

CleanScrape[®] Heated Primary Cleaner

Go to CleanScrape[®] Heated Primary Cleaner web page.





Operator's Manual M4212

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) ANSI/ ASSP z244.1-2024, *The Control of Hazardous Energy Lockout, Tagout And Alternative Methods and Occupational Safety* and Health Administration (OSHA) Federal Register, Title 29 Subtitle B Chapter XVII Subpart J 1910.147, *Control of Hazardous Energy Source (Lockout/Tagout);* Final Rule.

The following symbols may be used in this manual:

A DANGER

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

AWARNING

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

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



Note: General statements to assist the reader.

Table of Contents

Section	Page
List of Figures and Tables	ii
Introduction	1
General	1
Overview of controller operation	1
References	1
Materials required	1
Safety	2
Before Installing Controller	3
Installing Controller	4
Preparing CleanScrape [®] blade	4
Wiring lead wires to extension cables	5
Mounting enclosure	6
Programming Controller	9
Troubleshooting	10
Weekly Maintenance	14
Part Numbers	15

List of Figures

Figure	Title	Pag	ge
1	Siliconing Heating Element to End of Blade	• 4	ł
2	Siliconing End of Conduit to End of Blade & Routing Conduit Through Chute Wall	5	5
3	Connection from Heating Element to Extension Cables	5	5
4	Thermocouple Location	6	5
5	Thermocouple Connections	7	7
6	Heater Output	•• 7	7
7	240V AC Power Connections	. 8	3
8	Display Screen Functions	. 9)
9	Front panel LEDs	1	0
10	Front panel LED 2 & 3 Location	. 1	1
11	Internal Thermostat Default Factory Set Point	• 1	2
12	Internal Heater Default Factory Set Point	• 1	2
13	CleanScrape® Medium & Large Heated Primary Cleaner, P/N C1CXXHXXXXXX	•• 1	6
14	CleanScrape® Heated Primary Cleaner Controller Dimensions	•• 1	8

List of Tables

Table	Title	Page
Ι	LED Color Status and Meanings	. 10
II	Circuit Breakers and Information	• 12
III	LED "2" & "3" Status Meanings	• 13
IV	Belt Widths for CleanScrape [®] Medium & Large Heated Assembly	•• 17
V	Blade Part Numbers for CleanScrape [®] Medium & Large Heated Assembly	•• 17
VI	Hardware Part Number & Quantity for CleanScrape® Medium & Large Heated Assembly	v. 17
VII	Installation & Chutewall Kit Part Number & Quantity for CleanScrape® Medium & Large	e
	Heated Assembly	• 17
VIII	Chain Part Numbers for CleanScrape [®] Large Heated Assembly	18
IX	Heat Cable Part Numbers for CleanScrape [®] Large Heated Assembly	18

Introduction

General	The CleanScrape [®] Heated Primary Cleaner System is a reliable, practical system for heating CleanScrape [®] Primary Cleaners at desired temperatures to better operate in harsh weather. The controller uses programmable logic to energize the heating element to desired pre-set temperatures. The CleanScrape [®] Heated Primary Cleaner System reduces the material flow problems that exist due to build up of unneccesary material on the cleaner or from freezing over.
	The system is capable of 2-channel temperature control, which is integrated in a heated electical cabinet with a $240 \text{ V AC}/60 \text{Hz}$ power supply.
	Martin Engineering [®] recommends setting temperature to a value between 180 °F (82 °C) to 200 °F (93 °C) during cold weather season.
Overview of controller operation	The CleanScrape [®] Heated Primary Cleaner Controller controls both of the 2 heating element's temperatures.
controller operation	• One controller is used for the top heating element.
	• The second controller is used for the the bottom heating element.
	The temperatures achieved are reliant upon the set temperatures on each of the two temperature controllers. The lower green number is the set temperature whereas the red is the current active temperature of the respective heating element.
References	The following documents are referenced in this manual:
	• American National Standards Institute ANSI/ASSP Z244.1-2024, <i>The Control of Hazardous Energy Lockout, Tagout and Alternative Methods</i> American National Standards Institute, Inc., 1180 6th Ave, 10th Floor New York, NY 10036.
	• Federal Register, Title 29 Subtitle B Chapter XVII Subpart J 1910.147, <i>Control of Hazardous Energy Source (Lockout/Tagout); Final Rule</i> , Department of Labor, Occupational Safety and Health Administration (OSHA), 32nd Floor, Room 3244, 230 South Dearborn Street, Chciago, IL 60604.
	• <i>The National Electrical Code (NEC),</i> National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.
Materials Required	Installation of this equipment requires the use of standard hand tools, drill, grinder, welder, and cutting torch.

