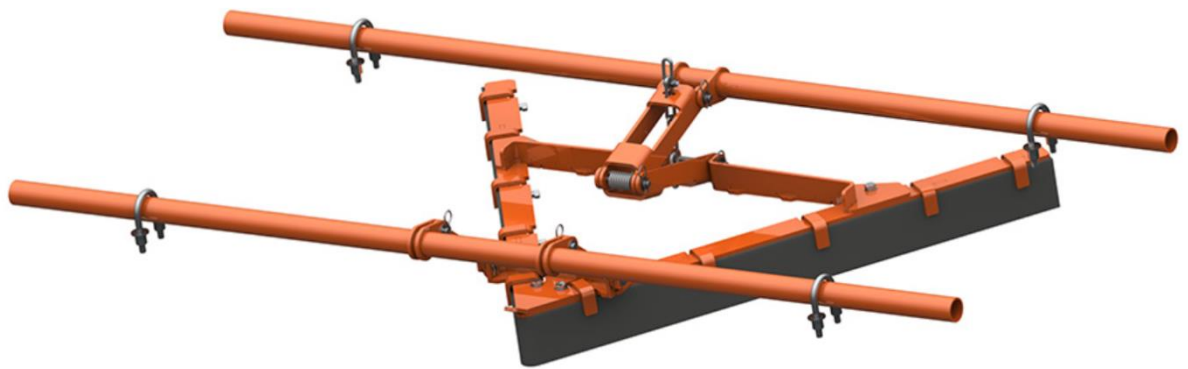




Torsion VPlow Plus



Operating Instructions Part 2

Version: 0
Language: ENG
M4083E UK 2022-05 Torsion VPlow+

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1 General



NOTE

Before starting to work on the Torsion VPlow Plus or the conveyor, part 1 and 2 of these operating instructions must be read and understood completely!

1.1 About these operating instructions

These operating instructions apply solely for cleaners and are intended for those persons who install cleaners, commission them, and monitor their usage.

The operating instructions must be kept for the lifetime of the cleaners and must be made available in an orderly condition to all persons entrusted with work with and on the cleaners.

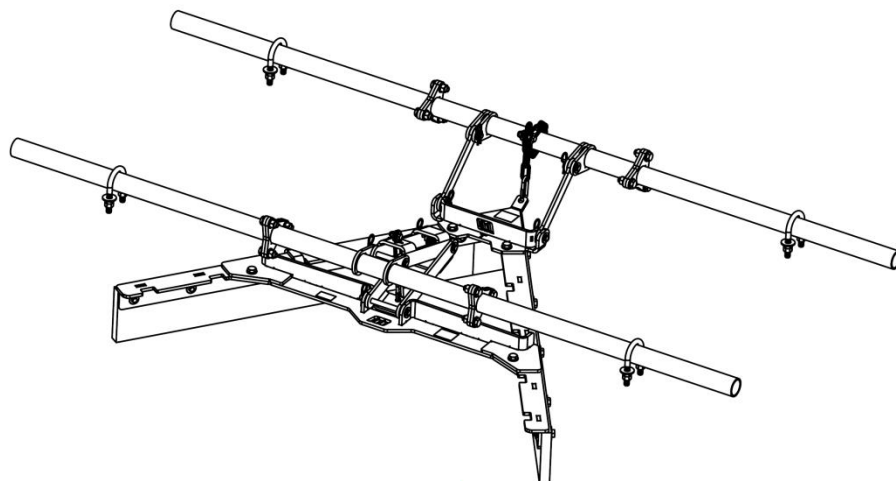
1.2 Accompanying Documents

Part 1 of the operating instructions, which is provided separately, is an integral part of these operating instructions.

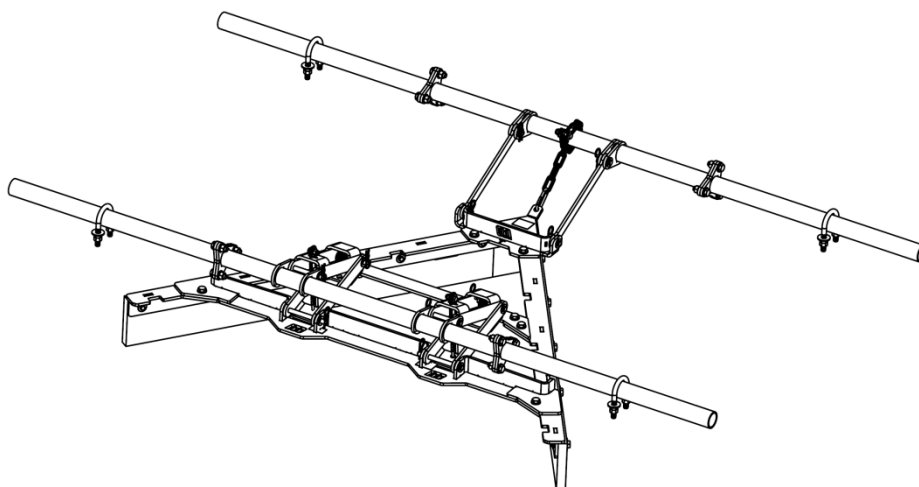
1.3 Product sizes and design

The Torsion VPlow Plus comes in slightly different designs depending on the belt width (BW)

