No. 1, 140, 190 RP1, SP6	P1P	B1B Fits ⅜" Drill	S1S	110
No. 1¼, 1½, 2, 2¼, RP2	P2P	B2B Fits ⅝" Drill	S2S	112
No. 2½, 3	P3P	B3B Fits ½" Drill	S3S	113

FASTENER NUMBER	HINGED PUNCH	HINGED BORING BIT	HINGED WRENCH	HINGED BOLT BREAKER
No. 375, 550	P1P	B1B Fits ⅜" Drill	100	110
No. 750	P3P	B3B Fits ½" Drill	S3S	113

POWER TOOLS

For use with square drive, air or electric impact tool. Cut application time by approximately 50%.

Quick Change Chuck
Adapts boring tools and wrench to square drive stud on air or electric impact tool.

No. 5552 for ½" Impact tools. No. 9257 for ⅜" impact tools. ½" tools recommended for No. 375 and No. 550 because larger tools tend to break the bolts in application.

FASTENER NUMBER	POWER PUNCH	POWER BORING BIT	POWER WRENCH	BOLT BREAKER
No. 1, 140, 190 RP1, SP6	HP1	HB1	HW1	110
No. 1¼, 1½, 2, 2¼, RP2	HP2	HB2	HW2	2
No. 2½, 3	HP3	HB3	HW3	3

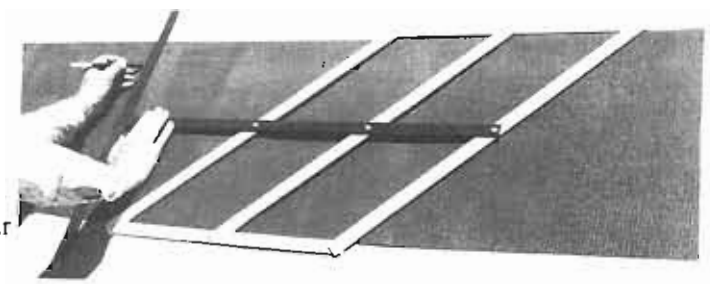
FASTENER NUMBER	HINGED POWER PUNCH	HINGED POWER BORING BIT	HINGED POWER WRENCH	HINGED BOLT BREAKER
No. 375, 550	HP1	HB1	H100	110
No. 750	HP3	HB3	HW3	113

Punch preferred over boring bit for generel use end where belt cover is over ⅞" thick.

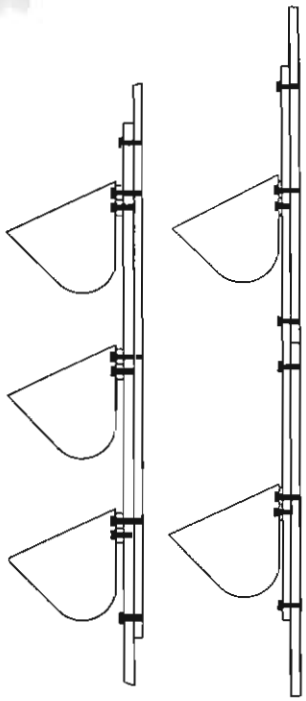
ACCUSQUARE

The Perfect Belt Squaring Tool

- Five Sizes cover all widths from 4" to 72"
- Perfectly square ends are ready to cut in seconds
- Easy and quickly squares the end
- T-square made of welded steel for strength
- Aligning frame made of aluminum for weight
- Just lay belt and squaring tool on any flat surface, mark your line and cut



BELT SPLICING METHODS



Lap Joint Butt Joint

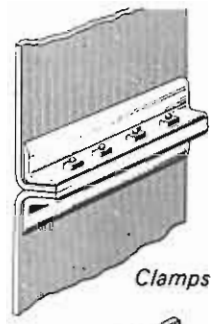
Lap Joint — Best splice for thin belts. Lap belt ends two to four times bucket spacing and bolt the buckets through both belt strands. For centrifugal discharge elevators, only the top row of bolts should pass through both belt strands. On heavy belting, the inside strand edge should be tapered for smoother pulley passage.

