

INDEX

INTRODUCTION/ WARRANTY	3
BELT INSTALLATION	4
BASE BELT SPLICING	6
BASE BELT DIAGRAMS	8
AXB220 4-Ply 2+2	
AXB330 5-Ply 3+2	
AXB440 6-Ply 4+2	
CLEAT AND SIDEWALL SPLICING	14
Sidewall Splicing Diagrams	
DUROWALL Troubleshooting	
Causes and Cures	
FIELD REPAIR	20
Cleat Repair	
Sidewall Repair	
SAFETY	22
MAINTENANCE	23
DUROWALL TRACKING GUIDELINES	24
RETURN IDLER OPTIONS	25
IDLER SPACING AND PLACEMENT	26
Idler Spacing / Carrying Idlers / Return Idlers / Do not Snub a DUROWALL™ Belt	
Deflection Wheels / Bend Radius / Continuous Curve	
BELT TENSIONING AND TRACKING	28
BELT CLEANERS	29
DUROWALL TERMINOLOGY	30
RULES OF THUMB	31

INTRODUCTION

The material in this technical handbook, along with any other written or verbal information from Apache is provided for the convenience of the DUROWALL™ Belt user.

The DUROWALL conveyor belt incorporated in your conveyor system will provide long term service if properly installed and maintained.

This publication includes some important points of concern for assurance of satisfactory service life of the DUROWALL belt.

Conventional methods for the preparation and splicing of the base belting are applicable and many local belt splicing and repair organizations are capable of performing this work. Either cold bonding or hot bonding methods can be applied.

WARRANTY

All merchandise designed, manufactured or assembled by Apache, is warranted at the time of shipment to be free from defects in the original design, material and manufacture, provided such merchandise is properly installed and used only for the intended purpose and under normal service conditions. Liability with respect to any such merchandise proved defective is limited to buyer's net purchase price or, at Apache's option, to the repair or replacement thereof upon its return to Apache freight prepaid. In no event shall Apache be liable to supply or pay for labor, downtime, or any loss or damage, either direct, incidental or consequential.

All merchandise supplied by Apache but designed, manufactured and assembled by others shall be accepted by the Buyer with only those warranties made by such vendors or manufacturers and in lieu of any additional warranties on the part of Apache

THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

BELT INSTALLATION

ALIGNMENT & LEVELING

There is no substitute for perfect alignment and leveling to obtain proper belt operation. The following points must be checked to assure successful belt performance:

- ▶ The conveyor structure must be true (relative to center line) and level (side to side).
- ▶ All pulleys, deflection wheels, carrying idlers, and return idlers must be square with the frame, perpendicular to belt center line, and parallel to each other.
- ▶ Belt ends must be checked to assure they are properly squared.
- ▶ Ample clearance should be provided on both sides, as well as above and below the head, tail and bend sections.

Once the above points have been checked (and corrected if necessary), the belt may be brought to the point of installation. It should be mounted on a shaft or layered end for end (reefed) for purposes of threading onto the conveyor. Great care should be exercised to see that the loops at the ends of each layer have sufficiently large bends to prevent kinking or folding, thus placing undue strain on the belt and sidewall. Weight should never be placed on the belt in a layered position.

INSTALLATION

1. Thread belt over the drive and tail pulleys. Be sure belts fitted with scoop type cleats are oriented in the direction of belt travel. On return side the top wall edge or belt recess is supported by idlers.

The belt may be pulled onto the conveyor by:

- ▶ Threading a rope or cable around the idlers and pulleys, then connecting the rope to the new belt. A clamp should be used which will evenly distribute the pulling load over the width of the belt.
- ▶ The belt may be threaded by hand.
- ▶ The new belt can be attached to the end of the old belt which has been cut for replacement.

2. Fasten each end of the belt. The proper joining of the belt ends is one of the more critical aspects of successful conveyor operation. See section on *Base Belt Splice (page 5)* and *Sidewall Splice (page 13)*.

3. Remove slackness of belt with tail pulley take-up adjustment. Avoid over-tensioning of belt. This is best accomplished when drive-pulley is powered. Proper tension is arrived at when slippage between belt and drive pulley does not occur. (When belt is later loaded with product to be conveyed, the additional weight will increase tension.)

4. Run conveyor belt empty to make further adjustment for training. Careful attention must be given by installation crew to assure that belt is running "on-center", otherwise damage to the belt sidewalls could occur. Most conveyors are equipped with off-center limit switch arrangements to provide alarm or shut-down and thus force correct adjustment by operator. Dependent on belt, total length, and base belt construction, belt should be allowed to run until a normal pre-stretch is compensated for in the take-up and training.

5. After the belt is installed and running properly, readings of volts, amperes and watts for the empty belt should be taken. These readings and the length of the conveyor should be recorded to be used as a standard of performance. They will be invaluable at a later date to check against similar readings to determine if the belt conveyor is operating normally. If the meter values are much in excess of the standard values for the same length of empty belt, immediately check the belt line for frozen idlers, return belt dragging on the bottom, or other factors that would cause the increased load on the motor. For shorter or longer lengths of the same conveyor, the reading of watts for the same voltage would be approximately proportionate to the standard readings. These meter readings are a convenient, quick and an invaluable check on proper belt conveyor operation.

6. Once all conditions are satisfied belt may be loaded with material. Again, belt should be observed for proper trackage and adjustment.

BASE BELT SPLICING

A critical aspect of successful conveyor operation is the proper joining of the belt ends. Essentially, there are two options: a mechanical fastener or an endless vulcanized splice.

The most common method of joining belt ends is the use of mechanical metal fastener. For a DUROWALL™ sidewall unit, the fasteners must be of the hinged type. It is suggested that the manufacturer's catalogs be consulted for proper sizing and method of application.

For belts with factory supplied hinged type fasteners, join base belt splice using hinged pin supplied (pin is taped in fastener for shipping).

Conventional methods for the preparation and splicing of the base belting are applicable. Many local belt splicing and repair organizations are knowledgeable and equipped to perform this work. Either cold bonding or hot bonding methods can be applied.

Prepared properly, endless vulcanized splices closely approximate the tensile of strength of the belt itself. The following illustrations show the proper preparation and endless splicing techniques for DUROWALL belting. All dimensions are in inches.

COLD VULCANIZING PROCEDURE

1. Unless belt is supplied with walls left unbonded in the splice area, it is necessary to strip sidewalls away from the base belt in order to provide ample space for vulcanizing the base belt. Use a sharp blade at the point of bonding and at the same time pull the wall and belt uniformly in opposite directions.
2. Prepare ends to exact endless length required. *For Cross Rigid Base Belt this is important.* Do not loosen more than needed.
3. *Pang or Rema Cold Vulcanizing Cements* are recommended by Apache as the bonding agent and is available by calling 1.800.553.5455.

Pang or Rema Cold Vulcanizing Cements consist of two components, cement and an activator, which must be mixed prior to use. It is generally supplied in a 1 kg. can and a small glass bottle, the latter being the activator. The total quantities are in the correct proportions. Smaller quantities may be used based on a ratio of 15:1 by weight.

Shelf life of the unmixed components is short, approximately three months when stored in a cool area. When mixed, the pot life is approximately one to two hours before the cement will begin to set.

MIXING

The activator should be added to the cement and gently stirred until a completely uniform mixture is achieved. This normally takes a few minutes. If partial quantities are used, close the original containers firmly and immediately to prevent the escape of the solvents.

If necessary, the mixed cement may be thinned by the judicious addition of tricholethylene.

APPLICATION INSTRUCTIONS

The respective contact surfaces must be well-roughened; using a wire wheel or belt sander with number 24 grit. The greatest attention should be paid to this operation which has considerable influence on the durability of the ultimate bond.

The cleaned surfaces of the parts to be joined should be painted with the Pang or Rema mixtures allowing it to dry for about thirty minutes. A second application of the mixture should then be applied and also allowed to dry completely.

Apply a third coat of the mixture, but allow to dry only until slightly sticky (tacky). Test stickiness with the back of your hand. If the third coat is allowed to dry past the point of sticky (tacky), apply a fourth coat.