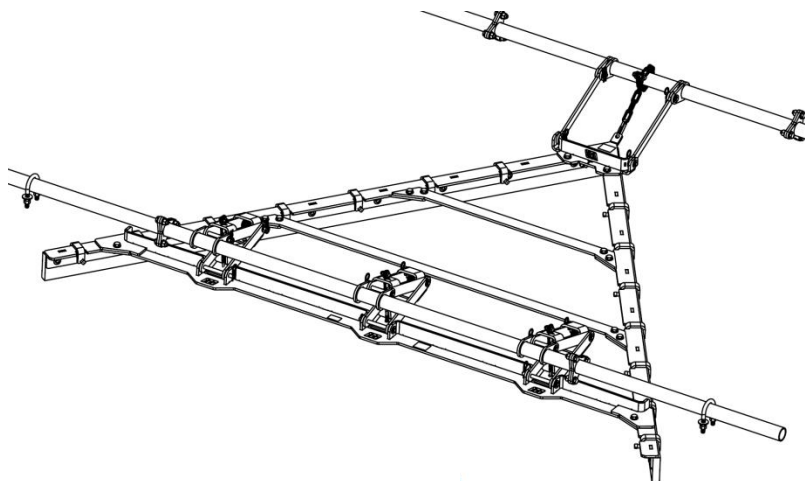
For **BW 24" ... 48"**: 4-Piece frame with one torsion clamp



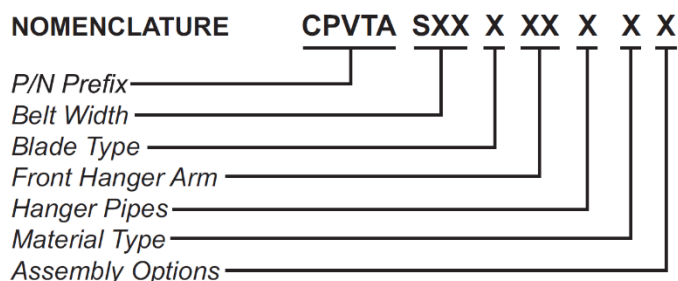
For **BW 54" ... 84"**: 5-Piece frame with two torsion clamps



For **BW 96" ... 120"**: 6-Piece frame with three torsion clamps



1.4 Part number



BELT WIDTH

SXX: XX indicates inches
(18–96 inches)

SA8: 108.00 inches

SC0: 120.00 inches

BLADE TYPE

O: Orange Urethane Blade

G: Green Urethane Blade

FRONT HANGER ARM

03: 03 Hanger Arm

04: 04 Hanger Arm

HANGER PIPES

C: Compact Split Style

!

MATERIAL TYPE

T: Painted Mild Steel

ASSEMBLY OPTIONS

U: Unassembled

1.5 Technical Data

The Torsion VPlow Plus is suitable for the following operating parameters:

	Operating parameter
Belt widths:	500 – 3.000 mm
Pulley diameter:	All common sizes
Belt speed:	Max. 4,6 m/s
Temperature range:	-40 - 150 °C depending on PU type
Reversing operation:	Not suitable for reversing operation

2 Installation



NOTE

For a general description of cleaner installation, refer to part 1 of these operating instructions!

2.1 Determining the Torsion VPlow Plus installation position



NOTE

Place the Torsion VPlow Plus on the return side of the belt before the tail pulley with the “V” pointing away from the tail pulley.

Locate a suitable position for the Torsion VPlow Plus at the tail end of the conveyor. The discharge end of the Torsion VPlow Plus must be clear of the structure to allow material to exit off the blade.

The conveyor belt must be flat in the area where the Torsion VPlow Plus is to be installed to ensure the wear rate of the blade is even.

Install return idlers as required to ensure the belt is flat in the Torsion VPlow Plus location.

Adjust the position as needed to allow for the best installation position for the Hanger Bars.