Butt Joint — Best splice for heavy belts. Cut belts to proper length and square ends. Butt ends together and fasten with a strap cut from extra belt. Use bucket bolts, rivets, or button fasteners. Strap should be of the same belting as the main belt, and it should pass under at least two buckets. Only one row of bolts in each bucket should pass through both belt strands.

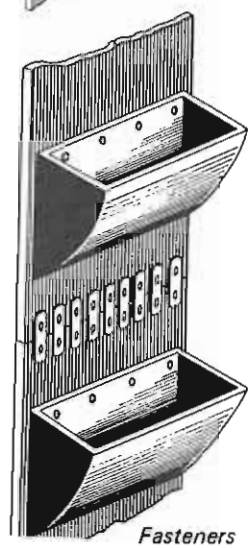
Metal Clamps & Metal Fasteners — Used on thin, light-duty belts.

Clamps — Two pieces of small angle iron are cut 1″ shorter than belt. Sharp corners should be ground or filed. Drill clamp and belt ends for 1/2″ bolts on 2″ centers. Bolt belt ends between clamps.

Fasteners — Two-plate type fasteners are used to clamp the butt ends of the belt. They give a relatively strong splice, easily and rapidly applied.



Clamps

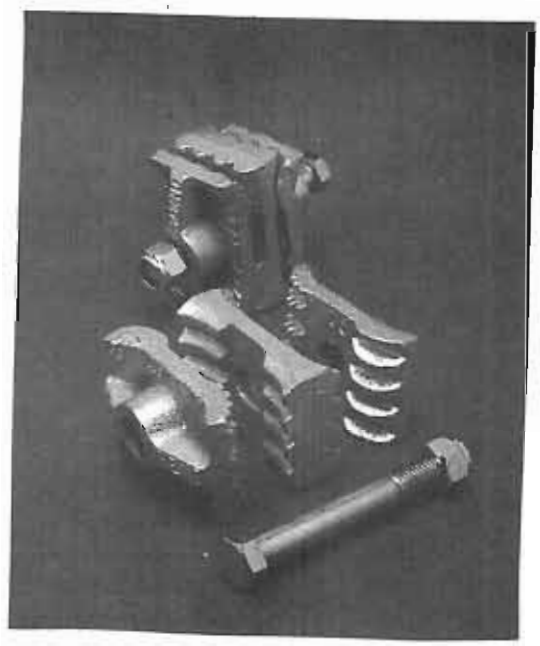


Fasteners

DURA-SPLICE FASTENERS

Description

- Mechanical Clamping Device with a simple three-piece construction for use on PVC and rubber belting.
- Accommodates belts of all thicknesses.
- Standard splice bolts will accommodate up to 1/2" thick belting. Longer bolts are available for thicker belts
- Each set accommodates two inches of belt width.
- Tested and approved by leading belting manufacturers.



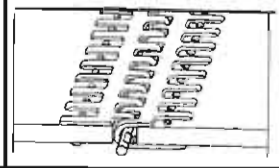
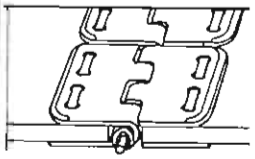
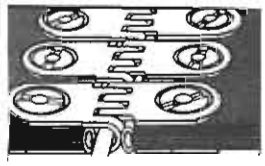
AB Style

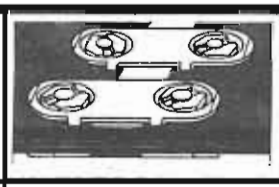
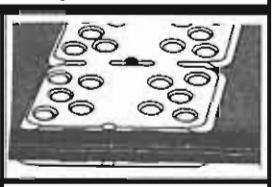
- Non-sparking
- Non-corroding
- Non-rusting
- Non-ferrous metal of high tensile strength
- Usable on belts up to 1200 PIW tensile
- Bronze in color

CI Style

- Ferrous metal of moderately high tensile strength
- Usable on belts up to 600 PIW tensile
- Silver in color