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



Safety













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 conveyor components, turn off and lockout / tagout / blockout / testout all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.



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. Follow local confined space procedure.

AWARNING

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. Follow local fire watch procedures.

AWARNING

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.



Conveyor equipement can be heavy and may require two people to lift. Attempting to lift the equipment without assistance could result in injury.

IMPORTANT

The delivery service is responsible for damage occurring in transit. Martin Engineering CANNOT enter claims from 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 components from shipping container. Equipment in container by default should include the following:
 - CleanScrape[®] blade
 - Controller
 - 2 Heating elements
 - 2 Junction boxes
 - Miscellaneous accessories for wiring
- 3. If anything is missing or damaged, contact Martin Engineering or a representative. Depending on package ordered, contents may vary. Confirm expected contents compared to supplied drawing.

Before installing, servicing, or adjusting the belt cleaner, turn off and lockout / tagout / blockout / testout all energy sources to the conveyor and conveyor accessories according to ANSI standards or country specific safety standards (DIN, ISO, etc.). Failure to do so could result in serious injury or death.

4. Turn off and lockout / tagout / blockout / testout energy source according to ANSI standards (see "References").



If equipment will be installed in an enclosed area, gas level or dust content must be tested before using a cutting torch or welding. Using a cutting torch or welding in an area with gas or dust may cause an explosion.

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



The chute wall that the tensioner is located on is referred to as the "operator side." The other side of the chute is referred to as the "far side."





Installing Controller

IMPORTANT

Read entire section before beginning work.

To install the controller, follow the procedures in this manual alongside manual M4033 *CleanScrape*[®] *Medium, Large & HD Cleaners* as instructed corresponding to the following steps:

- 1. Begin by following manual M4033 CleanScrape[®] *Medium, Large & HD Cleaners* installation, until you complete "Step 19".
- After completion of "Step 19" located in M4033, cut two holes in operator side of chute wall for exit of powercables/conduit. Holes should be 1.12in (28mm) by 1 -1/8" hole saw.



All electrical work must be done to National Electrical Code (NEC) standards.

Preparing CleanScrape[®] Blade 3. Insert heating elements into CleanScrape[®] blade. Silicone both ends to hold the heating elements in place inside of the blade. (Refer to Figure 1.)



Figure 1. Siliconing Heating Element to End of Blade

- 4. Install conduits seperately over each wire and generously silicone 3/8" conduit to end of blade. (Refer to Figure 2.)
- Route heating element wires (protected by conduit) through chute wall. Install metal grommets into chute wall to protect conduit. (Refer to Figure 2.)



Figure 2. Siliconing End of Conduit to End of Blade & Routing Conduit Through Chute Wall

Wiring lead wires to extension cables 6. Lead wires from heating elements will terminate in a conduit body outside the head chute. Connect heating elements to extension cables.



Figure 3. Connection from Heating Element to Extension Cables

Mounting enclosure

7. Determine location of controller.



Do not mount controller in area subject to shock, vibration, temperatures exceeding 130°F (55°C), or explosion. Damage to controller circuitry could result.

- 8. Mount controller securely.
- 9. Drill conduit holes in controller for thermocouple and power wires. Use care not to damage internal components. Drill in most weather-proof location available on enclosure.
- 10. Using electrical connectors, route conduit wires from CleanScrape to controller enclosure.
- 11. Locate thermocouples (TC1 & TC2) within the plastic cable management cage. (Refer to figure 4.)



Figure 4. Thermocouple Location12. Hook heater 1 to TC1 (Refer to Figure 4 & 5.)13. Hook heater 2 to TC2. (Refer to Figure 4 & 5.)

Thermocouple Connections:

Heater 1 Thermocouple = Top Heating Element (Labeled TC1)

Heater 2 Thermocouple = Bottom Heating Element (Labeled TC2)

Match color to symbol – Red – **J** White – **+**



Figure 5. Thermocouple Connections

Heater Outputs:

Heater 1 = Top Heating Element (Labeled 1T1 & 1T2)

Heater 2 = Bottom Heating Element (Labeled 2T1 & 2T2)

Polarity does not matter



Figure 6. Heater Outputs



Figure 7. 240V AC Power Connections

- 15. Return to "Step 20." of manual M4033 CleanScrape[®] *Medium, Large & HD Cleaners*.
- 16. After installation is complete, energize the controller.