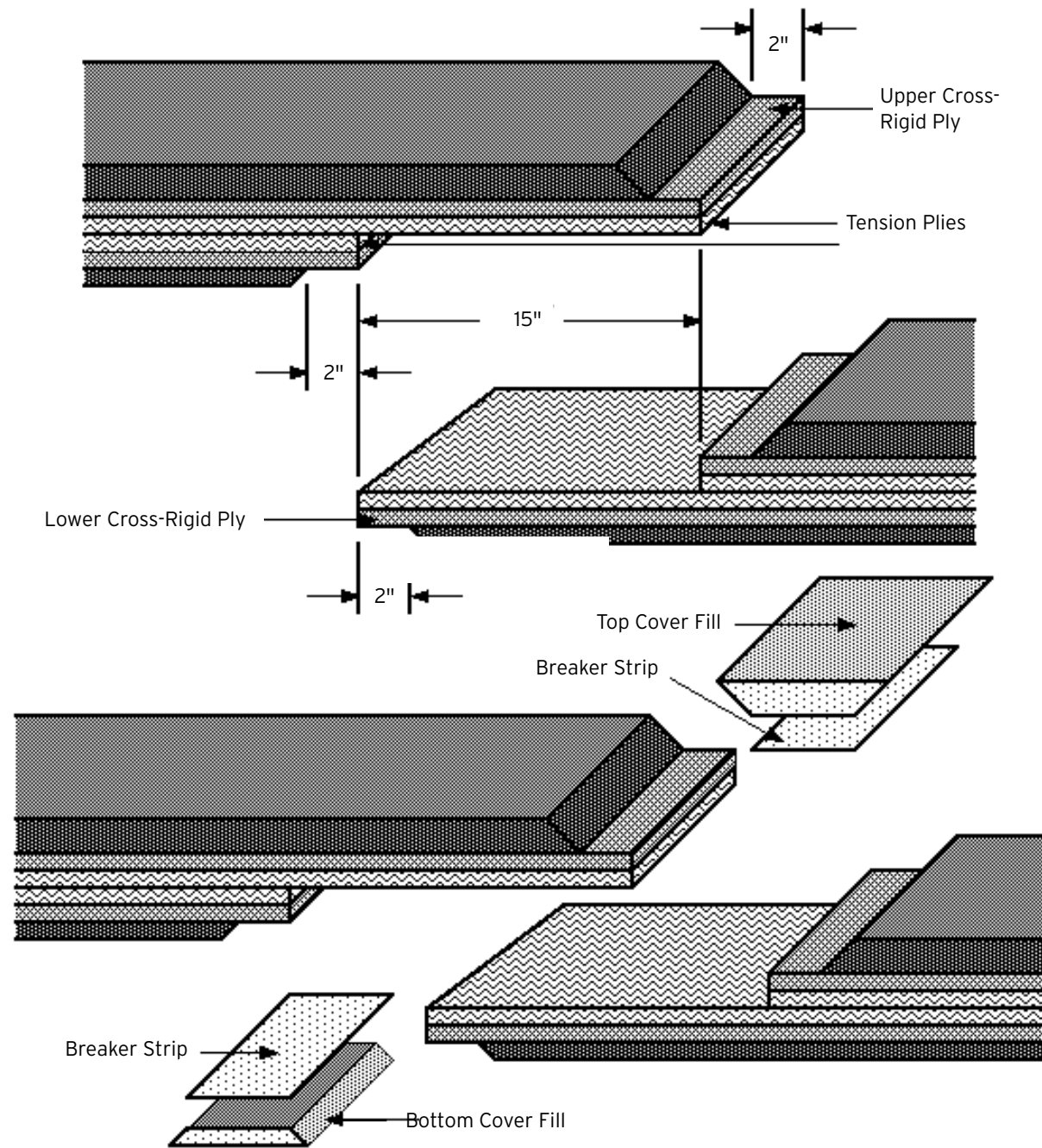
At this time the contact surfaces should be joined carefully in the exact final position. It is important to hammer the mating surfaces together so as not to allow any air to remain between the surfaces. Air-driven or electrically powered "chipping" hammers fitted with fairly flat mushroom heads have proven most practical for field work of this type. After hammering, if possible, we recommend continuing pressure by weighing down or clamping with boards, etc.

The belt can be operated safely after approximately 24 hours. However, the final strength is not yet reached and an additional day is recommended whenever possible.

Note: Do not perform cold vulcanizing if the temperature is below 40 degrees Fahrenheit or if condensation is present on the work surfaces. It is essential that the surfaces being bonded be kept free of dust, dirt, and moisture.

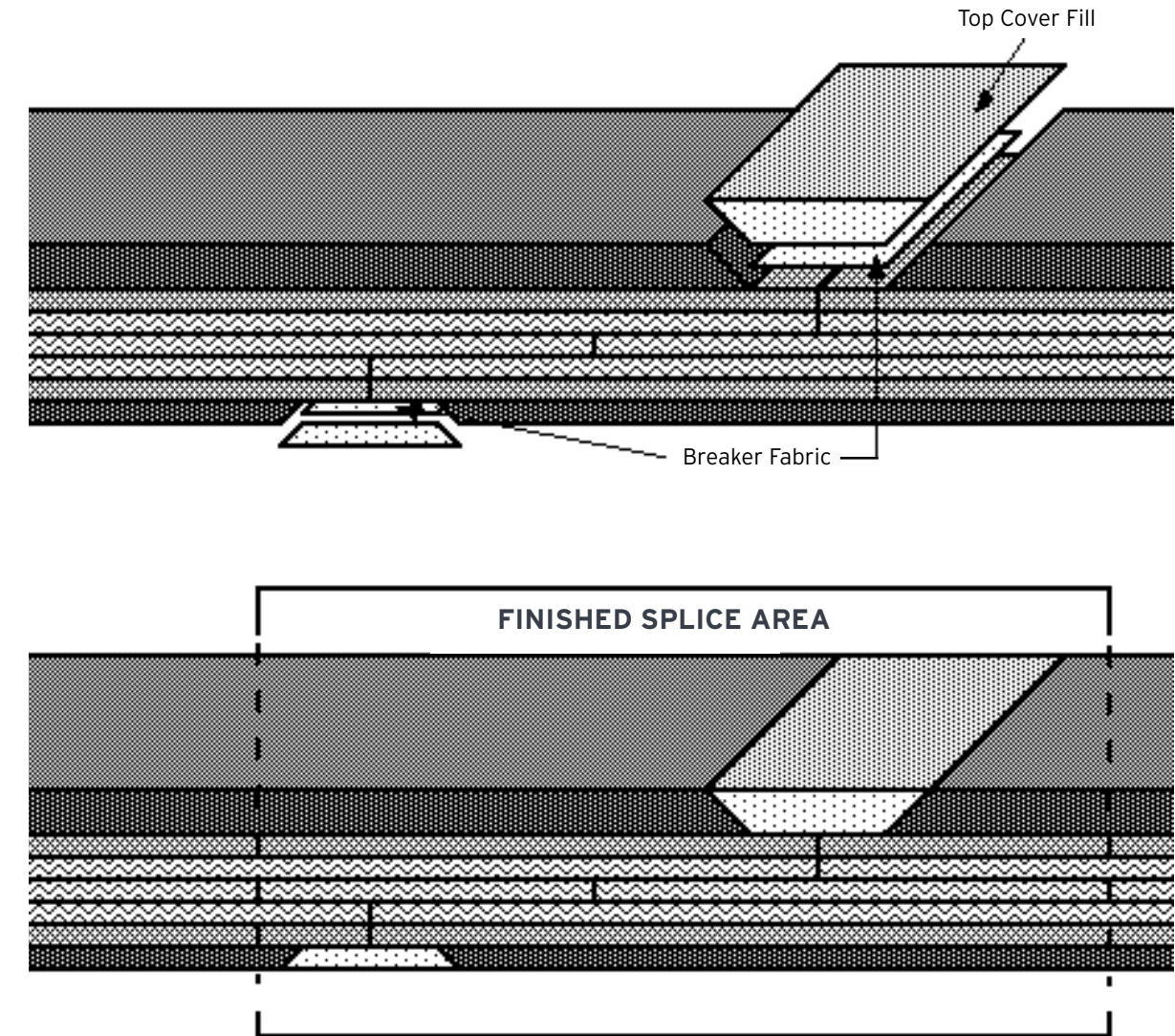
Allow belt to run without product for initial belt take-up and tracking adjustments. Most importantly, do not over tension the belt.

SPLICING DUROWALL™ CROSS-RIGID BELT AXB220 4-PLY (2 + 2)

