

martin[®]

Martin[®]
***High Temperature
Cleaner***



Operator's Manual
M3389

Important

MARTIN ENGINEERING HEREBY DISCLAIMS ANY LIABILITY FOR: DAMAGE DUE TO CONTAMINATION OF THE MATERIAL; USER'S FAILURE TO INSPECT, MAINTAIN AND TAKE REASONABLE CARE OF THE EQUIPMENT; INJURIES OR DAMAGE RESULTING FROM USE OR APPLICATION OF THIS PRODUCT CONTRARY TO INSTRUCTIONS AND SPECIFICATIONS CONTAINED HEREIN. MARTIN ENGINEERING'S LIABILITY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF EQUIPMENT SHOWN TO BE DEFECTIVE.

Observe all safety rules given herein along with owner and Government standards and regulations. Know and understand lockout/tagout procedures as defined by American National Standards Institute (ANSI) z244.1-1982, *American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements* and Occupational Safety and Health Administration (OSHA) Federal Register, Part IV, 29 CFR Part 1910, *Control of Hazardous Energy Source (Lockout/Tagout); Final Rule*.

The following symbols may be used in this manual:



Danger: Immediate hazards that will result in severe personal injury or death.



Warning: Hazards or unsafe practices that could result in personal injury.



Caution: Hazards or unsafe practices that could result in product or property damages.



Important: Instructions that must be followed to ensure proper installation/operation of equipment.



Note: General statements to assist the reader.

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Introduction

General

The Martin® High Temperature Cleaner is a secondary cleaner composed of a rugged galvanized mainframe holding individual coil-spring cleaning arms with 6.5-in. (165-mm) wide cleaning blades. It features all-steel construction to withstand high-temperature applications up to 600°F (315°C).

The Martin® High Temperature Cleaner is available for belts 12 to 96 in. (300 to 2400 mm) wide.

NOTE

If the material-handling process or product could be affected by contamination from the use of these belt cleaners, the user is responsible for taking the necessary steps to prevent contamination. Consult Martin Engineering or a representative for alternate belt cleaners or belt cleaner locations to use where contamination may be an issue.

Installations without chutework

These procedures were written for equipment that is being installed on enclosed pulley chutework. If the pulley is not enclosed, the equipment should be installed using the best available field resources and methods to ensure that the critical dimensions are followed for proper installation.

Belt cleaner inspection access

If the belt cleaner is installed on enclosed pulley chutework, a Martin® Inspection Door should be installed. Martin® Inspection Doors are available from Martin Engineering or a representative.

References

The following documents are referenced in this manual:

- American National Standards Institute (ANSI) z244.1-1982, *American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements*, American National Standards Institute Inc., 1430 Broadway, New York, NY 10018.
- Federal Register, Volume 54, Number 169, Part IV, 29 CFR Part 1910, *Control of Hazardous Energy Source (Lockout/Tagout); Final Rule*, Department of Labor, Occupational Safety and Health Administration (OSHA), 32nd Floor, Room 3244, 230 South Dearborn Street, Chicago, IL 60604.

Safety

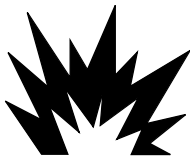
All safety rules defined in the above documents and all owner/employer safety rules must be strictly followed when working on the belt cleaner.

**⚠ DANGER**

Do not touch or go near the conveyor belt or conveyor accessories when the belt is running. Your body or clothing can get caught and you can be pulled into the conveyor, resulting in severe injury or death.

**⚠ DANGER**

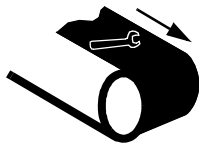
Before installing, servicing, or adjusting the belt cleaner, turn off and lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

**⚠ DANGER**

If this equipment will be installed in an enclosed area, test the gas level or dust content before using a cutting torch or welding. Using a torch or welding in an area with gas or dust may cause an explosion resulting in serious injury or death.

**⚠ WARNING**

Before using a cutting torch or welding the chute wall, cover the conveyor belt with a fire retardant cover. Failure to do so can allow the belt to catch fire.

**⚠ WARNING**

Remove all tools from the installation area and conveyor belt before turning on the conveyor. Failure to do so can cause serious injury to personnel or damage to the belt and conveyor.

**⚠ WARNING**

Mainframe with blade can be heavy and may require two people to lift. Attempting to lift the belt cleaner without assistance could result in injury.