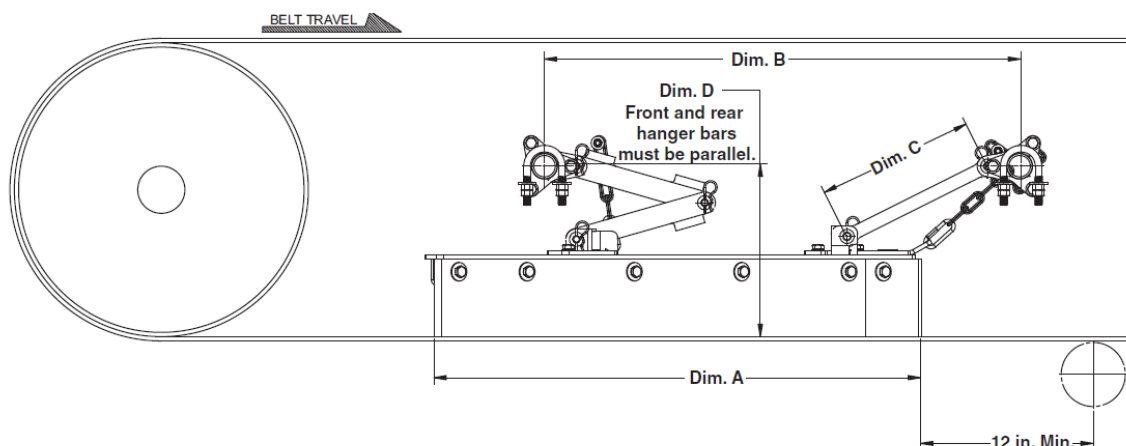
Hanger Bars may be bolted on top, below, or through the stringer channels.

The Torsion VPlow Plus should not be placed on top of return idlers. The idlers may change the belt line and cause a portion of the blade to not contact the belt.

Allow a minimum of 300 mm from the centre of the return idlers to the front of the Torsion VPlow Plus Blade.

Also allow a minimum of 305 mm from the face of the Tail Pulley to the back edge of the Torsion V-Plow Plus Blade.

2.2 Dimensions



Assembly Part Number	Dim. A	Assembly Part Number	Dim. A
CPVTAS24XXXXXX	19.48 (495)	CPVTAS66XXXXXX	49.47 (1257)
CPVTAS30XXXXXX	23.77 (604)	CPVTAS72XXXXXX	53.76 (1365)
CPVTAS36XXXXXX	28.05 (713)	CPVTAS78XXXXXX	58.04 (1474)
CPVTAS42XXXXXX	32.33 (821)	CPVTAS84XXXXXX	62.33 (1583)
CPVTAS48XXXXXX	36.62 (930)	CPVTAS96XXXXXX	70.90 (1801)
CPVTAS54XXXXXX	40.90 (1039)	CPVTASA8XXXXXX	79.46 (2018)
CPVTAS60XXXXXX	45.19 (1148)	CPVTASC0XXXXXX	88.03 (2236)

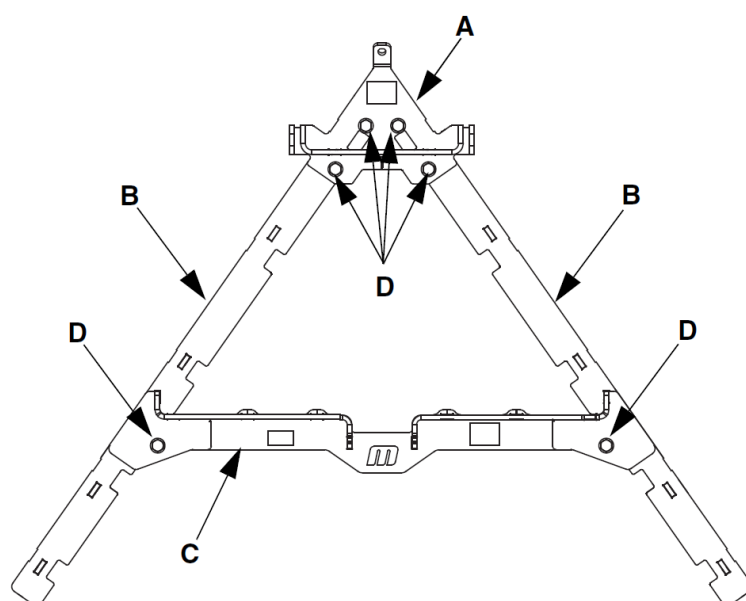
Assembly Part Number	Dim. B with 7.87 Arms		Dim. B with 11.81 Arms	
	When arms are at Min. height (see Dim. D)	When arms are at Max. height (see Dim. D)	When arms are at Min. height (see Dim. D)	When arms are at Max. height (see Dim. D)
CPVTAS24XXXXXX — CPVTAS36XXXXXX	15.25 (387)	22.00 (559)	17.00 (432)	28.81 (732)
CPVTAS42XXXXXX — CPVTAS48XXXXXX	24.83 (631)	32.94 (837)	26.38 (670)	37.17 (944)
CPVTAS54XXXXXX — CPVTAS66XXXXXX	33.83 (859)	41.94 (1065)	34.88 (886)	45.67 (1160)
CPVTAS72XXXXXX — CPVTAS84XXXXXX	46.58 (1183)	54.69 (1389)	47.63 (1210)	58.42 (1484)
CPVTAS96XXXXXX — CPVTASA8XXXXXX	62.33 (1583)	70.44 (1789)	66.25 (1683)	74.17 (1884)
CPVTASC0XXXXXX	78.08 (1983)	86.19 (2189)	79.13 (2010)	89.92 (2284)