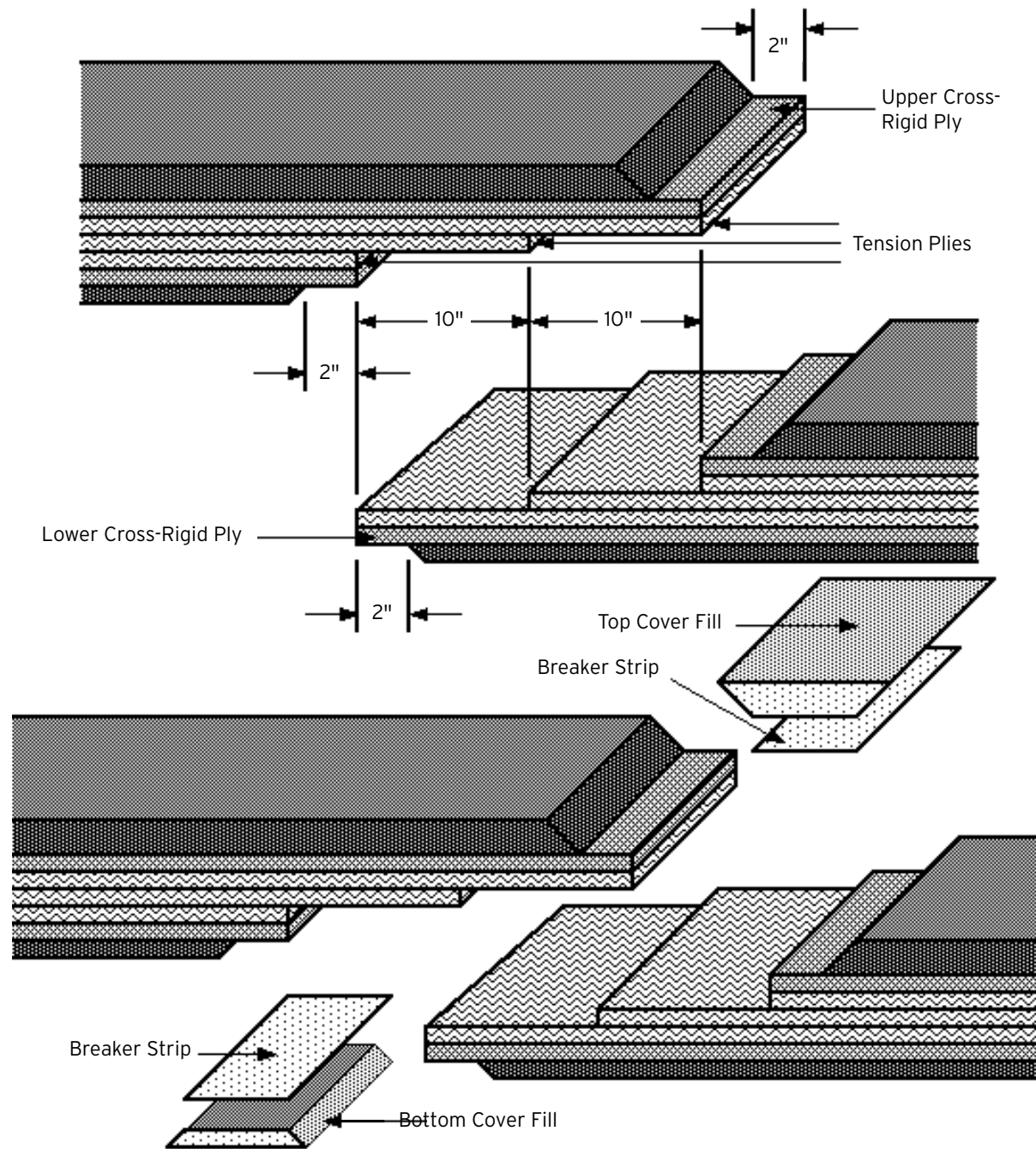


SPLICING DUROWALL™ CROSS-RIGID BELT AXB220 4-PLY (2 + 2)

Side view of belt showing placement of breaker strip to protect butt splice of top ply and cross-rigid fabric layer, and of cover fill rubber for vulcanizing.

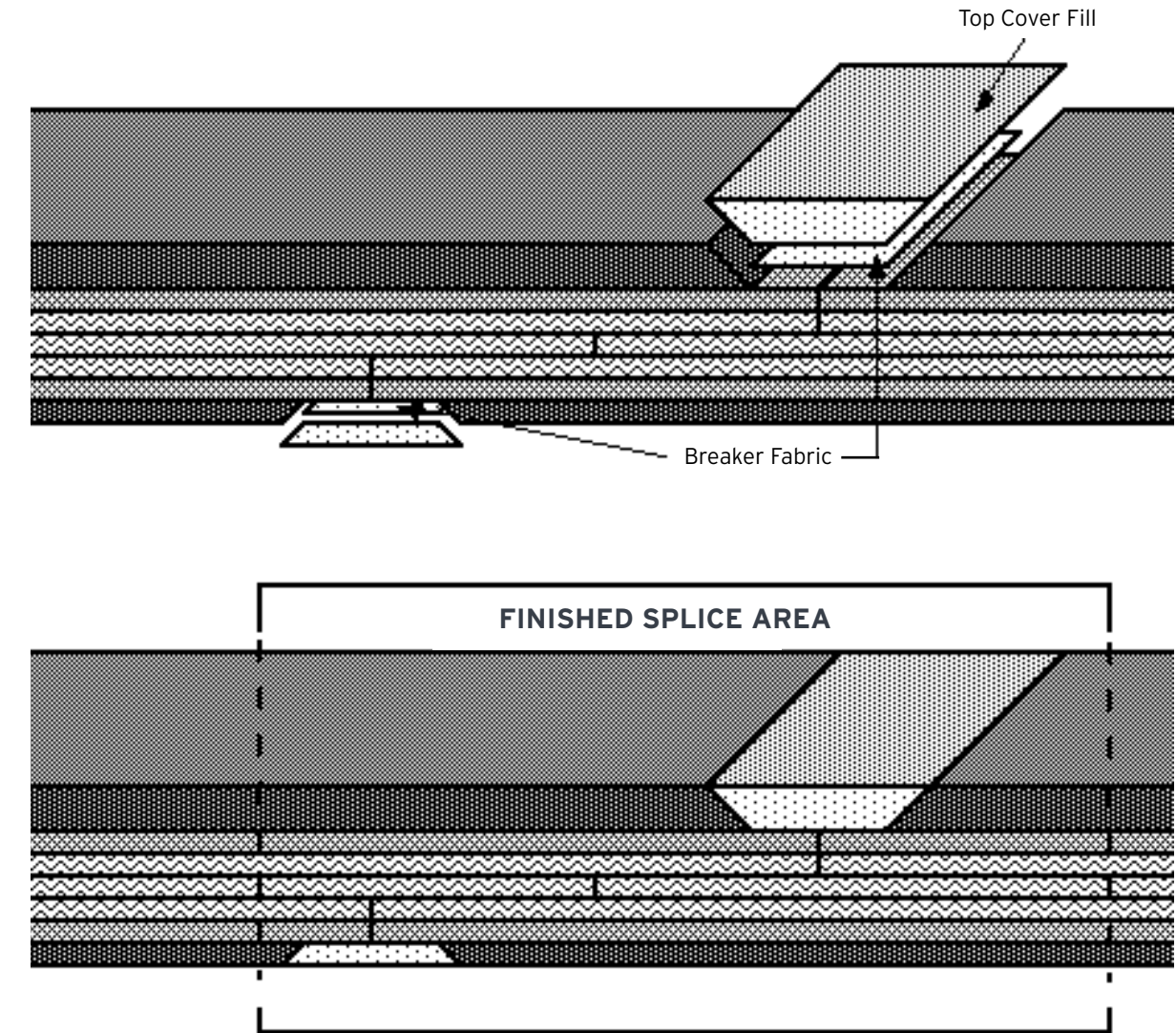


SPLICING DUROWALL™ CROSS-RIGID BELT AXB330 5-PLY (3 + 2)

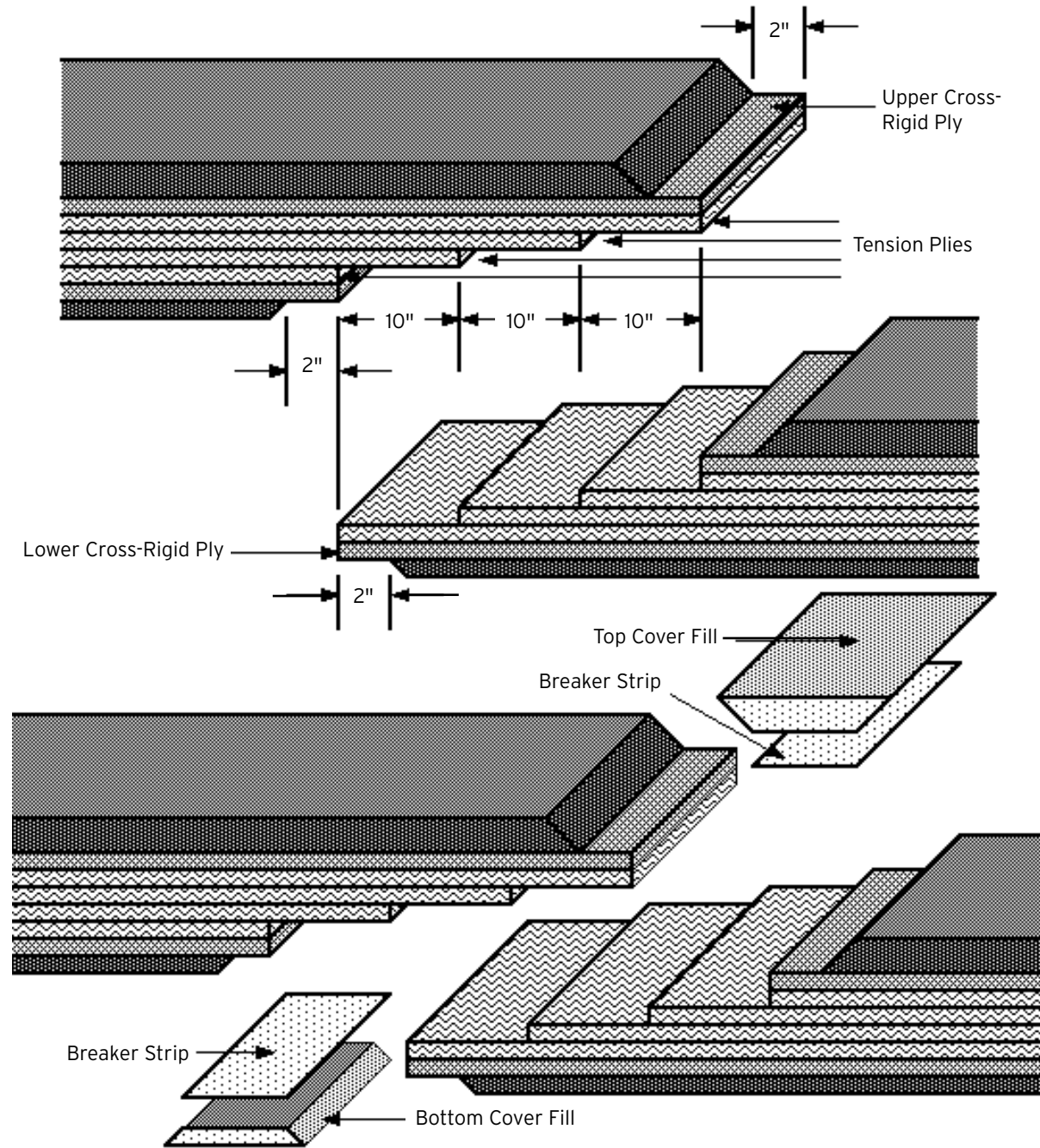


SPLICING DUROWALL™ CROSS-RIGID BELT AXB330 5-PLY (3 + 2)

Side view of belt showing placement of breaker strip to protect butt splice of top ply and cross-rigid fabric layer, and of cover fill rubber for vulcanizing.