Before Installing Belt Cleaner

IMPORTANT

The delivery service is responsible for damage occurring in transit. Martin Engineering CANNOT enter claims for damages. Contact your transportation agent for more information.

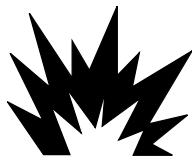
1. Inspect shipping container for damage. Report damage to delivery service immediately and fill out delivery service's claim form. Keep any damaged goods subject to examination.
2. Remove belt cleaner assembly from shipping container.
3. If anything is missing contact Martin Engineering or a representative.



WARNING

Before installing equipment, turn off and lock out/ tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

4. Turn off and lock out/tag out energy source according to ANSI standards (see "References").



DANGER

If this equipment will be installed in an enclosed area, test the gas level or dust content before using a cutting torch or welding. Using a torch or welding in an area with gas or dust may cause an explosion resulting in serious injury or death.

5. If using a cutting torch or welding, test atmosphere for gas level or dust content. Cover conveyor belt with fire retardant cover.

IMPORTANT

Center the belt cleaner blades to clean an area narrower than the conveyor belt width. This allows for side-to-side movement of the belt and prevents damage to the belt edge.

NOTE

The chute wall that the tensioner will be located on is referred to as the "operator side." The other side of the chute is referred to as the "far side." (If installing dual tensioners, side that is most accessible is "operator side.")

6. Determine which side of chute is easiest to access. Locate the tensioner on the most accessible chute wall.

Installing Belt Cleaner

▲ CAUTION

Do not use Martin® Twist Tensioner if temperatures exceed 180°F (83°C) at installation area. Damage to Martin® Twist Tensioner will result. Use Martin® Spring Tensioner for applications above 180°F (83°C). See “Part Numbers” for complete list of tensioners.

IMPORTANT

For initial installation of tensioner and far side mount plate, only finger tighten or tack weld to chute walls. After belt cleaner assembly has been properly positioned, torque screws or permanently weld tensioner and mount plate onto chute walls.

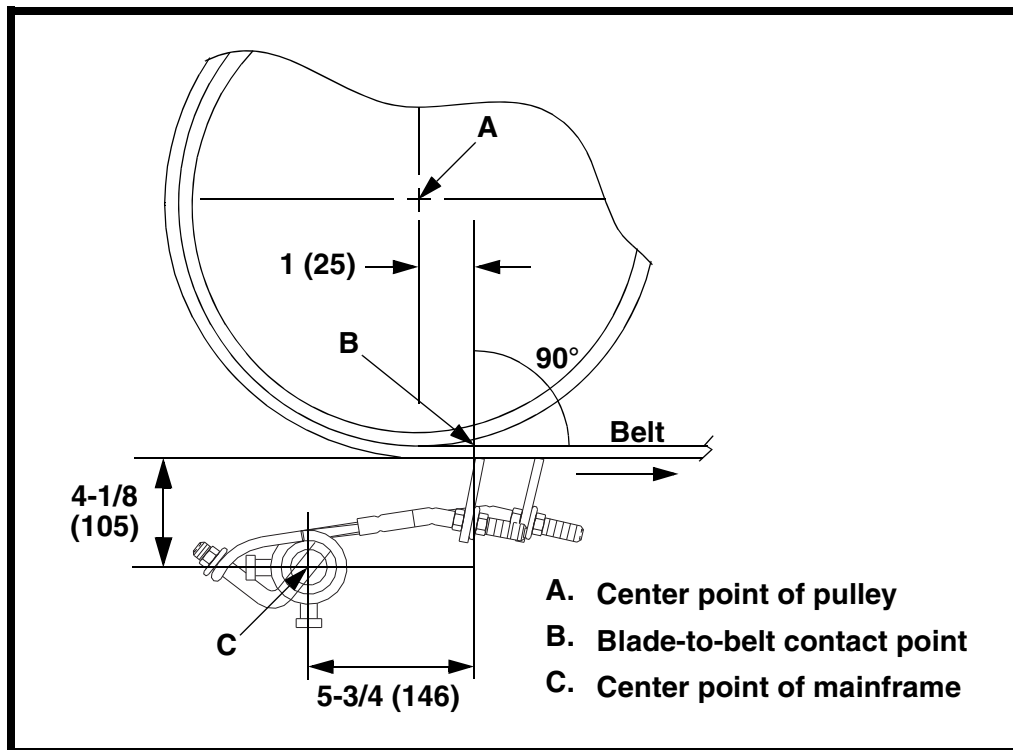


Figure 1. Martin® High Temperature Cleaner Mainframe Location

Finding center point of belt cleaner mainframe

1. See Figure 1. On operator side of chute wall, mark vertical and horizontal center line of head pulley to find pulley center point (A). Make sure center line is perpendicular to belt line.
2. Measure 1 in. (25 mm) past point where conveyor belt leaves pulley and mark vertical line on chute wall perpendicular to belt line.