NOTE

Martin Engineering[®] recommends not operating heating year round. When temperatures are consistently above freezing, turn disconnect off.

17. Set heater between 180 °F (82 °C) to 200 °F (93 °C).

After powering the control box up, observe the temperature set points. (The lower green number) They should be set to: **180 °F (82 °C) to 200 °F (93 °C)**

If adjustment is needed:

Press the red square button on the bottom left; The green number should be flashing now indicating that it can be adjusted; To adjust the set point use the red up/down buttons;

Once desired set point has been programmed in, press the red square button again to confirm the setting;

The green number will no longer flash after confirming the setting.



Figure 8. Display Screen Functions

Button	Function					
	Enter temperature adjustment mode/Confirm temperature and leave adjustment mode.					
	Increase the number up a value.					
▼	Reduce the number down a value.					

NOTE

The red temperature read-out will not display a constant temperature but instead will increase when the heater element is energized and then slowly decrease down again. This is normal.

Troubleshooting

IMPORTANT

Read entire section before beginning work.

In case a problem arises, the unit is fitted with multiple LEDs that will indicate the current status of the unit. (Refer to Figure 9.)

Table I. LED Color Status and Meanings

LED Color Status Meanings	
Green LED Unit is powered on.	
Red LED	Operational alert. (Proceed through steps to diagnose error.)
Amber LED Low internal temperature warning. (No action is required.)	



Figure 9. Front panel LEDs



The following steps are to troubleshoot when the Red LED lights up. (Refer to Figure 9).

1. Check controllers to see if LED above number "2" or "3" is illuminated, make note. (Refer to Figure 10.)



Figure 10. Front panel LED 2 & 3 Location





Before servicing conveyor components, turn off and lockout / tagout / blockout / testout energy source to conveyor belt and conveyor accessories.

- 2. Turn off and lockout / tagout / blockout / testout all energy sources according to ANSI standards (see "References")
- 3. Open enclosure then turn disconnect to off. Open swing panel and check if CBs tripped. (Refer to Table II.)
- 4. After checking breakers, refer to Table III. to confirm the status and meaning behind the LEDs located above number "2" or "3".

Table II. Circuit breakers and Information				
Circuit Breakers	Circuit Breakers Circuit Breaker Information			
CB1	Circuit for heater 1- Check blade/wiring to controller for any damage prior to resetting breaker.			
CB2	Circuit for heater 2- Check blade/wiring to controller for any damage prior to resetting breaker.			
CB3	Circuit for internal heater- Check heater for signs of overheating prior to resetting. Check wiring for any signs of damage. Refer to Figure 11. & 12., then confirm both internal heater and internal thermostat are still set on their default factory settings.			
CB4	Circuit for controllers- Check wiring for any signs of damage.			
CB5	Circuit for DC power supply- Check wiring for any signs of damage.			

t Ducaliana and Informati

Internal thermostat and internal heater both are pre-programmed to the correct setting from the factory. Do not modify these setting. Modification of the settings can lead to damage to conveyor equipment and accessories.



Internal thermostat is set to 0° C [32° F] (The point where the amber LED will turn on).

Internal heater is set to 5° C [41° F]. (Turns on the internal heater when internal temp goes below 5° C [41° F]).



Figure 11. Internal Thermostat Default Factory Set Point



Figure 12. Internal Heater Default Factory Set Point

Table III. LED "2" & "3" Status Meanings (Refer to Figure 10.)

LED(s)	LED Status Meanings	
LED "2" or "3"	The heating element is outside it's intended operating range.	
LED "2"	The heating element is not getting up to temperature. Check to ensure the corresponding CB "1" / "2" is not tripped.	
LED "3"	Check set point on heater and ensure it is set between 180 °F (82 °C) to 200 °F (93 °C).	

- 5. Reset tripped breakers. Close swing panel and secure in place.
- 6. Turn disconnect to on.







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.

7. Remove all tools from maintenance area.



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.

- 8. Remove lockout / tagout / blockout / testout of all energy sources according to ANSI standards (see "References")
- 9. Start conveyor belt.



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.

A DANGER

Before installing, servicing, or adjusting the belt cleaner, turn off and lockout / tagout / blockout / testout all energy sources to the conveyor and conveyor accessories according to ANSI standards or country specific safety standards (DIN, ISO, etc.). Failure to do so could result in serious injury or death.