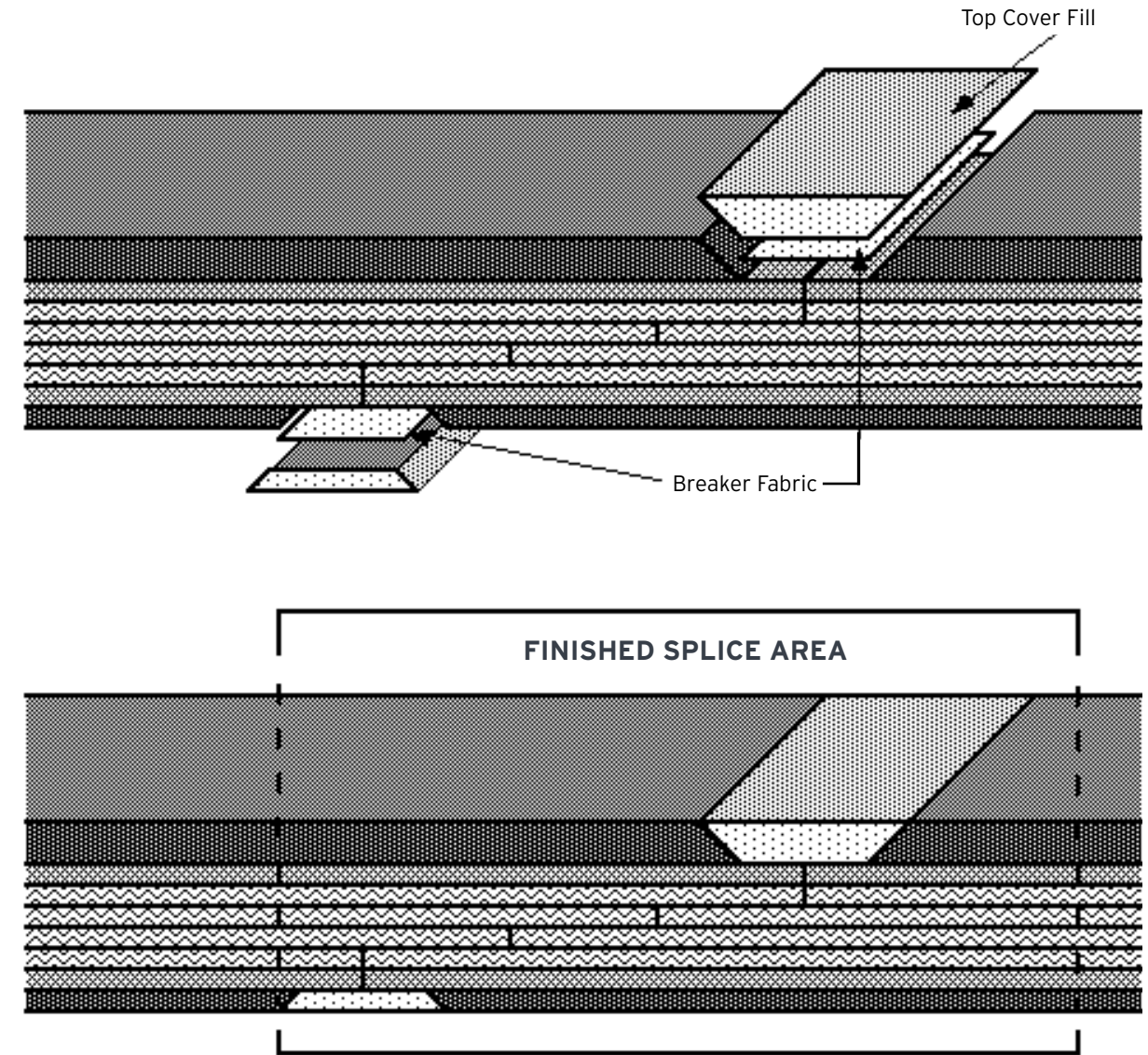


SPLICING DUROWALL™ CROSS-RIGID BELT AXB440 6-PLY (4 + 2)



SPLICING DUROWALL™ CROSS-RIGID BELT AXB440 6-PLY (4 + 2)

Side view of belt showing placement of breaker strip to protect butt splice of top ply and cross-rigid fabric layer, and of cover fill rubber for vulcanizing.



CLEAT & SIDEWALL SPLICING

The cleats and sidewall at the splice area remain loose for shipment and must be vulcanized at final destination when the field splice takes place.

The cleats should be fastened to the belt first in the following manner:

1. Mark with chalk on the base belt the position of the cleat(s) to be mounted.
2. Prepare the mating surfaces for cold vulcanizing by buffing the base belt and cleat surface using a rotating wire wheel on a high speed drive or a belt sander with number 24 grit.
3. Clean the buffed surfaces and cold vulcanize following the cold vulcanizing procedure described under base belt splicing.

Splicing the sidewalls should be accomplished in the following manner:

1. Cut through the DUROWALL sidewalls along the diagonal lines shown in figure 1 (see page 14).
2. Prepare the mating surfaces indicated in figure 2 (see page 15), and cold vulcanize using the same procedure as for the cleats.
3. If all rubber DUROWALL sidewalls are used, the joint must be reinforced with an elevator bolt as shown in figure 3 (see page 15).
4. If fabric reinforced DUROWALL sidewalls are used, the joint must be reinforced with two elevator bolts as shown in figure 1 (see page 14).
5. If 8" or taller DUROWALL sidewalls are used, the joint must be reinforced with three elevator bolts.
6. Install elevator bolts through the base of the sidewall and the base belt, each side of the base belt splice and sidewall splice as shown in figure 3 (see page 15).

Once the field vulcanization has been completed, it is important to allow sufficient curing time prior to running the system. 24 hours is recommended for cold vulcanizing.

