

BELT BEATER

Increases Belt Life - Application Guide



BACKGROUND

Cleaning material from cleated belts has long been a problem for the conveyor industry. Plain belts are cleaned rather easily with a variety of scraper devices. But as soon as a profile is added to the belt to increase the incline angle, the cleaning problem becomes difficult, if not impossible. Devices such as rotary brushes, sprays, and air knives have been used with varying degrees of success. In some cases they are good in the beginning, but get clogged with material and become ineffective. In other cases, they rapidly wear the cleats.

The Bassco Belt Beater has been designed to work on the return or “clean” side of flexible sidewall or conventional troughed belts. It consists of a set of heavy wall rollers, rotating about a main shaft at approximately 600 RPM (540 min.). Mounted behind the head pulley, these rollers impact the belt causing the material to loosen and fall from the belt. Because the beater works on the “bottom” of the belt where the cover is thin, it is important that the contact is made by rollers (rather than bars), so that they don’t “scrub” the belt and cause the cover to wear. In most cases, any remaining material that sticks to the belt is generally carried around to the top side.

To handle the wider belts without incurring excessive loading on the rollers’ bearings, our four-roll design was added to the original two-roll unit. The main shaft is mounted in pillow or flange cartridge blocks and is driven by a 3 to 1 V-belt or timing belt drive.

MOUNTING ARRANGEMENT

The belt beater should be located as close to the head pulley as possible - see Illustration A. It is recommended that it be mounted with vertical adjustment so that the belt deflection can be increased, depending on the material characteristics. Start with the beater just touching the belt and move it into the belt just enough to loosen the material. We recommend a maximum of 3/8” deflection at the point of impact. The deeper the deflection, the greater the load on the bearings. The deflection may change because of factors such as belt stretch, weather conditions, etc. Therefore, it is recommended that a minimum of 2” vertical travel be built into the system.

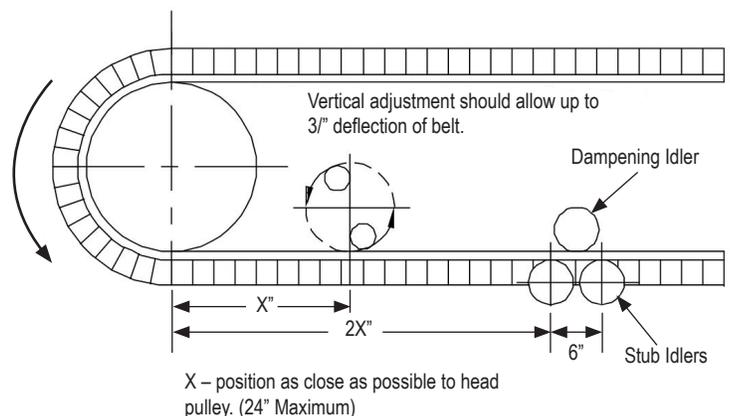


Illustration A

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Because of the wide variety of pulley sizes and frame designs, and the fact that the return side of the belt can range from 15” below the channel frame to 15” above, ASGCO has designed a “universal” mounting bracket, with 2” of vertical adjustment, that will fit most installations - even those which require the beater drive shaft to project through the frame member. A layout should be made for each installation to determine the proper requirements.

Selection

The first step is to decide which of the two sizes will fit your application. The 2-roll beater is generally used on all belt widths up through 36” - 42” width. It is powered with a 2 HP (3 HP optional) motor. The 4-roll design is used for belts 42” wide and up, and for sticky materials. It has a 5 HP drive. A 7.5 HP drive is recommended for 60” wide belts and wider, along with the use of roller bearings for the main shaft. The standard reduction is V-belt, with timing belt drive as an option. Note that the motor mount is also vertically adjustable to match the travel of the beater main shaft.

The next step is to determine the dimensional relationship between the return side of the belt and the frame. Refer to the table below as a guide to the mounting arrangement that you will require.

A = Distance from the top of the return side of the belt to the nearest part of the frame.