- Remove any material from belt cleaner. 1.
- Make sure all fasteners are tight. Tighten if necessary. 2.
- 3. Check tension on cleaner. Re-tension if necessary.
- Wipe all labels clean. If labels are not readable, contact Martin Engineering or a 4. representative for replacements.
- Check blades for excessive wear. Replace blade if carbide metal wear is greater 5. than 5 mm (3/16 in.). (Refer to Preparing CleanScrape[®] Blade to prepare blade.)
- 6. Monitor cleaner and after 7-10 days re-tension cleaner to overcome any eyehole bedding-in.
- Remove equipment from service if there is any indication it is not functioning 7. 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.







turning on energy source can cause serious injury to personnel and damage to belt.

Remove all tools from maintenance area. 8.



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. Observe belt cleaner operation for several revolutions of the belt. Service or adjust belt cleaner as necessary to ensure proper belt cleaner operation.

Part Numbers

This section provides product names and corresponding part numbers for CleanScrape[®] Heated Primary Cleaner. Please reference part numbers when ordering parts.

<i>CleanScrape</i> [®]	CleanScrape [®] Large Heated Primary Cleaner P/N C1CLXHXXXXXX.
Heated Primary	See Figure 13.
Cleaner	CleanScrape [®] Medium Heated Primary Cleaner P/N C1CMXHXXXXX.
	See Figure 13.

CLEANSCRAPE® MEDIUM & LARGE		GE	NOMENCLATURE $\begin{array}{c} \downarrow \downarrow \downarrow \downarrow \chi \chi \downarrow \chi $
HEATED PRIMARY CLEANER			1. Conveyor Products
			2. Primary Cleaner
			3. CleanScrape
			4. Size
			L = Large
			M = Medium
			5. Assembly Type —
TENSI	ONER SELECTION		B = Blade Assembly, No Tensioner T = Blade Assembly, Standard Bainted Steel Tensioner
Size	Belt Width in. (mm)	Tensioner	M = Blade Assembly, Standard Painted Steel Tensioner, Mount Plates Painted Steel
М	≤ 54" (≤ 1400 mm)	Single 4.2kN	F = Blade Assembly with Stainless Steel Chain,
М	< 72" (≤ 1800 mm)	Dual 4.2kN	S = Blade Assembly with Stainless Steel Chain.
L	≤ 54" (≤ 1400 mm)	Single 4.2kN	Stainless Steel Tensioner
L	< 78" (< 2000 mm)	Dual 4.2kN	C = Blade Assembly with Stainless Steel Chain, Stainless Steel Tanaianar, Mount Plates
			Stainless Steel
			6. Blade Body Type
			H = Heated Cleanscrape Assembly
			7-9. Belt Width
			11-12. Number of Elements



Figure 13. CleanScrape[®] Medium & Large Heated Primary Cleaner, P/N C1CXHXXXXXX

Item	Description	P/N	Qty
1	CleanScrape [®] Blade 50 MM LG Element	Table V	*
2	Wire Rope 8mm SS	Table VI	**
3	Eyelet Wire Rope 8MM SS	C1CP51014S	4
4	Washer Flat M8 Oversized 18-8 SS	SUS10129	4
5	Chain Safety Link 8mm SS	C1CP51001S	Table VI
6***	Chain 6mm	Table VIII	Table VI
NS 7	Installation Kit	Table VI	Table VII
NS 8	Label Conveyor Products Warning	23395	2
NS 9	Operator's Manual	M4033	1
NS 10	Adapter Kit for Wide Chute Wall	Table VI	Table VI
NS 11	CleanScrape Tag	39495	1
NS 12	Nylon Cable Tie	30916	1
NS 13	Mount Plate Chutewall	Table VII	Table VII
14	Heat Cable	Table	2
NS 15	Heater Control System Kit	C1CAC2	Table VII
NS 16	Silicone Sealant RTV Clear	36663	1
NS 17	Nylon Cable Tie	SP10575-03	2
NS 18****	Liquid-Tight Flexible Steel 3/8 Conduit	SUSR10048	10'
NS 19	Operator's Manual	M4212	1

NS = Not Shown

Notes:

<u>* (1.)</u> Cut blade to length based on number of elements required.

**** (2.)** Cut cable to length. To get quantity of cable: Take number of elements x 0.328 ft (0.1 m) then add 0.59 ft (0.18 m). Cable quantity is for two cable assemblies.