SPLICING SIDEWALLS

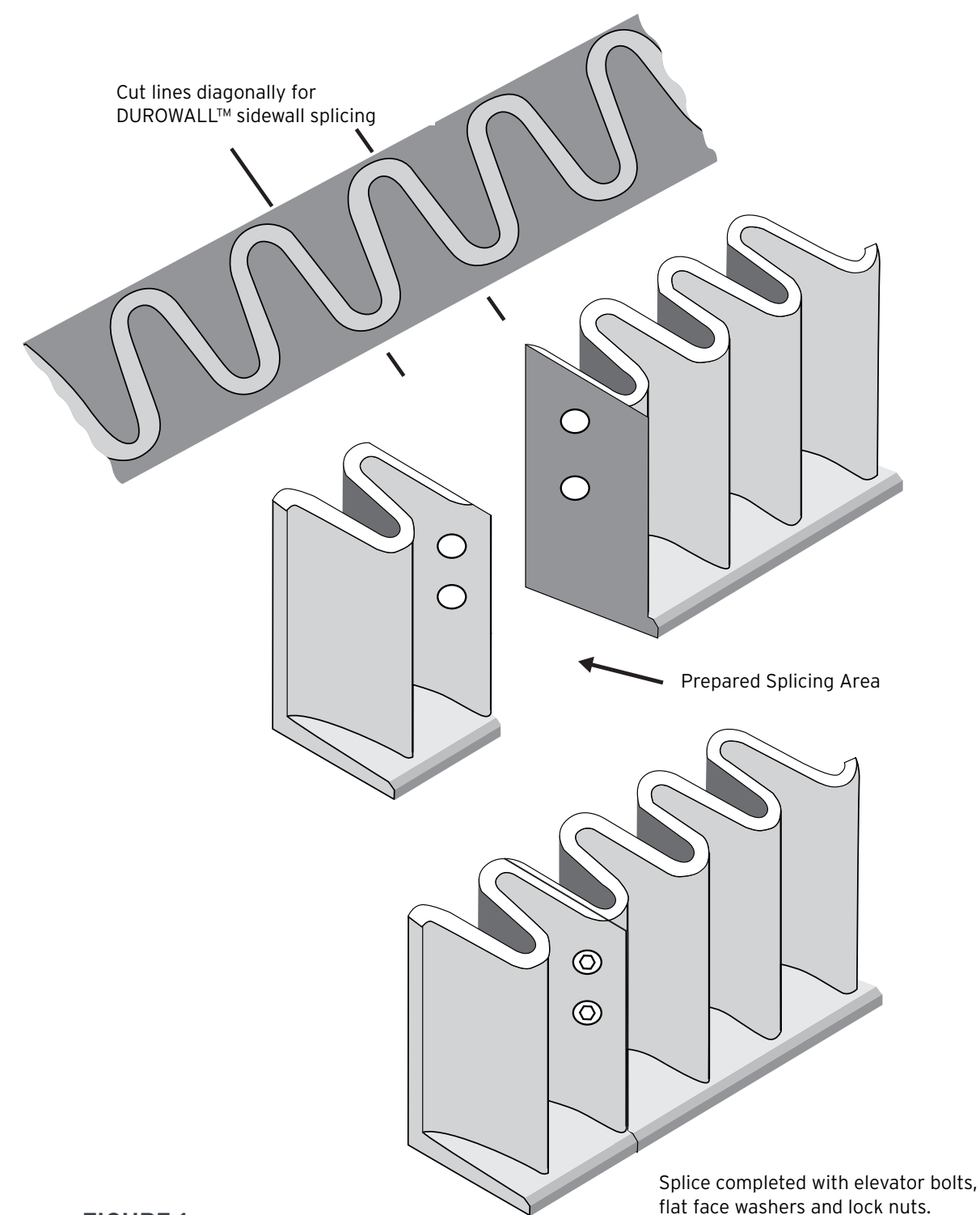
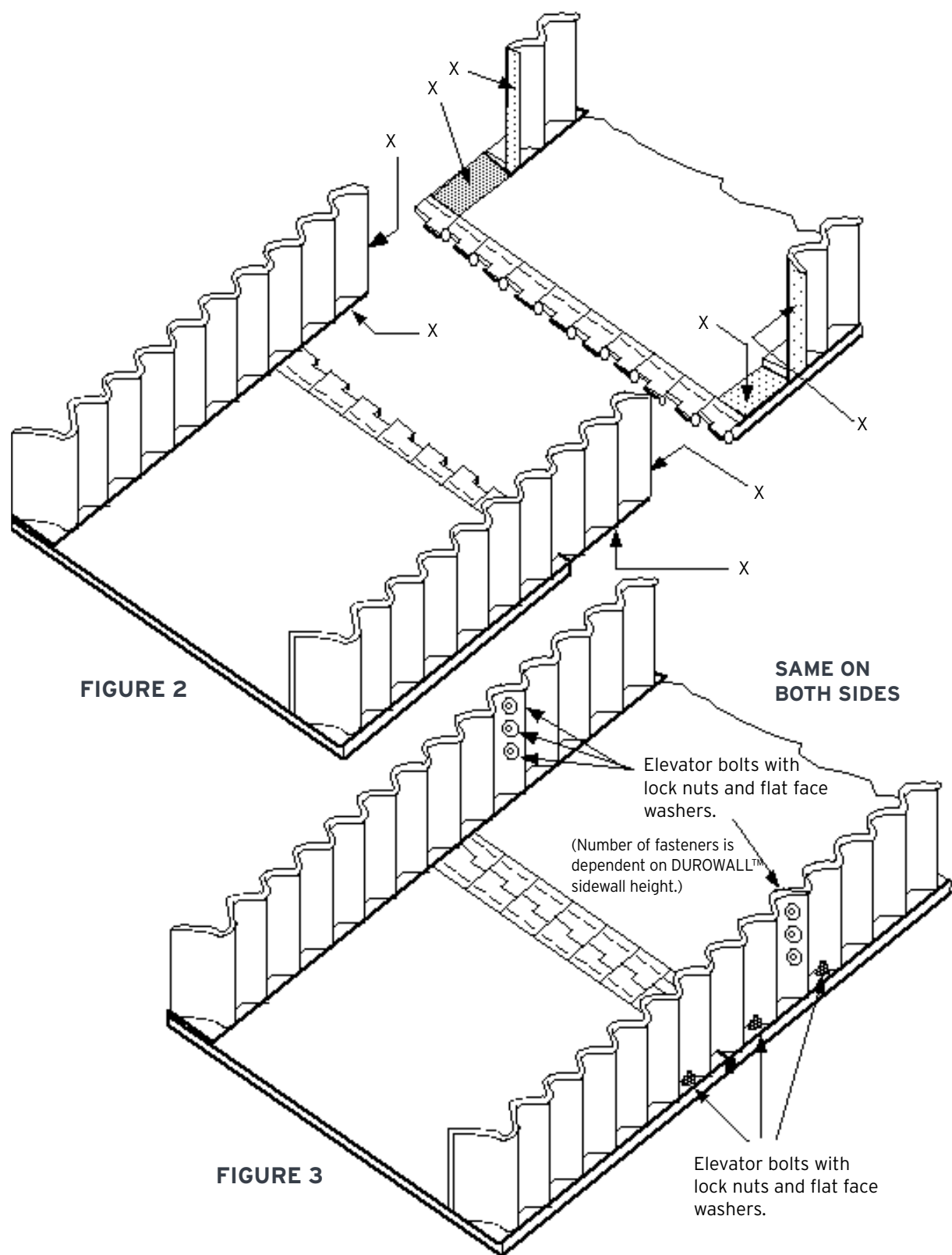


FIGURE 1

SPLICING SIDEWALLS



DUROWALL™ TROUBLESHOOTING

Listed below are many of the common problems in order of probable occurrence. Many of the problems cited can be avoided by a planned, preventive maintenance program. Such a program can be designed with the aid of Apache DUROWALL engineers to assure optimal performance and reduced downtime.

PROBLEMS & CAUSES	ITEM # ON NEXT TWO PAGES					
Belt breaks at or behind fasteners / fasteners tear loose	2	9	12	19	21	22
Belt hardens or cracks	8	17	21	22	-	-
Belt runs off at head pulley	14	15	20	21	-	-
Belt runs off at tail pulley	7	13	14	16	20	-
Belt runs to one side throughout entire length at specific idlers	14	15	20	-	-	-
Entire belt runs off at all points of the line	4	14	16	15	20	24
Belt slip	7	13	18	20	21	-
Belt slip on starting	7	9	18	21	-	-
Covers become checked or brittle	8	17	-	-	-	-
Cover swells in spots or streaks	8	-	-	-	-	-
Excessive belt stretch	6	8	9	12	20	-
Excessive bottom cover wear	5	13	18	19	20	21
Excessive edge wear, broken edges	1	4	8	16	20	24
Excessive edge wear, including rips, gouges, ruptures and tears	5	8	11	16	20	22
Fabric decay, carcass cracks, ruptures, gouges (soft spots in belt)	5	8	9	11	15	-
Longitudinal grooving or cracking of bottom cover	13	20	21	-	-	-
Longitudinal grooving or cracking of top cover	11	13	20	25	-	-
One belt section runs off at all points of the line	1	2	10	-	-	-
Ply separation	3	8	10	12	22	-
Vulcanized splice separation	2	9	12	19	22	-

CAUSES & CURES

- 1. Belt bowed** - Avoid telescoping belt rolls or storing them in damp locations. A new belt should straighten out when "broken in" or it must be replaced.
- 2. Belt improperly spliced or wrong fasteners** - use correct fasteners. Retighten after running for a short while. If improperly spliced, remove belt splice and make new splice. Set up regular inspection schedule.
- 3. Belt speed too fast** - Reduce belt speed.
- 4. Belt strained on one side** - Allow time for new belt to "break in". If belt does not break in properly or is not new, remove strained section and splice in a new piece.
- 5. Breaker strip missing or inadequate** - When service is lost, install belt with proper breaker strip.
- 6. Take up tension too high** - Recalculate tension required and adjust take-up accordingly. Reduce take-up tension to point of slip, then tighten slightly.
- 7. Counterweight too light** - Recalculate weight required and adjust counterweight or screw take-up accordingly.
- 8. Damage by abrasives, acid, chemicals, heat, mildew, oil** - Use belt designed for specific condition. For abrasive materials working into cuts and between plies, make spot repairs with cold patch or permanent repair patch. Seal metal fasteners or replace with vulcanized step splice. Enclose belt line for protection against rain, snow, or sun. Don't over-lubricate idlers.
- 9. Drive under belted** - Recalculate maximum belt tensions and select correct belt. If line is over-extended, consider using two-flight system with transfer point. If carcass is not rigid enough for load, install belt with proper flexibility when service is lost.
- 10. Edge worn or broken** - Repair belt edge. Remove badly worn or out-of square section and splice in a new piece.
- 11. Excessive impact of material on belt or fasteners** - Use correctly designed chutes and baffles. Make vulcanized splices. Install loading idlers. Where possible, load fines first. Where material is trapped under skirts, adjust skirt boards to minimum clearance or install cushioning idlers to hold belt against skirts.
- 12. Excessive tension** - Recalculate and adjust tension. Use vulcanized splice within recommended limits.
- 13. Frozen idlers** - Free idlers. Lubricate. Improve maintenance. (Don't over-lubricate.)
- 14. Idlers or pulleys out-of-square with center line of conveyor** - Realign. Install limitswitches for greater safety.
- 15. Idlers improperly placed** - Relocate idlers or insert additional idlers spaced to support belt.
- 16. Improper loading, spillage** - Feed should be in direction of belt travel and at belt speed, centered on the belt. Control flow with feeders, chutes and skirt boards.