Assembly Part Number	Hanger Arm P/N	Dim. C	Dim. D	
			Min.	Max.
CPVTASXXR03XXX	CPVTP1002203X	7.87 (200)	7.39 (188)	13.14 (334)
CPVTASXXX03XXX	CPVTP1002203X	7.87 (200)	9.25 (235)	15.00 (381)
CPVTASXXR04XXX	CPVTP1002204X	11.81 (300)	9.39 (239)	17.14 (435)
CPVTASXXX04XXX	CPVTP1002204X	11.81 (300)	11.25 (286)	19.00 (483)

Figure 1 – Locating Torsion VPlow Plus on Conveyor Belt

In inches – (millimetres in brackets)

2.3 Assembling the Torsion VPlow Plus

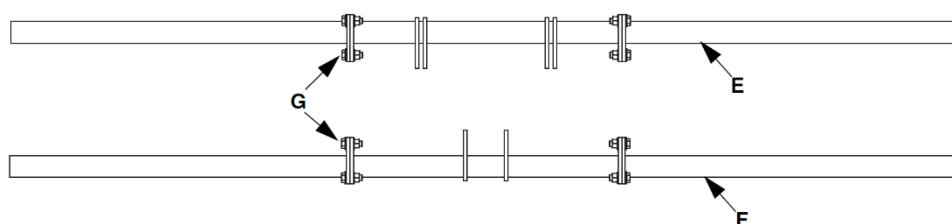


- | | | | |
|-----|------------------|-----|----------------------|
| A - | Front Base Frame | B - | Side Base Frame |
| C - | Rear Base Frame | D - | Cap Screw and Washer |

Figure 2 Base Frame

1. Fasten front frame weldment (A), side frame weldments (B), and rear frame weldment (C) together using cap screws and washers (D).

2.4 Assembling the Hanger Bars



- | | | | |
|-----|---------------------------|-----|-------------------|
| E - | Rear Hanger Bars | F - | Front Hanger Bars |
| G - | Cap Screws, Washers, Nuts | | |

Figure 3

1. Assemble front and rear hanger bars (E and F) using cap screw, washers, and nuts (G).

2.5 Installing the Hanger Bars



NOTE

The ears on the rear Hanger Bars may be orientated in any position within the 90° swing from vertically down to horizontal to the front of the Torsion VPlow Plus frame.

The centre of the front Hanger Bar must be parallel to the centre of the rear Hanger Bars.

Bar centres are to be parallel to the conveyor belt.

The front hanger arms should be less than 20° off vertical with the Torsion VPlow Plus base frame.

The front Hanger Bars should be at an angle that mirrors the rear Hanger Bars.

The Hanger Bars might be longer than required. Field-modify the length as needed.

If the stringers are too high or too low to accommodate the hanger bars in the proper position (Figures 1, 4 and 5), adapter plates can be mounted to the stringer, see chapter 2.6.