*****(3.)** Cut chains to length. Chain quality given makes two equal chains on the single tensioner assemblies (Locate on the left side of the blade as shown) and four equal chains on the dual tensioner assemblies (Locate on both ends of the blade). ******(4.)** P/N SUSR10048 to be cut into (2) 5 ft. (1.5 m) sections.

Martin Engineering M4212-05/25

	1	0	ť
Part Number	Belt Width (in.)	Part Number	Belt Width (mm)
C1CMXHS24XXX	24*	C1CMXH060XXX	600*
C1CXXHS30XXX	30	C1CXXH075XXX	750
C1CXXHS36XXX	36	C1CXXH080XXX	800
C1CXXHS42XXX	42	C1CXXH090XXX	900
C1CXXHS48XXX	48	C1CXXH100XXX	1000
C1CXXHS54XXX	54	C1CXXH100XXX	1050
C1CXXHS60XXX	60	C1CXXH120XXX	1200
C1CXXHS66XXX	66	C1CXXH135XXX	1350
C1CXXHS72XXX	72	C1CXXH140XXX	1400
		C1CXXH150XXX	1500
		C1CXXH160XXX	1600
Only available for medium assembly.		C1CXXH165XXX	1650
		C1CXXH180XXX	1800

 Table IV. Belt Widths for CleanScrape[®] Medium & Large Heated Assembly

Table V. Blade Part Numbers for CleanScrape[®] Medium & Large Heated Assembly

Part Number	P/N Item 1	Dim "A" - in. (mm)
C1CMXHXXXBXX	C1CBHMB	12.62 (320.5)
C1CLXHXXXBXX	C1CBHLB	8.44 (214.3)

Table VI. Hardware Part Number & Quantity for CleanScrape® Medium & Large Heated Assembly

Number of Elements	P/N Item 2	Qty. Item 5	Qty. Item 6	P/N Item 7	P/N Item 10	Qty. Item 10
29 and Below	C1CP51008S	2	5 ft (1525 mm)	C1CT4LX (Single 4.2kN)	C1CP30000X	1
30 THRU 39	0400540000	4	4 40 ft (2050 mm)	C1CT4DX (Dual 4.2kN)		0
40 THRU 52	CICP510095	4	10 IL (3050 mm)	C1CT6DX (Dual 6.6kN)		0

Table VII. Installation & Chutewall Kit Part Number & Quantity for CleanScrape[®] Medium & Large Heated Assembly

Part Number	Qty. Item 7, 10, 15	Qty. Item 13	P/N Item 13
C1CXBHXXXXXX	0	0	
C1CXTHXXXXXX	1	0	
C1CXMHXXXXXX	1	2	C1CLP64036T
C1CXFHXXXXXX	0	0	
C1CXSHXXXXXX	1	0	
C1CXCHXXXXXX	1	2	C1CLP64036F

Part Number	P/N Item 6
C1CXBHXXXXXX	
C1CXTHXXXXXX	C1CP51002T
C1CXMHXXXXXX	
C1CXFHXXXXXX	
C1CXSHXXXXXX	C1CP51002S
C1CXCHXXXXXX	

Table IX. Heat Cable Part Numbers for CleanScrape® Medium & Large Heated Assembly

Part Number	P/N Item 14
C1CMXHS24XXX	C1CP51015S19*
C1CXXHS30XXX	C1CP51015S25
C1CXXHS36XXX	C1CP51015S31
C1CXXHS42XXX	C1CP51015S37
C1CXXHS48XXX	C1CP51015S43
C1CXXHS54XXX	C1CP51015S49
C1CXXHS60XXX	C1CP51015S55
C1CXXHS66XXX	C1CP51015S61
C1CXXHS72XXX	C1CP51015S67

^{*}Only available for medium assembly.





Any product, process, or technology described here may be the subject of intellectual property rights reserved by Martin Engineering Company. Trademarks or service marks designated with the ® symbol are registered with the U.S. Patent and Trademark Office and may be proprietary in one or more countries or regions. Other trademarks and service marks belonging to Martin Engineering Company in the United States and/or other countries or regions may be designated with the "TM" and "SM" symbols. Brands, trademarks, and names of other parties, who may or may not be affiliated with, connected to, or endorsed by Martin Engineering Company, are identified wherever possible.

Additional information regarding Martin Engineering Company's intellectual property can be obtained at www.martin-eng.com/trademarks.





For nearly 30 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.



Martin Engineering USA One Martin Place Neponset, IL 61345-9766 USA 800 544 2947 or 309 852 2384 Fax 800 814 1553 www.martin-eng.com

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001