



Martin[®] Washbox[™] Cleaning System

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Operator's Manual
M3998

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

Martin® Washbox™ Cleaning Systems are designed for use in applications where the conveyor belt must be very clean. As the belt enters the Martin® Washbox™ Cleaning System, a set of return idlers stabilizes the belt. The spray bar uniformly sprays the belt with water before the first belt cleaner removes most of the material from the belt. A second belt cleaner then removes the remaining material and dries the belt. The material cleaned from the belt can be pumped back onto the belt or drained into the plant sump.

The water in the system can be substituted with anti-freeze or dust-suppressant chemicals. Martin Engineering recommends using a pre-cleaner with the Martin® Washbox™ Cleaning System for maximum efficiency.

Appendix A provides Martin® Washbox™ Cleaning System dimensions and water consumption.

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.
- *Martin® SQC2S™ Cleaner Operator's Manual*, P/N M3820.
- *Martin® H2O Cleaner Operator's Manual*, P/N M3825.

Safety

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

Materials required

In addition to standard hand tools, the following special tools are required to install and service this equipment:

- Pipe wrench to fit 4-in. NPT pipe.

Before Installing Belt Cleaning System

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 Martin® Washbox™ Cleaning System from shipping container.
3. If anything is missing or damaged, contact Martin Engineering or a representative.



⚠ WARNING

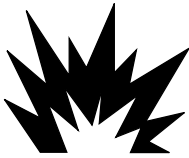
Before installing or servicing equipment, turn off and lock out/tag out energy source to conveyor and conveyor accessories.

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

⚠ WARNING

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.



IMPORTANT

Do not install Martin® Washbox™ Cleaning System at a slope greater than 15 degrees. Contact Martin Engineering when a slope greater than 15 degrees is required.

Installing Belt Cleaning System

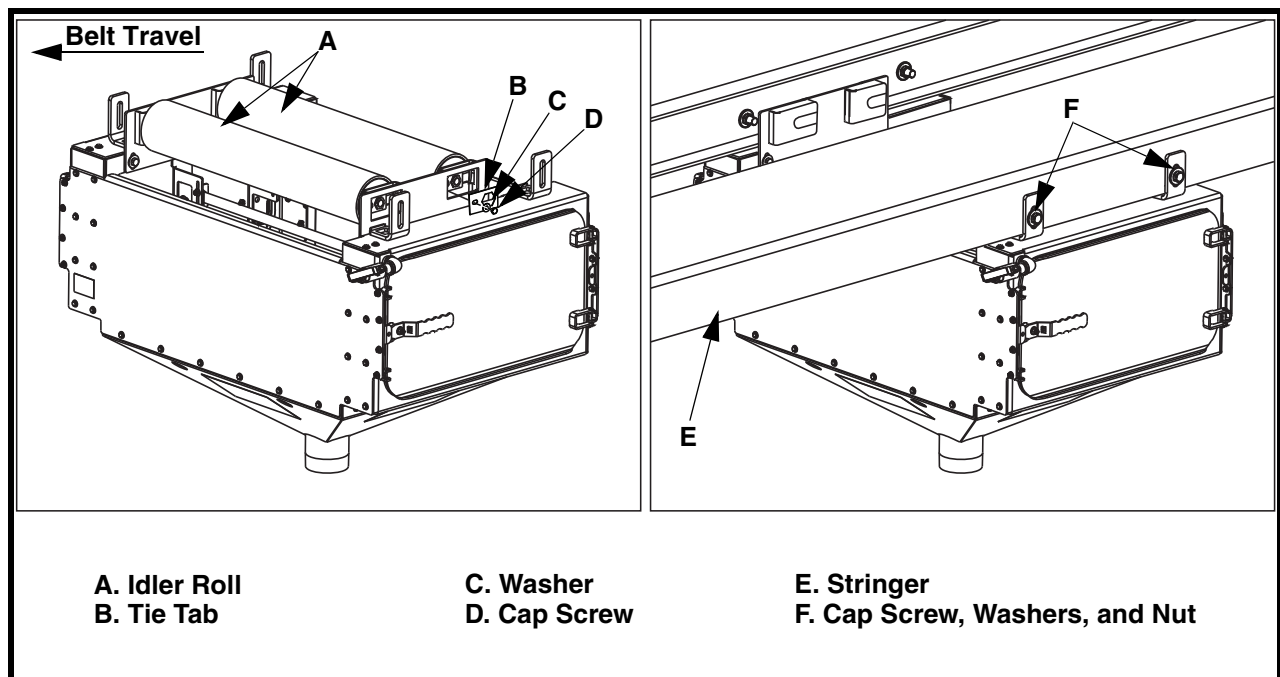
IMPORTANT

Customer must supply and install a return idler directly before Martin® Washbox™ Cleaning System to ensure correct belt alignment for proper operation of washbox.