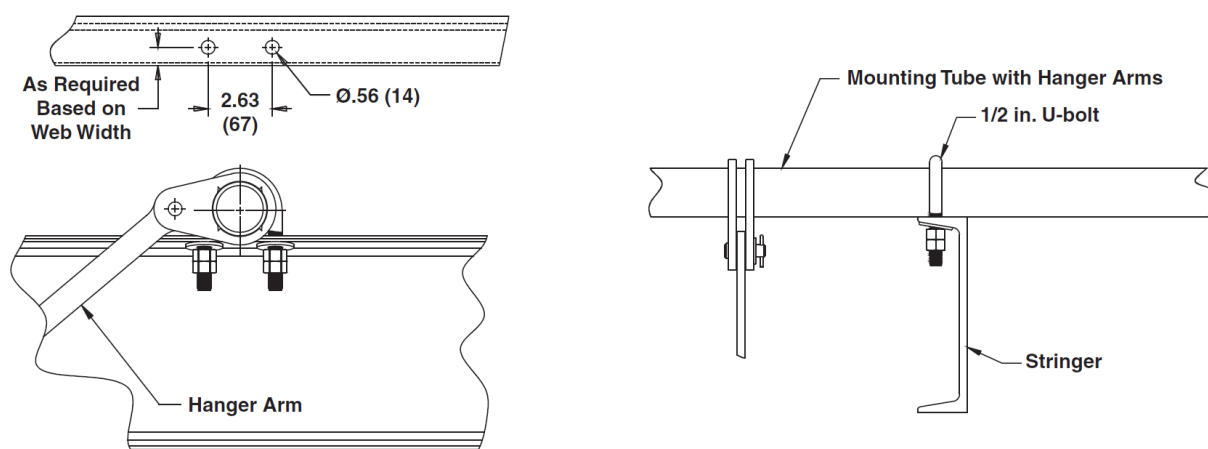


Figure 4 Installing the Hanger Bars

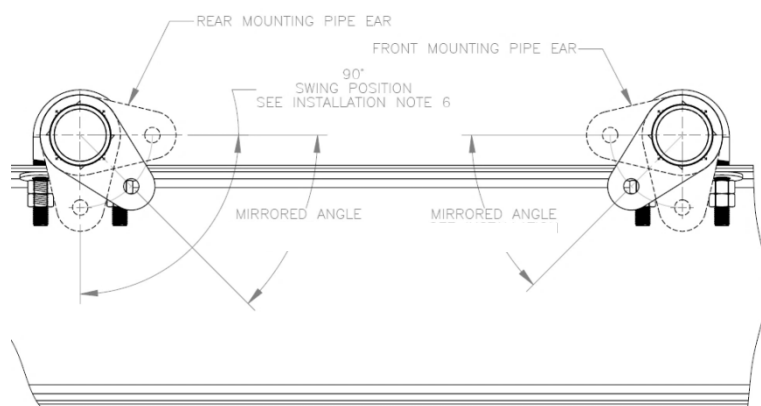


Figure 5 Position of the ears on front and rear Hanger Bars

1. Locate the Hanger Bars according to Chapter 2.1 and 2.2.
2. Mark the location of the hanger bars on the stringers according to Figure 4.
3. Drill or cut two 9/16-in. (14-mm) holes for the mounting screws for each adapter flange.
4. Remove burrs and sharp edge.
5. Install each hanger bar onto the stringer with two U-bolts, flat washers, and hex nuts.