CAUSES & CURES CONTINUED

- 17. Improper storage or handling** - Contact Apache's DUROWALL Division for storage and handling tips.
- 18. Insufficient traction between belt and pulley** - Lag drive pulley. In wet conditions, use grooved lagging. Install correct cleaning devices for safety. See item 7.
- 19. Material between belt and pulley** - Use skirt boards properly. Remove accumulation. Improve maintenance.
- 20. Material build-up** - Remove accumulation. Install cleaning devices. Improve housekeeping.
- 21. Pulley lagging worn** - Replace worn pulley lagging. Use grooved lagging for wet conditions. Tighten loose and protruding bolts.
- 22. Pulleys too small** - Use larger diameter pulleys.
- 23. Relative loading velocity too high or too low** - Adjust chutes or correct belt speed. Consider use of loading idlers.
- 24. Side loading** - Load in direction of belt travel, in center of conveyor.
- 25. Skirts improperly placed** - Install skirt boards so that they do not rub against belt.

FIELD REPAIR OF CLEATS & SIDEWALLS

In the event of slight accidental damage to either cleats or walls, repair or replacement can be made in place. If the percentage of damage is high, it is best to replace with a complete new section.

If the conveyor operation is continuous, and it is imperative to be in a position of re-starting within the shortest period of time, a complete spare belt is recommended.

For minor repairs or replacement of sections, we recommend use of Pang or Rema Cold Vulcanizing cements supplied by Apache

If necessary, build a temporary frame under the belt in the area that the work will be performed to support the belt and provide a suitable work platform.

Inspect all cleats and sidewall to determine which need remedial work and assure that all preparation is completed prior to the application of the cold vulcanizing cement.

CLEAT REPAIR

1. For bolted cleats, mark the center line of the cleat with chalk on the base belt recess.
2. Remove the cleat from the base belt. If necessary, carefully use a sharp knife to separate the bonded surfaces.
3. Buff the base belt surface and the mating surface of the cleat using a rotating wire wheel on a high rpm drive (greater than 1500 rpm), or a belt sander with number 24 grit.
4. Clean both surfaces, removing all dust and dirt, using a cloth soaked with trichlorethylene or similar solvent.
5. Apply first and second coat of cement to both the base belt and cleat base allowing sufficient time for each coat to dry completely.
6. Apply the third coat of cement to both surfaces allowing sufficient drying time for the cement to become tacky to the touch. Do not let dry completely.
7. Replace the cleat in the exact position from which it was removed and hammer the rubber profiles down firmly, so as not to allow any air to remain between the surfaces.

SIDEWALL REPAIR

1. Cut out and carefully remove damaged section of sidewall. Cut the sidewall along the cutting lines shown in figure 1 on page 14.
2. Cut a section of replacement sidewall to the exact dimensions as the piece removed.
3. Prepare the surfaces and cold vulcanize the replacement sidewall into position following the procedures in steps four through seven of Cleat Repair, page 19.
4. For all rubber sidewalls, reinforce with one elevator bolt, for fabric reinforced sidewalls reinforce with two elevator bolts and for 8" or taller sidewalls reinforce with three elevator bolts as shown in figure 1 on page 14.

The belt can be operated safely after approximately 24 hours. However, the final strength is not yet reached and an additional day is recommended whenever possible

SAFETY

Belt conveyor safety begins with a plan that considers every possible danger and potential hazard.

Operating and maintenance personnel should be thoroughly trained in safe operating procedures, recognition of possible hazards, and maintenance of a safe area around the belt conveyor. Conveyor operation and maintenance should be an ongoing requirement for a good safety program.

THE FOLLOWING SAFETY GUIDELINES SHOULD BE FOLLOWED:

1. Maintain a safety program for all operating personnel.
2. All operating personnel should be advised of the location of all emergency controls and safety devices. Clear access should be made to these controls and devices.
3. Good lighting, housekeeping, and maintenance contribute to a safe work area around the belt conveyor.
4. Frequent inspections should be made of all conveyor equipment, and all safety devices should be in position and in proper working order.
5. Guards should be used as required at pulleys and other pinch points to prevent injury. If proper guarding cannot be implemented because of some operational peculiarity, then the entire area should be fenced off and prominent warning provided (lights, signs, horns, etc.).
6. Conduct a pre-startup safety check of the conveyor equipment to determine that the machinery and area are safe for operation and the guards and warning devices are in place.
7. Do not touch or contact a moving belt at any time. Work on a belt conveyor should be done only when the equipment is stopped and controls are locked.
8. There should be absolutely no horseplay or reckless actions in the vicinity of belt conveyors. Most accidents are caused by lack of proper safety training, carelessness, horseplay, and lack of awareness of possible hazards.

For more detailed safety information, refer to ANSI Standards B20.1 and B15.1. These standards are recommended for anyone responsible for safety in the design, manufacture, installation, operation, and maintenance of belt conveyor equipment. Compliance with safety standards - local, state, and Federal, including OSHA, is the responsibility of the user of conveyor equipment.

MAINTENANCE

The belt represents the major cost of any belt conveyor system and its care should be of prime concern. To minimize repair and downtime, a good maintenance program is essential. The program may be complex, or as simple as the following checklist. The important factor is the consistency of the maintenance program and the quality of the maintenance personnel.

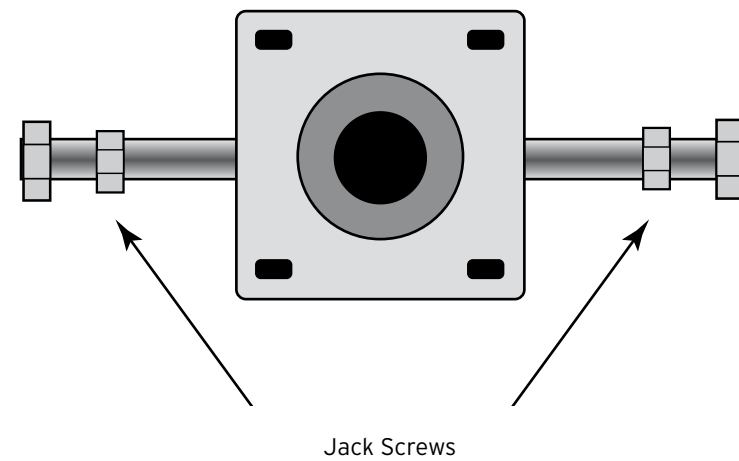
It is suggested that a periodic inspection program be initiated to spot potential problems in time to take corrective action. Furthermore, maintenance personnel should be fully trained and equipped to deal with all repair problems. Assistance in establishing a program of preventative maintenance can be obtained from Apache A simple, but effective program can be established if it includes these elements:

- ▶ Good housekeeping is necessary for continuous operation and low maintenance. Spillage and build-up of material can eventually cause the idlers to stop rotating, and accumulation of lumpy material can cause belt damage. Beaters, pulley lagging, and urethane coated idlers can be used to prevent a build-up of sticky materials.
- ▶ Lubrication of all moving parts on a planned basis is essential for dependable operation and minimum maintenance. Component life will be extended by following the manufacturer's lubrication instructions.
- ▶ Check belt edges, sidewalls, cleats, and splices on a periodic basis for wear or separation to prevent possible failure or shutdown. Minor repairs should be made as quickly as possible to avoid major repairs.

DUROWALL™ TRACKING GUIDELINES

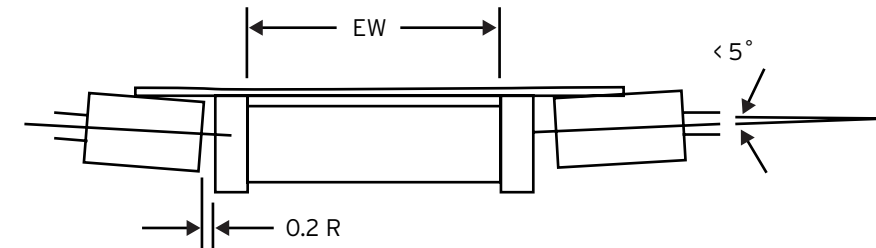
- ▶ Both the head and tail pulleys should be squared with frame before starting and properly tensioned.
- ▶ The first adjustment should be at the return deflection drum.
- ▶ The second adjustment should be at the nose over assembly (or drum).
- ▶ Then the deflection wheels should be adjusted last, if required.
- ▶ Always adjust in the direction of travel, heading "in" the bearing as shown on the diagram below.
- ▶ Side guide rollers should be a last resort option.

Note: "Jack Screws" are recommended for adjustment purposes to control the minor adjustments. Allow 3 full revolutions between adjustments.