***Installing
tensioner and
mainframe***

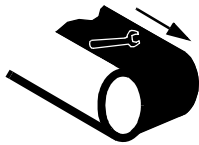
3. Locate short arm blades where this line crosses bottom (return side) of conveyor belt: blade-to-belt contact point (B). (If belt is not adequately supported, a belt support must be installed.)
4. Starting from point (B), measure vertically and horizontally as shown in Figure 1 and mark mainframe center point (C).
5. Repeat steps 1 through 4 for far side chute wall.

1. Install tensioner according to applicable tensioner's operator's manual.
2. If using Martin[®] Inspection Door, install according to *Martin[®] Inspection Door Operator's Manual*, P/N M3891.
3. Insert mainframe assembly into far side mount plate and tensioner.
4. Torque mounting screws or permanently weld tensioner and far side mount plate to chute walls.

After Installing Belt Cleaner



1. Thoroughly wipe chute wall clean above tensioner.
2. Place Conveyor Products Warning Label (P/N 23395) on outside chute wall visible to belt cleaner operator.



⚠ WARNING

Failure to remove tools from installation area and conveyor belt before turning on energy source can cause serious injury to personnel and damage to belt.

⚠ DANGER

Do not touch or go near conveyor belt or conveyor accessories when conveyor belt is running. Body or clothing can get caught and pull body into conveyor belt, causing severe injury or death.

3. Turn on conveyor belt for 1 hour, then turn off.



⚠ DANGER

Before installing, servicing, or adjusting the belt cleaner/tensioner, turn off and lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

4. Make sure all fasteners are tight. Tighten if necessary.
5. Make sure cleaner is not changing belt line. If it is, install belt support ahead of blade-to-belt contact point (Secondary Cleaner).
6. Inspect belt cleaner for the following:
 - Wear. (A small amount of “break-in” wear may be found. This will stop once blades wear to conveyor belt contour.)
 - Material buildup. (No material between blades and return side of conveyor belt should be found.)
7. If wear, material buildup, or some other problem exists, see “Troubleshooting.”

IMPORTANT

Read entire section before beginning work.

NOTE

Maintenance inspection should be performed no less than weekly. Some applications may require more frequent maintenance inspections.



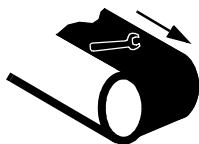
⚠ DANGER

Before installing, servicing, or adjusting the belt cleaner/tensioner, turn off and lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

1. Remove any material from belt cleaner.
2. Make sure all fasteners are tight. Tighten if necessary.
3. Check tension on cleaner. Re-tension if necessary.
4. Wipe all labels clean. If labels are not readable, contact Martin Engineering or a representative for replacements.
5. Check blades for excessive wear. Replace if necessary.
6. Check blades for excessive wear. If blades have worn to within an inch of the mounting bolts or if the tungsten carbide is gone, remove and replace blades.
7. Remove equipment from service if there is any indication it is not functioning properly. Call Martin Engineering or a representative for assistance. Do NOT return equipment to operation until the cause of the problem has been identified and corrected.

⚠ WARNING

Failure to remove tools from maintenance area and conveyor belt before turning on energy source can cause serious injury to personnel and damage to belt.



8. Remove all tools from maintenance area.

⚠ DANGER

Do not touch or go near conveyor belt or conveyor accessories when conveyor belt is running. Body or clothing can get caught and pull body into conveyor belt, causing severe injury or death.



9. Start conveyor belt.

Troubleshooting

Symptom	Corrective Action
Insufficient cleaning and carryback.	<ul style="list-style-type: none"> • Tension of cleaner on belt is set too low or too high. Increase or decrease tensioner setting. • Blades are worn. Check blades and replace if necessary.
Noise or vibration.	Tension is not sufficient or is set too high. Correct tension as necessary. If this does not correct problem, blade urethane may not match application. Contact Martin Engineering or representative.
High blade wear rate.	Tension of cleaner on belt is set too high. Reduce tensioner setting.
Unusual wear or damage to blades.	Check belt splice(s) and repair as necessary.
Bent or broken mainframe or support frame due to blade slipping through.	If blades are worn to or past the wear line, replace blades. If blades are not worn, check mainframe location.
Corrosion or chemical degradation.	Blade urethane may not match application. Contact Martin Engineering or representative.