2.6 Optional Installation Positions

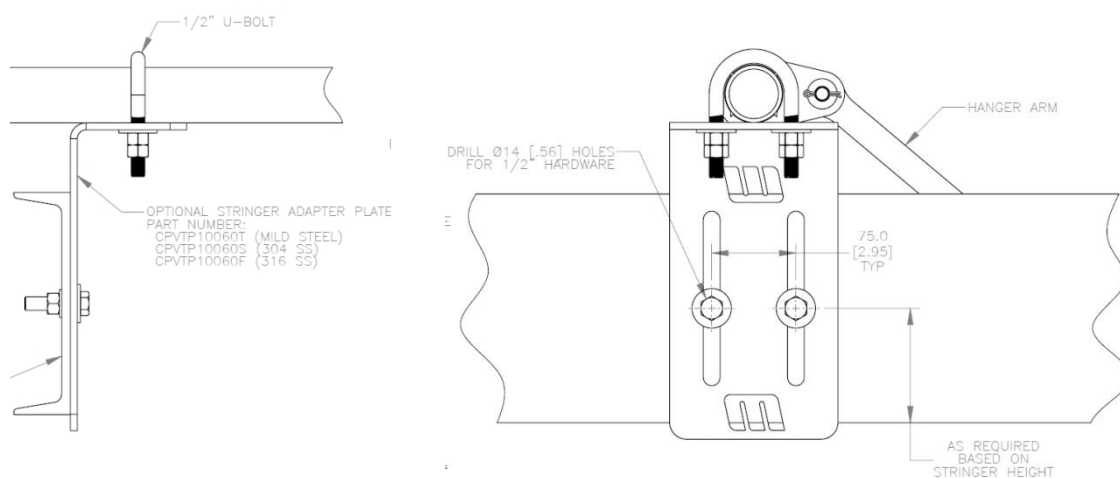


NOTE

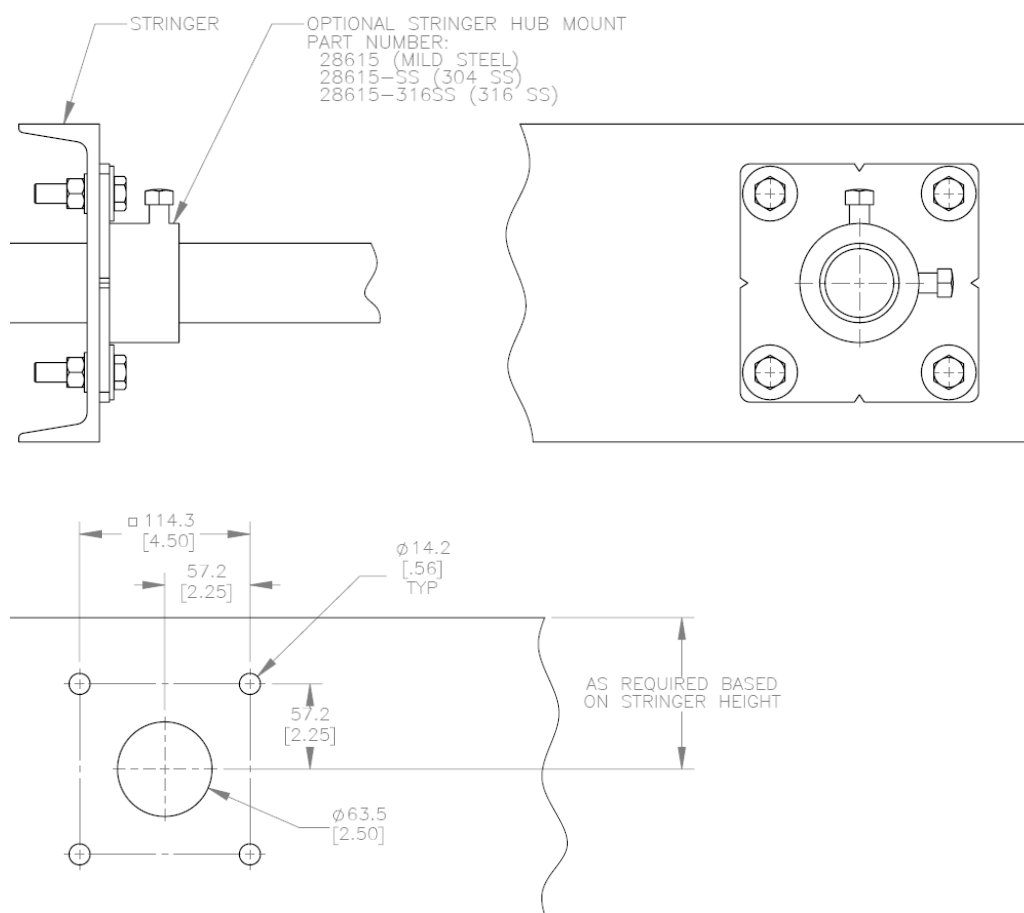
In this chapter optional installation methods and options are shown. Additional components are required which are not contained in the scope of supply.

Please contact Martin Engineering for details.

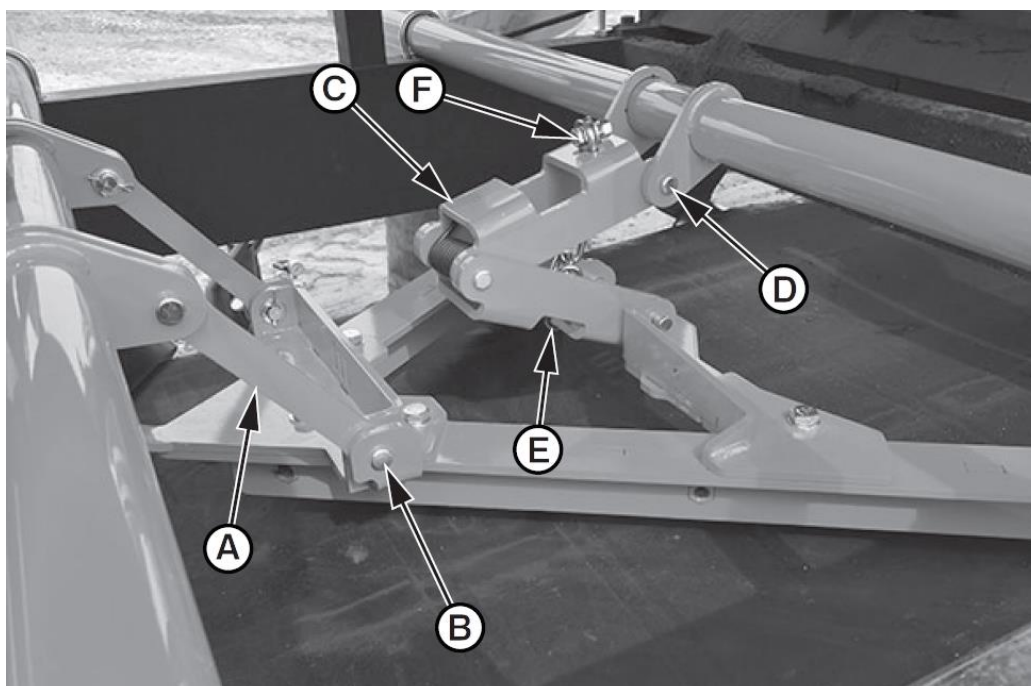
Adapter Plate (optional)



Stringer Hub Mount (optional)



2.7 Installing the Torsion VPlow Plus



A -	Pivot Arm	B -	Cotter Pin
C -	Torsion clamp assembly	D -	Cotter Pin
E -	Connection link	F -	Bolt and Nut