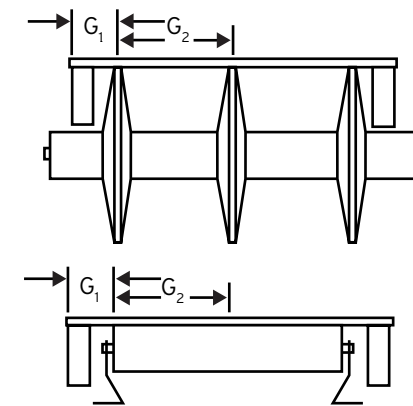
RETURN IDLER OPTIONS

Stub idlers are recommended on the return side for effective widths greater than 27-1/2 inches (700 mm).



Flat idlers may also be used for effective widths greater than 27-1/2 inches (700 mm) if S, C, or T (bolted construction) cleat configurations are specified. We recommend you consult Apache for specifics. (**Note:** Consider the possibility of increased sidewall wear due to the direct sidewall/idler contact of the heavier belts.)

If no cleats are specified, the belt may be supported with return discs or inner-lying return idlers.

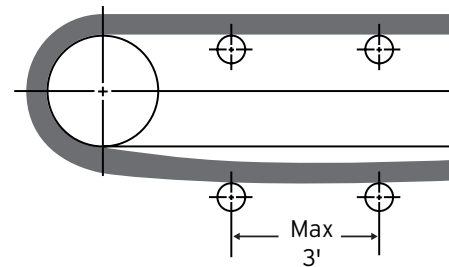


G_2 must be at least 2 times G_1

IDLER SPACING & PLACEMENT

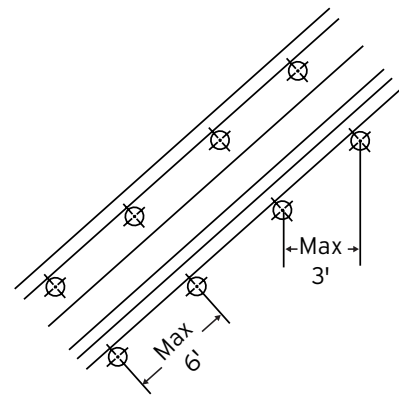
IDLER SPACING

In all cases, the recommended idler spacing for DUROWALL™ belts on the carrying and return side should not exceed 3 feet when measured horizontally. As the angle of incline increases, the spacing should not exceed 6 feet when measured along the belt line on included sections.



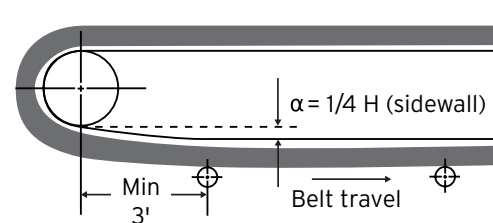
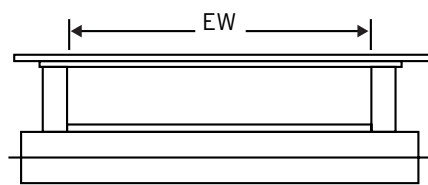
CARRYING IDLERS

Flat idlers are required to support the belt on the carrying side.



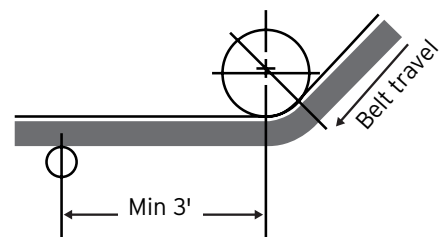
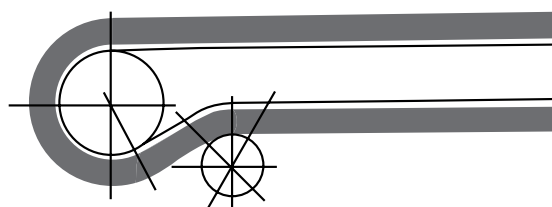
RETURN IDLERS

Flat idlers are recommended on the return side for effective widths (EW) that are less than or equal to 27-1/2". Place the evaluation of return idlers as illustrated below.

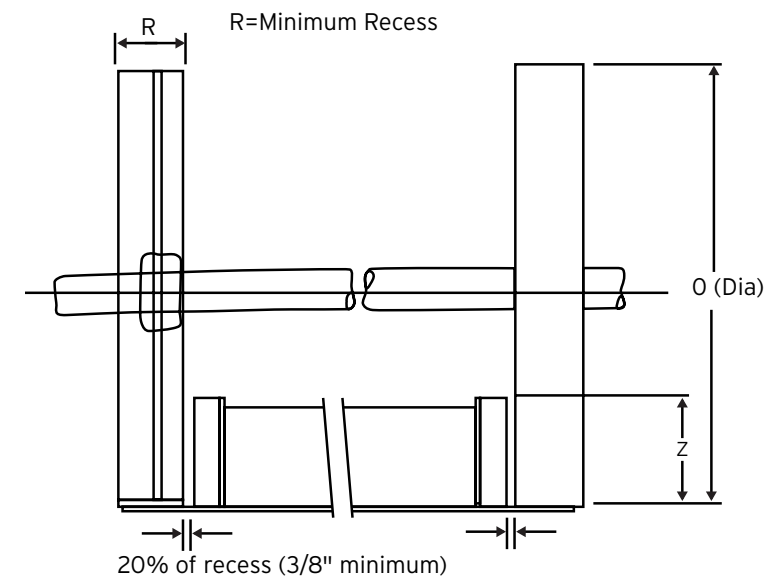


DO NOT SNUB A DUROWALL™ BELT

Allow room to prevent possible bunching of the belt adjacent to convex curves on the return side.



DEFLECTION WHEEL CONSTRUCTION



DETERMINE THE BEND RADIUS FOR CARRYING SIDE (NOSEOVER) BENDS

The recommended minimum deflection (noseover radius r_{min}) is:

$$r_{min} (in) = \frac{(2.032 \times 10^{-4}) \times V^2}{\cos \alpha + .8 - (.254 \times H_s)} \text{ or } r_{min} (in) = \frac{D_1}{2}$$

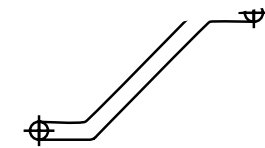
whichever is greater.

Definitions:

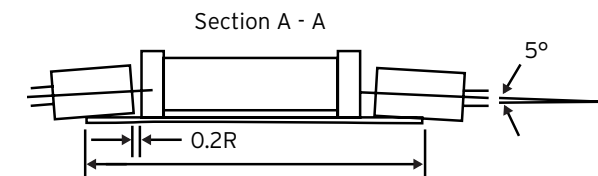
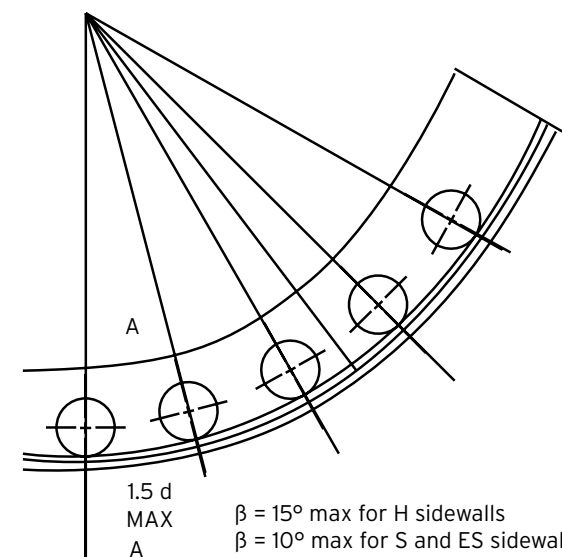
V = design belt speed in FPM

α = angle of conveyor incline in degrees

H_s = sidewall height in inches



CONTINUOUS CURVE (ROLLERCURVE) OF SNUB IDLERS



Note: As a reminder, D, is the minimum allowable diameter and may be larger in most applications

BELT TENSIONING & TRACKING

BELT TENSIONING / TRACKING / TRAINING

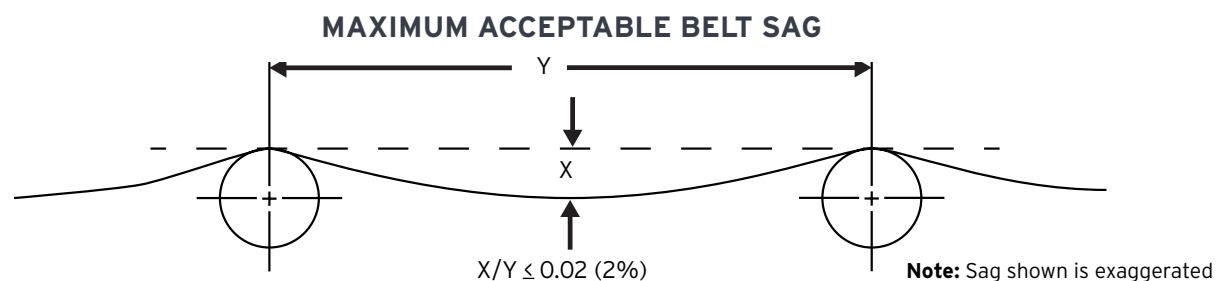
Make sure the belt has a sufficient amount of tension prior to making any adjustments! On any belt conveyor, the proper tension must be applied to:

1. Provide for adequate friction at the drive pulley and
2. Prevent excessive sag between the individual conveyor components (pulleys and/or idlers).