BELT FASTENERS

Fastener Type	Alligator Lacing	Alligator Staple	Bolt Hinged	Rivet Hinged (SR)
Hinged Belt Fastener Systems				
				
Recommended Maximum Operating Tension, PIW (Pounds per Inch of Width)	Various size facing for belts mechanically rated up to 200 PIW	Fastener Size / PIW Range (Up To) 62 — 100 PIW 125 — 160 PIW 187 — 200 PIW 310 — 250 PIW	Fastener Size / PIW Range (Up To) 375X — 190 PIW 550 — 300 PIW 750 — 400 PIW	Fastener Size / PIW Range (Up To) R5 — 450 PIW R5 1/2 — 650 PIW R6 — 800 PIW
Belt Thickness Range Inch (Smallest to Largest Size Fastener)	1/16 to 1/2"	1/16 to 5/16"	1/4 to 7/8"	7/32 to 11/16"
Pulley Diameter Range	1" to 14"	2" to 4"	6" to 20"	9" to 18"

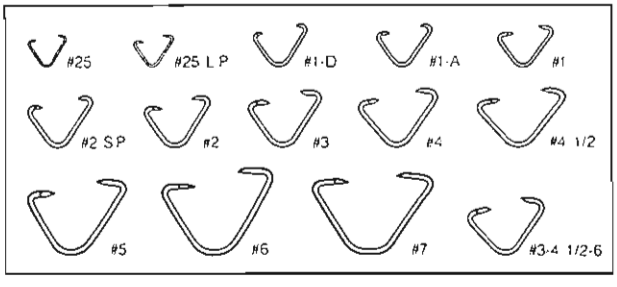
Fastener Type	Flexco Bolt Solid Plate	Flexco Rivet Solid Plate (BR)
Solid Plate Belt Fastener Systems		
		
Recommended Maximum Operating Tension, PIW (Pounds per Inch of Width)	Various Size Fasteners are recommended for belts with mechanical ratings up to 550 PIW Wedlock in belts with operating tensions up to 700 PIW	Fastener Size / PIW Range (Up To) BR10 — 650 PIW BR14 — 800 PIW
Belt Thickness Range (Smallest to Largest Size Fastener)	3/16 to 1 3/16"	7/32 to 15/16"
Pulley Diameter Range	1" to 14"	2" to 4"

HOOK SELECTION CHART

HOOK SIZE	BELT THICKNESS	MINIMUM PULLEY DIA	NO OF HOOKS PER CARD	RECOMMENDED LACER	
	Inches	Inches	LW #95/12"	Manual	Power
#25	up to 1/16"	15/16"	85, 186	#12 Lacer Or LW #95 W/#25 Retainer	Electric Hydraulic 12", 25", W/#25 Retainer
#25 L P	1/16"-1/8"	15/16"	85, 186		
#25 L L	up to 1/16"	2"	85, 186		
#25 Rect L L	1/16"-3/32"	2"	85, 186		
#1-D	1/16"-3/32"	2"	44, 100	Roller Lacer, #12 Lacer Or LW #95 W/#1 Retainer	Electric Hydraulic 12", 25", W/#1 Retainer
#1-A	3/32"-1/8"	2"	44, 100		
#1	1/8"-5/32"	2"	44, 100		
#1 L L	1/16"-5/32"	3"	44, 100		
#2 S P	1/8"-5/32"	3"	38, 84	Roller Lacer, LW #95, Or #12 Lacer With Chain Drive Attachment	Electric Hydraulic 12", 25"
#2	5/32"-3/16"	3"	38, 84		
#3	3/16"-7/32"	3 1/2"	38, 84		
#3-4 1/2-6	7/32"-1/4"	3 1/2"	38, 84		
#4	7/32"-1/4"	4"	38, 84		
#4-2	5/32"-3/16"	4"	38, 84		
#4 1/2 & Rect	1/4"-9/32"	4"	38, 84		
#5	9/32"-5/16"	5"	38, 84		
#6	5/16"-3/8"	6"	38, 84		
#7	3/8"-13/32"	6"	38, 84		
U1	1/8"-5/32"	3 1/2"	38, 84	Roller Lacer, LW #95 Or #12 Lacer With Chain Drive Attachment	Electric Hydraulic 12", 25"
U2	5/32"-3/16"	3 1/2	38, 84		
U3	3/16"-7/32"	3 1/2	38, 84		
U4	7/32"-1/4"	5"	38, 84		
U5	9/32"-5/16"	5"	38, 84		