Figure 6 Installing the Torsion VPlow Plus

1. Attach each hanger pivot arm (A) to the front hanger bar and Torsion VPlow Plus with a clevis pin, flat washer, and cotter pin (B).
2. Attach torsion clamp assembly (C) to the rear hanger bar and Torsion VPlow Plus with a clevis pin, flat washer, and cotter pin (D).
3. Attach connecting link (E) on chain to lower torsion clamp arm.
4. Route chain through upper torsion clamp arm and install bolt and nut (F) through the chain link that prevents the Torsion VPlow Plus frame from contacting the belt.
5. Centre Torsion VPlow Plus on belt.
6. Align pins (G, Figure 7) so torsion clamp arms are on an equal angle.
7. Tighten all nuts on U-bolts that attach hanger bars to adapter plates or stringers.

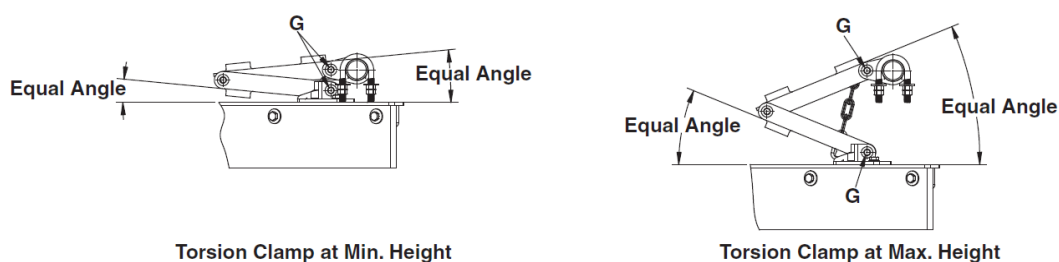


Figure 7 Torsion clamp position

2.8 Installing the Restraining Chain



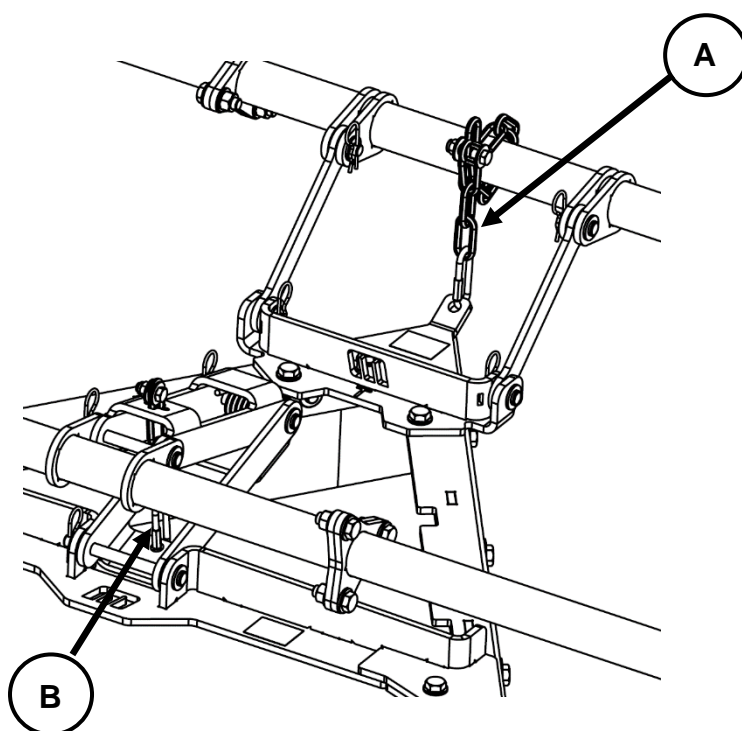
NOTE

Restraining chains

- prevent the Torsion VPlow Plus from being carried into the pulley if the mount brackets should fail.
- prevent the Torsion VPlow Plus base from touching the conveyor belt if the blade is worn.

Failure to install restraining chain could severely damage the Torsion VPlow Plus, pulley and belt.

Do not install restraining chain on stringers that are between the Torsion VPlow Plus and tail pulley.