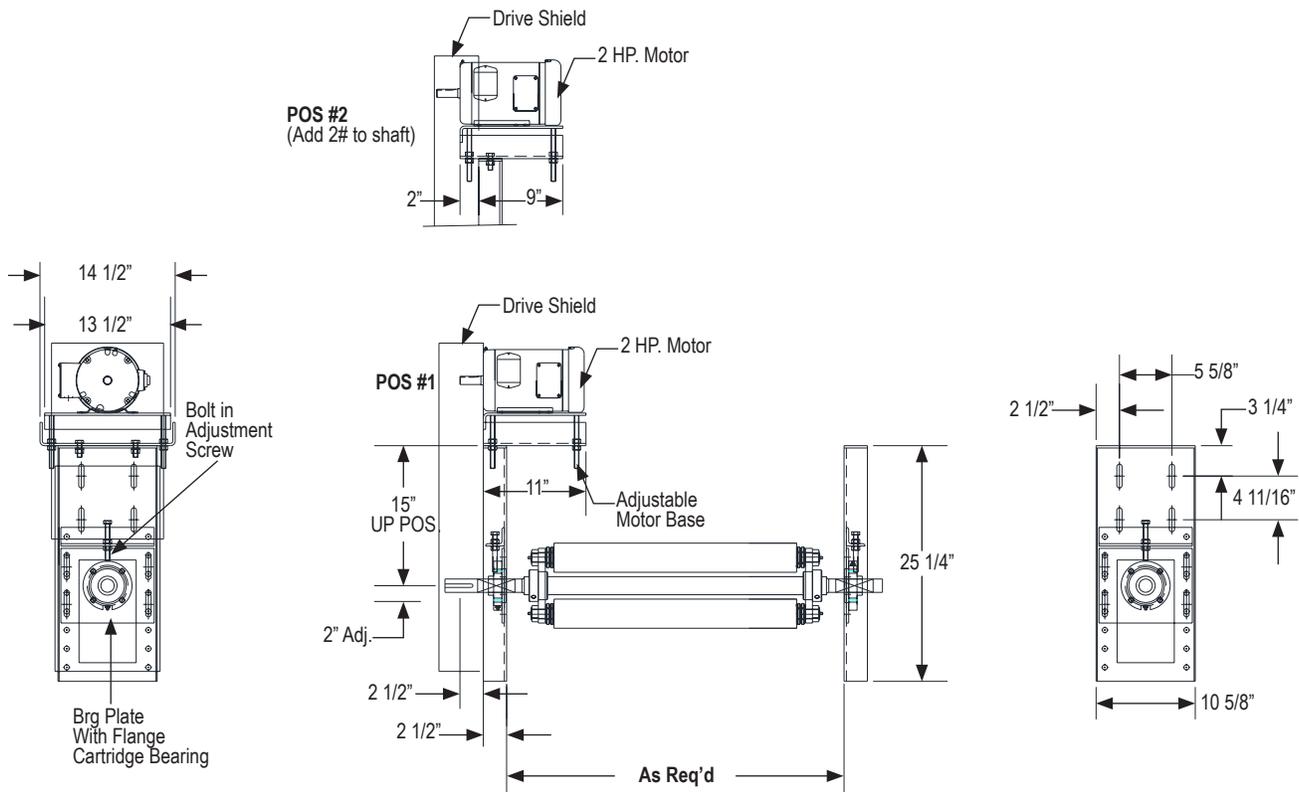
Arrangement 1	Belt to bottom of frame	
	2-Roll A=5 1/2” or More 4-Roll A=6 3/4” or More	Select universal mount
Arrangement 2	Belt to bottom of frame	
	2-Roll A=2 1/2” or Less 4-Roll A=3 1/4” or Less	Select universal or foot mounted brackets
Arrangement 3		
	For application between #1 and #2 above	Universal mount will work with a hole in frame for the main shaft. Contact ASGCO

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Mounting Brackets

The “universal” mounting brackets (see below) are supplied broken down in “kit” form so that they can be installed in a variety of ways to fit most installation requirements. The brackets have mounting slots to allow for latitude in the attachment of the bracket to the frame. Each bracket has four mounting slots. We recommend that four bolts be used to attach the beater brackets to the frame.



In some layouts, an additional support plate may have to be added to the top or bottom of the frame to fasten the brackets securely. If the toes of the channel frame are pointed in, you may want to mount the brackets with the toes in to provide space to get wrenches in place on the bearing bolts.

If the drive motor interferes with the carrying side of the belt, you can reposition the motor base to the second mounting location which moves it outward 2" (see Position 2 above). Make sure that the main drive shaft is also 2" longer. If the motor still interferes with the belt, rotate the brackets 180° (see Illustration C below).

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When using the inverted installation, be sure to install the adjusting screw above the flange bearing. For special conditions, contact ASGCO for other available bracket designs.