NOTE

Conveyor equipment such as conveyor belt cleaners are subject to a wide variety of bulk materials characteristics and often have to perform under extreme operating or environmental conditions. It is not possible to predict all circumstances that may require troubleshooting. Contact Martin Engineering or a representative if you are experiencing problems other than those listed in the “Troubleshooting” chart above. Do not return the equipment to operation until the problem has been identified and corrected.

Installation checklist

If after taking the corrective actions suggested under “Troubleshooting” you are still experiencing problems, check for the following:

Installation Checklist
✓ Pre-Cleaner mainframe is proper distance from belt surface on both ends of mainframe.
✓ Pre-Cleaner blade tip is at or below horizontal center line of pulley and does not lie in path of material flow.
✓ Secondary Cleaner blade tip is 1 in. (25 mm) past vertical center line of pulley.
✓ Secondary Cleaner is not changing belt line.
✓ Blades are centered on belt.

Part Numbers

This section provides product names and corresponding part numbers for Martin® High Temperature Cleaner and related equipment. Please reference part numbers when ordering parts:

Martin® High Temperature Cleaner

Martin® High Temperature Cleaner Assembly: P/N 21042-XXX.
See Figure 2.

Recommended Tensioners



Do not use Martin® Twist Tensioner if temperatures exceed 180°F (83°C) at installation area. Damage to Martin® Twist Tensioner will result. Use Martin® Spring Tensioner for applications above 180°F (83°C).

Belts 12 to 48 in. (300 to 1400 mm) wide:

Martin® Twist Tensioner Assembly: P/N 38850.

Flange Mount Spring Tensioner: P/N 38180.

Belts 54 to 96 in. (1400 to 2400 mm) wide:

Martin® Twist Dual Tensioner Assembly: P/N 38850-2.

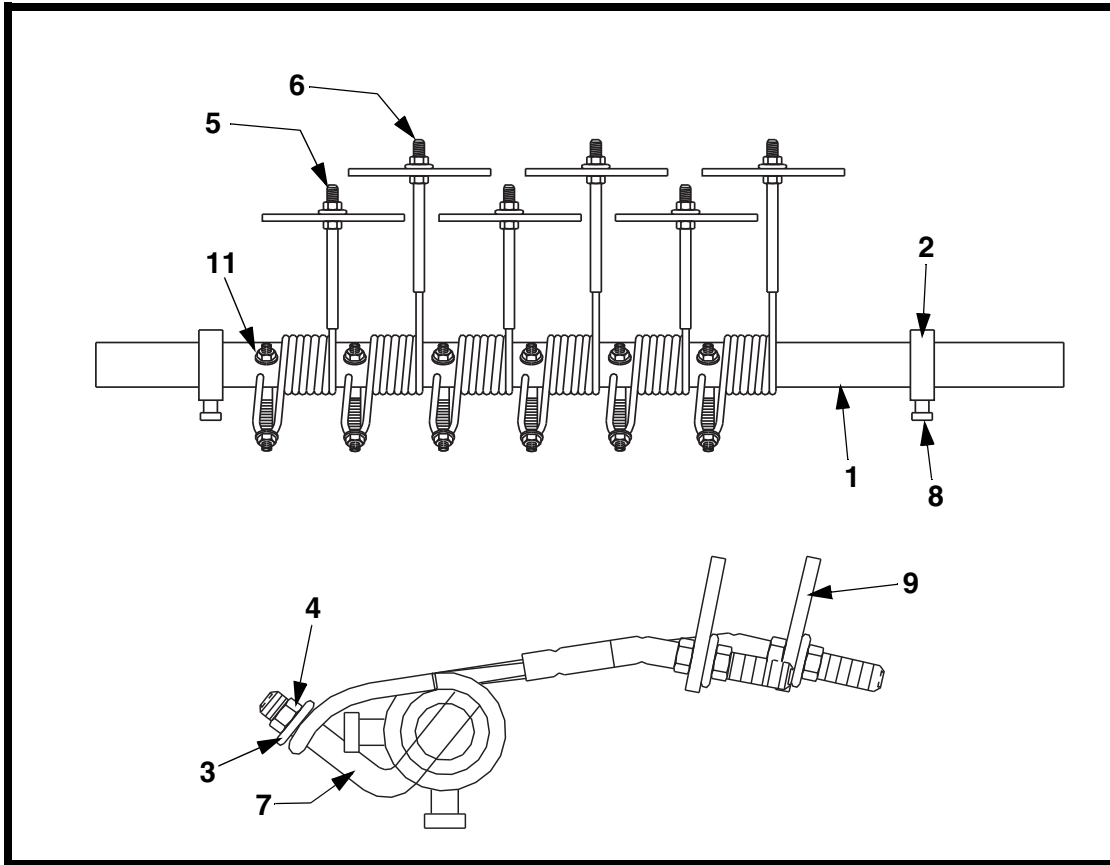
Dual Flange Mount Spring Tensioner: P/N 38180-2.