In accomplishing items 1 and 2, the belt is more easily trained once the framework and conveyor components are square and level. Conveyor belts should be operated at the lowest tension that will accomplish the desired results in items 1 and 2 in order to maximize the potential life of the belt and the splice.

The standard procedure for providing adequate friction at the drive pulley is to slacken the tension on the belt operating unloaded until the drive pulley just begins to slip against the belt and then immediately reapply only the amount of tension necessary to eliminate the slippage.

With adequate tension applied to provide the necessary driving friction, the next step is to check all points along the conveyor for excessive sag. The maximum allowable sag on both the carrying and return sides of the conveyor should be limited to two percent (2%) of any unsupported span. In other words, if idler spacings were at 3'6", then the maximum allowable sag between those idlers should be .84 inches. (.02 x 3'6" = 0.84 inches). Usually, since tensions are generally lowest at the tail of the conveyor, if checked at the tail, the sag will be acceptable throughout the entire system.



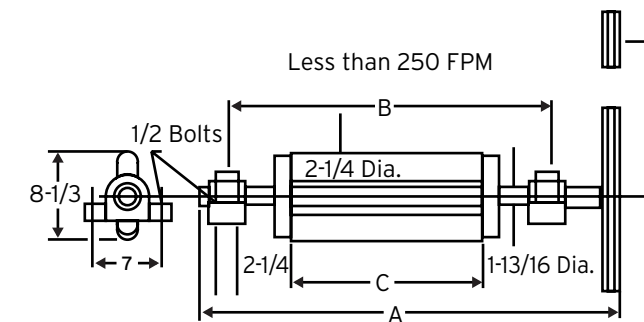
On inclined conveyors or conveyors with inclined sections, the weight of the belt along on the inclined section will generally provide enough tension at the drive pulley for the proper friction.

DUROWALL CROSS RIGID CONVEYOR BELT										
STYLE	TOTAL PLYS	TENSION PLYS	PIW RATING	CROSS RIGID PLYS	COVERS	PIW WEIGHT	OVERALL GAUGE (OAG)	MINIMUM PULLEY	COLOR	MATERIAL
AXB220	4	2	220	2	1/8" x 1/16"	.295	.465	14"	blk	RUBBER
AXB225	3	1	225	2	1/8" x BARE MOR	.160	.25	8"	blk	RUBBER
AXB330	5	3	330	2	1/8" x 1/16"	.325	.510	16"	blk	RUBBER
AXB440	6	4	440	2	3/16" x 1/16"	.360	.605	24"	blk	RUBBER
AXB550	7	5	550	2	3/16" x 1/16"	.400	.700	30"	blk	RUBBER
AXB150	3	3	150	3	1/32" x BARE	.083	.18	3"	blk	RUBBER
AXB150	2	2	150	2	1/16" x BARE	.14	.25	6"	blk	RUBBER

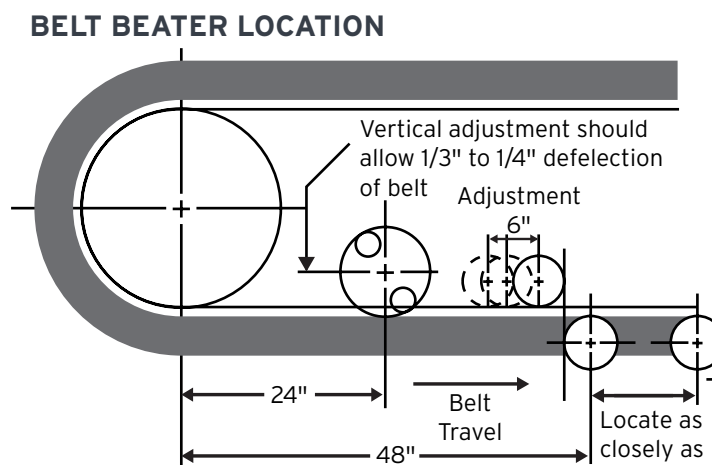
* Other styles and cover thicknesses available on special order basis.
 ** Available Rubber Compounds: Black Standard, Black-Oil Resistant, Black Static Conductive, Black (MSHA) and Black Heat-Resistant (400°F)

BELT CLEANERS

The recommended method for cleaning a DUROWALL belt is to place a mechanical belt beater just behind the discharge pulley on the return side of the belt. This cleaning system is simple and has proven to be both efficient and reliable.

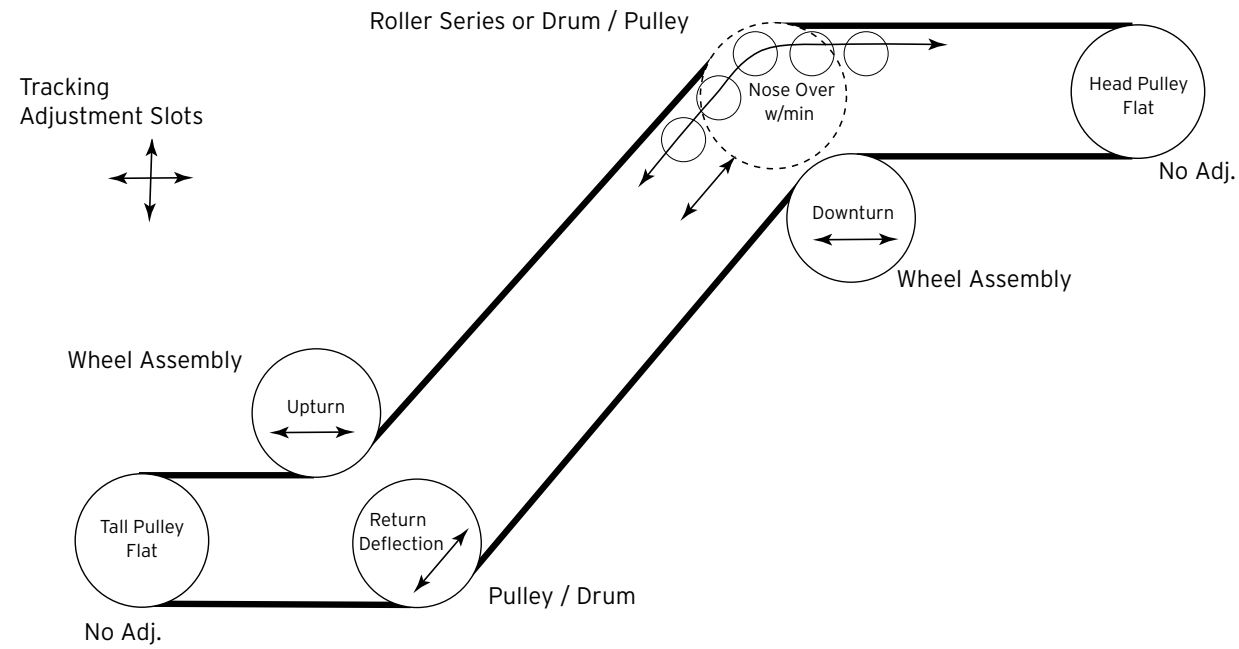


BELT BEATER SPECIFICATIONS						
BELT WIDTH	A	B	C	RECOMMENDED HP	RECOMMENDED RPM	APPROXIMATE WT
.520	44-3/4	35	22	2	500	151.5
24	48-3/4	39	26	2	500	159.2
30	54-3/4	45	32	2	500	170.9
36	60-3/4	51	38	2	500	182.5
42	66-3/4	57	44	3	500	194.2
48	73-3/4	64	51	3	500	207.7
54	79-3/4	70	57	3	500	219.4



The vertical adjustment of the rotating beater arms and the horizontal adjustment of the damping idler provide the best results for maximizing material discharge and preventing resonant vibration. The belt beater must turn in the direction of the belt travel at the recommended speed of 500 RPM for optimal results.

DUROWALL™ TERMINOLOGY



RULES OF THUMB

UPTURN: DOWNTURN WHEELS

Width = Recess
Diameter = 4 x Wall Height

RECESS

(Width + Wall Height) x 10%
i.e. (36 + 3) x 10% = 3.9 recess

Note: Recess will be more if belt stress warrants.

ROLLER CURVE ROLLERS

One roller per 10° incline + 1
60° = 6 rollers + 1 = 7 rollers (6 spaces)

CARRYING IDLERS

36" to 42" spacing

RETURN IDLERS

Incline	Spacing
0-29	3'
30-44	4'
45-59	5'
60-89	6'
90	No idlers in vertical 0

INTERNAL ADJUSTMENT FOR TRACKING

Adjust travel to be in the direction the belt enters that junction.



WWW.APACHE-INC.COM

BELTING / HOSE / CUT & MOLDED PRODUCTS / ACCESSORIES

CORPORATE OFFICE 4805 Bowling Street SW / Cedar Rapids, IA 52404

INDUSTRIAL SALES 800.553.5455

CONSUMER PRODUCTS 800.459.8423

FAX 319.365.2522

WEBSITE www.apache-inc.com



REV030918 AP31 99002247

The most current revision of this information can be found on our website at www.apache-inc.com and supercedes all other versions. Please check the revision date information of any printed materials to ensure the most current information is being referenced.