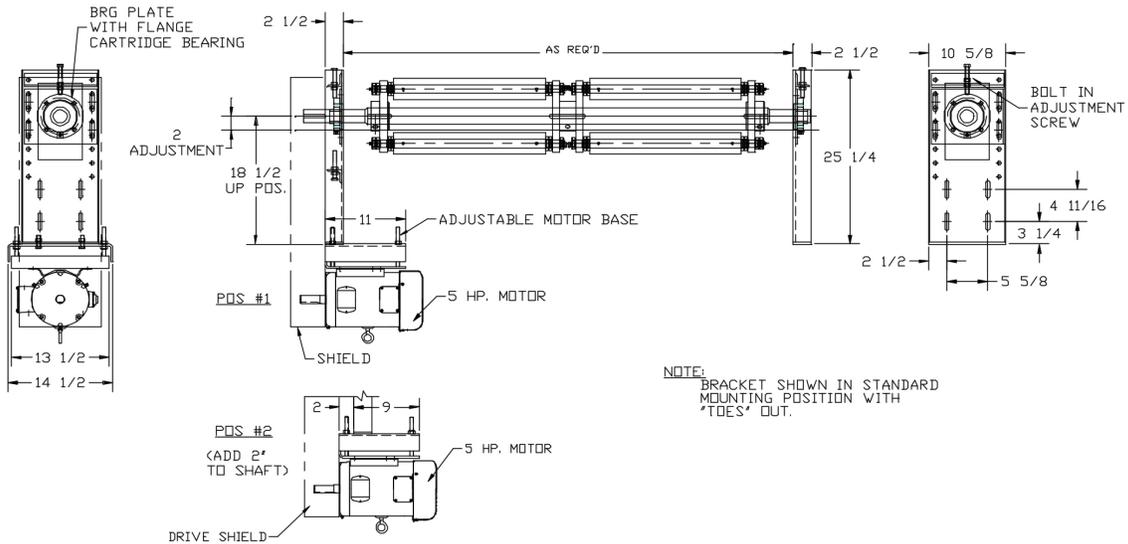


Illustration C

If neither of the above arrangements will work, or if your frame is enclosed, ASGCO offers a foot mounted bracket design that requires a base to be added to the conveyor structure. See illustration D. Check your shaft length to be sure it is long enough.

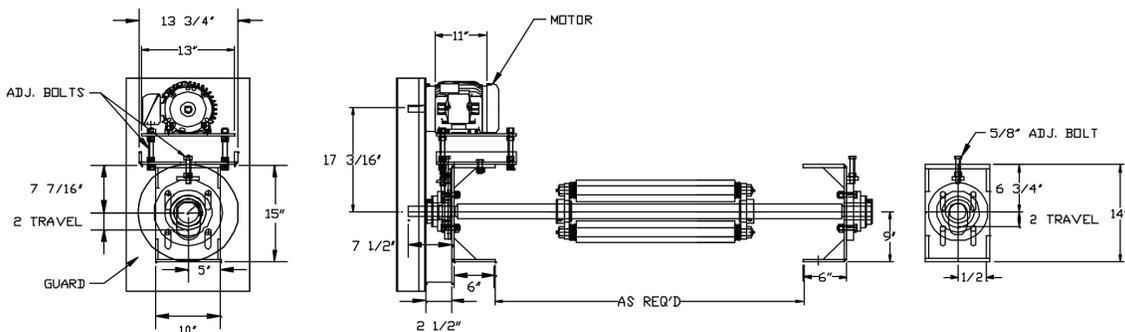


Illustration D

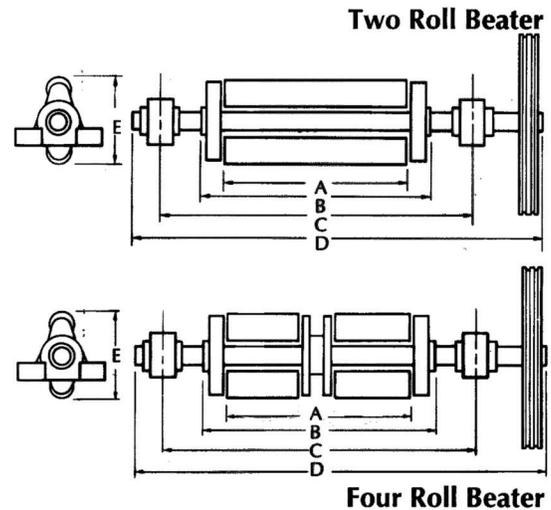
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Beaters Only (Less Drive And Pillow Blocks)

If you wish to supply your own drive and mounting brackets, select the proper size for your application. Determine the overall shaft length to fit your drive design.

		2-Roll	4-Roll
A	Roll Face	Belt Width +2"	Belt Width +2"
B	OAL Beater Assy.	Belt Width +6 3/8"	Belt Width +7 3/8"
C	C/L Brg. Mntng. Holes	Belt Width +9"	Belt Width +9"
D	Standard Shaft Length	Belt Width +22"	Belt Width +22"
E	Beater Height	9.125"	11"
	Shaft Diameter	1 15/16" Turned to 1 7/16"	2 7/16" Turned to 1 15/16"
	Approx. Wt.	375 + 23lbs per inch of belt width	400 + 28lbs per inch of belt width



Dampening Roll Assemblies

At 600 RPM, belt beaters will impact the belt 1200 times a minute. This will cause the belt to vibrate in a sine wave fashion that will often be carried into the frame. In order to reduce or eliminate these vibrations, ASGCO has designed an assembly that consists of two pair of zero degree stub idlers and a flat roll that “sandwich” the belt. The assembly is designed to accommodate various belt thicknesses. Like the regular stub idlers, each is manufactured to fit the belt recess and drop/rise dimension, and requires only four bolts to attach it to the frame. It should be mounted as close to the beater as possible. For situations where the shaft projects through the frame, oversized idler rolls are often required to reach the belt. A layout will indicate the proper diameter.

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Standard Dimensions		
	C	E
A	*	*
B	3	3
C	12	14
D	6	7
E	11/2	11/2
F	4	4

* - as Required

Standard Dimensions		
	C	E
G	9/16	9/16
H	5	6
I	2 1/2	2 1/2
J	4	4
K	3	4
L	*	*

* - as Required

CEMA E Dampening Roll Assembly

Standard Configurations
5" or 6" Diameter Rolls

Mix/Max Drop
3"/15"