Operator's manuals

Martin® Inspection Door Operator's Manual: P/N M3891.

Martin® Spring and Air Tensioners Operator's Manual: P/N M3263.

Martin® Twist Tensioner Operator's Manual: P/N M3837.



Item	Description	Part No.	Qty
1	Mainframe	21273-XX*	1
2	Hub	16845	2
3	Washer Flat 17/32 I.D.	31010	Tbl I
4	Nut 1/2 -13 NC Elastic Stop	18577	Tbl I
5	Spring Arm Assy 8-inch	22214	Tbl I
6	Spring Arm Assy 10-inch	22215	Tbl I
7	Spring Arm Retainer	17150	Tbl I
8	Set Screw	22763-03	4
9	Blade	Tbl II	Tbl I
Fig. 3	Label Conveyor Products Warning	23395	2
11	Nut Hex 1/2-13NC	17151	Tbl I
12 (NS)	Label Martin Product	38048	2
13 (NS)	Operator's Manual	M3389	1

Figure 2. Martin® High Temperature Cleaner Assembly, P/N 21042-XXX**

*XX indicates belt width in inches.

**First XX indicates belt width in inches. Third X indicates blade type (see Table II).

NS = Not Shown

Table I. Martin[®] High Temperature Cleaner Part Quantities

Assembly Part No.*	Quantities		
	Item 5	Item 6	Items 3, 4, 7, 9 & 11
21042-06X	0	1	1
21042-12X	1	1	2
21042-18X	1	2	3
21042-24X	2	2	4
21042-30X	3	3	6
21042-36X	3	4	7
21042-42X	4	5	9
21042-48X	5	5	10
21042-54X	6	6	12
21042-60X	6	7	13
21042-66X	7	8	15
21042-72X	8	8	16
21042-78X	9	9	18
21042-84X	9	10	19
21042-96X	11	11	22

*X indicates blade type. See Table II.

Table II. Martin[®] High Temperature Cleaner Blade Materials and Part Numbers

Assembly Part No.*	Material	Item 9 Part No.	Maximum Temperature** °F (°C)
21042-XXS	Stainless Steel	16960	600 (315)
21042-XXT	Single-Edge Tungsten Carbide	27924	600 (315)
21042-XXD	Double-Edge Tungsten Carbide	28020	600 (315)
21042-XXU	Urethane	16943	150 (65)
21042-XXH	Heat-Treated Steel	24259	600 (315)

*XX indicates belt width in inches.

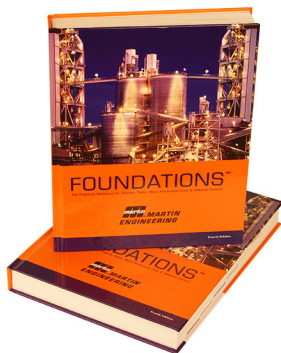
**Maximum temperature is for blade only.



Figure 3. Conveyor Products Warning Label, P/N 23395

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For nearly 20 years, Martin Engineering's Foundations™ Books have taught industry personnel to operate and maintain clean and safe belt conveyors. The Foundations™ Book, fourth edition, focuses on improving belt conveyors by controlling fugitive material. "The Practical Resource for Total Dust and Material Control," is a 576-page hard cover volume that provides information of value to industries where the efficient handling of bulk materials is a key to productivity and profitability.

Expanding upon the book, our Foundations™ Training Program addresses the design and development of more productive belt conveyors, and is offered in three customizable seminars. Attendees gain a better understanding of conveyor safety and performance, helping to justify upgrade investments and increase profitability.



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