Connecting Pins

PIN SIZE	PIN DIAMETER	FOR USE WITH THESE HOOKS
#25	065	#25 SERIES
#13	093	#1 SERIES, #2 , #3, U1, U2, U3
#12	109	#4, U4
#11	125	#4½, #5, U5
# 9	156	#6, #7



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Alligator Lacing Hinged Fastener

Lacing Size No.	For Belts with Mechanical Fastener Ratings up to: PIW	Belt Thickness Range Inches	Recommended Minimum Pulley Diameter Inches
00	25	Up thru 1/16	1
1	45	1/16 - 3/32	1-1/2
7	50	3/32 - 9/64	2
15	65	1/8 - 5/32	2-1/2
20	95	5/32 - 3/16	3
25	100	3/16 - 7/32	4
27	100	7/32 - 9/32	5
35	150	9/32 - 5/16	7
45	165	5/16 - 3/8	9
55	175	3/8 - 7/16	12
65	200	7/16 - 1/1	14

Alligator Staple Hinged Fastener

Fastener Size No	For Belts with Mechanical Fastener Ratings up to: PIW	Belt Thickness Range Inches	Recommended Pulley Diameter Inches
62	100	1/16 - 1/8	2
125	160	1/8 - 3/16	3
187	200	3/16 - 1/4	4
310	250	1/4 - 5/16	4

Flexco Bolt Hinged Fastener

Fastener Size	For Belts with Mechanical Fastener Ratings up to: PIW	Belt Thickness Range Inches	Recommended Minimum Pulley Diameter	
			Operating Tension of 100% of Belt Rating Inches	Operating Tension Under 75% of Belt Rating: Inches
375X	190	1/4 - 13/32	6	4
550	300	1/4 - 5/8	9	7
750	400	9/16 - 7/8	20	18

Flexco Rivet Hinged Belt Fastener

Fastener Size	For Belts with Mechanical Fastener Rating Up to : PIW	Belt Thickness Range Inch	Recommended Minimum Pulley Diameter	
			Operating Tension Under 100% of Belt Rating : Inch	Operating Tension Under 75% of Belt Rating : Inch
R5	450	7/32 - 7/16	9	7
R5-1/2	650	3/8 - 19/32	12	10
R6	800	13/32 - 11/16	18	16

Flexco Rivet Solid Plate Fastener

Fastener Size	For Belts with Mechanical Fastener Ratings up to: PIW	Belt Thickness Range Inch	Recommended Minimum Pulley Diameter		
			Operating Tension 75%-100% of Belt Rating : Inch	Operating Tension 50% - 75% of Belt Rating : Inch	Operating Tension Under 50% of Belt Rating: Inch
BR-10	650	7/32 - 11/16	18	16	14
BR-14	800	13/32 - 15/16	36	34	34

Flexco Bolt Solid Plate Fastener

Fastener Size	For Belts With Mechanical Fastener Ratings Up to: PIW	Belt Thickness Range Inch	Recommended Minimum Pulley		
			Operating Tension 75-100% of Belt Rating: Inch	Operating Tension 50-75% of Belt Rating: Inch	Operating Tension Under 50% of Belt Rating : Inch
1	160	3/16 - 7/16	12	10	8
140*	225	3/16 - 7/16	14	12	10
190	330	5/16 - 9/16	18	16	14
1 1/2	300	7/16 - 11/16	18	16	14
2	440	9/16 - 13/16	30	28	24
2 1/4	620	9/16 - 1 3/16	36	34	34
2 1/2	450	3/4 - 1	42	42	42
3	560	15/16 & over	48	48	48
SP6	150	1/4 - 1/2	14	12	10