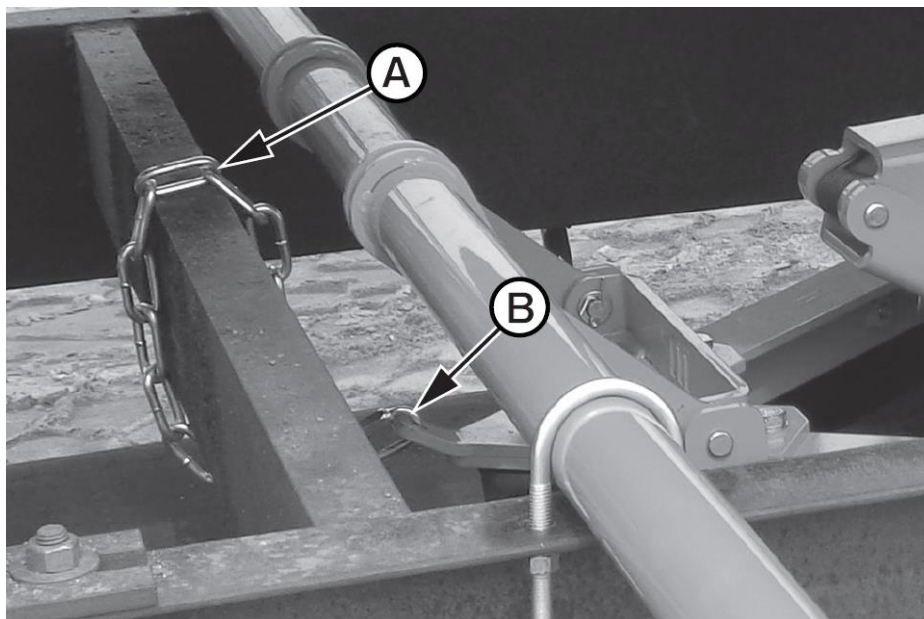


A - Restraining Chain (21 links) at front Hanger Bar

B - Restraining Chain (12 links) at rear Hanger Bar (one per torsion clamp assembly)

Figure 8 Restraining Chains

Restraining Chain at front Hanger Bar



A - Restraining chain

B - Connecting link

Figure 9 Restraining chain Installation at the front Hanger Bar

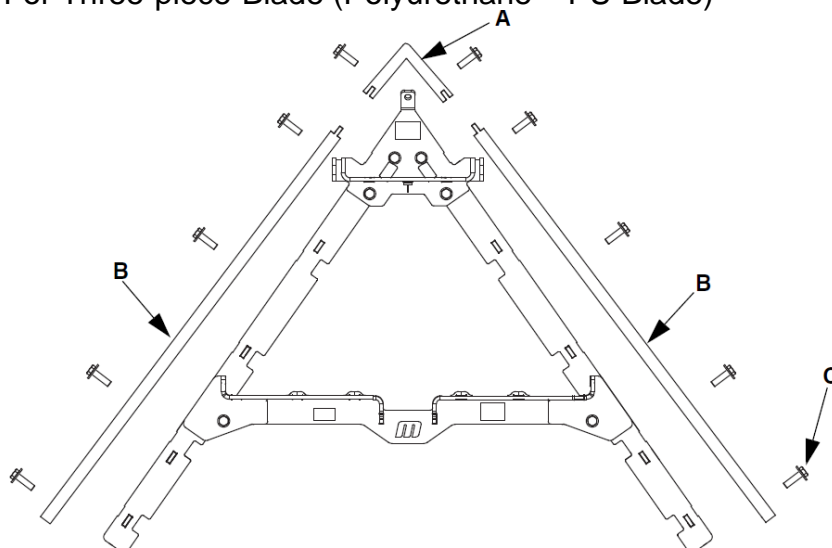
1. Measure and secure the restraining chain so, if the Torsion VPlow Plus blade is worn, that the Torsion VPlow Plus base frame does not get in contact with the belt.
2. Attach restraining chain (A) to the conveyor stringers and Torsion VPlow Plus using connecting link (B) and other hardware as required per application.
3. Make sure Torsion VPlow Plus is located according to chart in Figure 1.
4. Set the Torsion VPlow Plus up so the nose is slightly elevated, that the Torsion VPlow Plus does not dig into the belt.
5. When the blade is installed later-on: Leave no more than 2 in. (51 mm) of slack in chain.

Restraining Chain(s) at rear Hanger Bar

1. Measure and secure the restraining chain so, if the Torsion VPlow Plus blade is worn, that the Torsion VPlow Plus base frame does not get in contact with the belt.
2. Connect the quick link of the chain to the bottom torsion arm.
3. Connect and secure the chain to the top torsion arm with the supplied hardware.

2.9 Installing the Blade

For Three-piece-Blade (Polyurethane – PU Blade)



1. Attach nose blade (A) and side blades (B) to Torsion VPlow Plus using cap screws and washers (C).

Figure 10 PU Blade Assembly

2.10 Placing labels

2.10.1 Safety label

The safety label below must be attached to the conveyor system in the immediate vicinity of the Plow!



2.10.2 Other labels

A Sticker showing the address of the Martin Engineering branch and the designation of the product must be attached to the conveyor system in the immediate vicinity of the Plow!



Germany

Martin Engineering GmbH
In der Rehbach 14, 65396 Walluf, Germany
Tel. +49 (0)6123 97820; Fax +49 (0)6123 75533
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