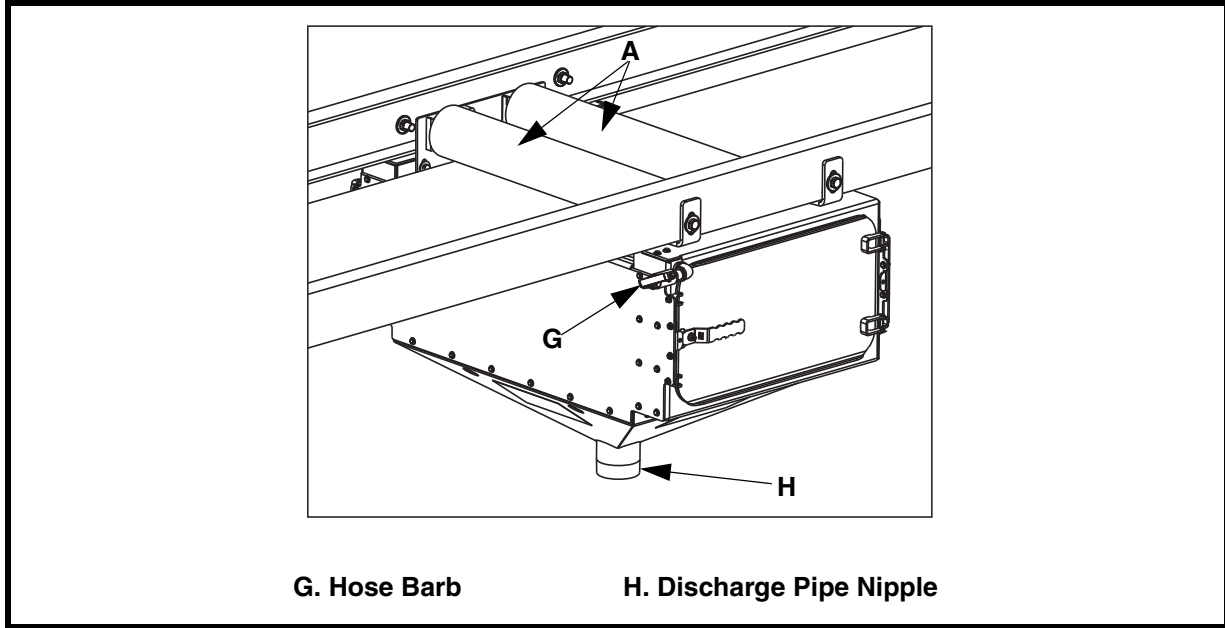
NOTE

The side of the Martin® Washbox™ Cleaning System that the spray bar connection is located on is referred to as the “operator side.” The other side is referred to as the “far side.”

1. Determine location of Martin® Washbox™ Cleaning System. Make sure system is located on return side of belt where belt runs flat.



2. Remove two idler rolls (A) as follows:
 - a. Remove cap screws (D), washers (C) and tie tabs (B) from roll bracket on operator side and farside.
 - b. Remove rolls (A) from washbox.
3. Install washbox on conveyor structure in pre-determined location.
 - a. Using a hoist or crane, lift washbox into position.
 - b. Position washbox so belt cleaner mainframe centers are 7-1/2 in. below belt line.
 - c. Cut or drill four 3/4-in. mounting holes in stringers.
 - d. Mount washbox to stringers (E) through four hanger bracket weldments using cap screws, washers, and nuts (F).



4. Reinstall two idler rolls (A) above cleaner mainframes as follows:
 - a. Slide idler rolls in above belt, making sure belt is between rolls and cleaner blades. Position rolls so they do not change belt line.
 - b. Install tie tabs (B), washers (C), and cap screws (D).
5. Make sure idler rolls above and below belt are snug against belt.
6. Install belt cleaners and tensioners according to applicable operator's manuals.

IMPORTANT

Martin Engineering recommends installing water regulator and ball valves on water line to isolate spray bars and regulate water pressure to Martin® Washbox™ Cleaning System. If your water supply contains particles larger than 300 microns, install filter on water line.

7. Connect water supply to 3/4-in. hose barb (G).
8. Connect plant discharge pipe to 4-in. NPT discharge pipe nipple (H).

After Installing Belt Cleaning System

1. Thoroughly wipe outside chute walls clean above Martin® Washbox™ Cleaning System on both sides of chute. Place Conveyor Products Warning Label (P/N 23395) on chute walls visible to belt cleaner operator.
2. Make sure all connections and bolts are tight.
3. Start conveyor belt. Follow procedures in applicable belt cleaner operator's manual.

IMPORTANT

Top spray bar is to wet belt only; it should not be used to wash or blast material from belt.

4. Start water flow. Adjust water flow and top spray bar to wet entire belt width. (See Appendix A for required water consumption.)
5. Direct lower spray bar toward bottom of washbox to flush material cleaned off belt toward discharge.
6. When spray bars are positioned properly, tighten spray bar clamps on each spray bar.
7. Operate conveyor belt and Martin® Washbox™ Cleaning System for one hour.
8. Inspect and adjust belt cleaners and tensioners according to applicable operator's manuals.

Maintenance

1. Maintain belt cleaners and tensioners according to applicable belt cleaner operator's manual.
2. Wash out Martin® Washbox™ Cleaning System weekly until amount of buildup is determined, then wash as needed.
3. Every 6 months, check spray nozzles for clogs. If nozzles are clogged, remove and clean.
4. Wipe Conveyor Products Warning Labels clean. If label(s) is not readable, contact Martin Engineering or representative for replacement.

9. The next X indicates second cleaner blade type:
 - C = WSQC2S with SC-XXC & Rubber Buffer
 - R = WSQC2S with SC-XXR Orange Blade & Rubber Buffer
 - T = WSQC2S-XXXXXX3XX with Tungsten Carbide Blade
 - U = WSQC2S-XXXXXX3XX & WH2OS with Urethane Blade
 - 0 = No Blade
10. The next X indicates the second cleaner blade color:
 - B = Brown Blade (WSQC2S-XXXXXX3XX)
 - G = Green Blade (WSQC2S-XXXXXX3XX)
 - N = Navy Blue (WSQC2S-XXXXXX3XX)
 - O = Orange Blade (WSQC2S-XXXXXX3XX & WSQC2S-XXXXXXXXXX)
 - T = Teal Blade (WH2OS)
 - 0 = No Blade

***Operator's
manuals***

Martin® SQC2S™ Cleaner Operator's Manual, P/N M3820.

Martin® H2O Cleaner Operator's Manual, P/N M3825.

Part Numbers

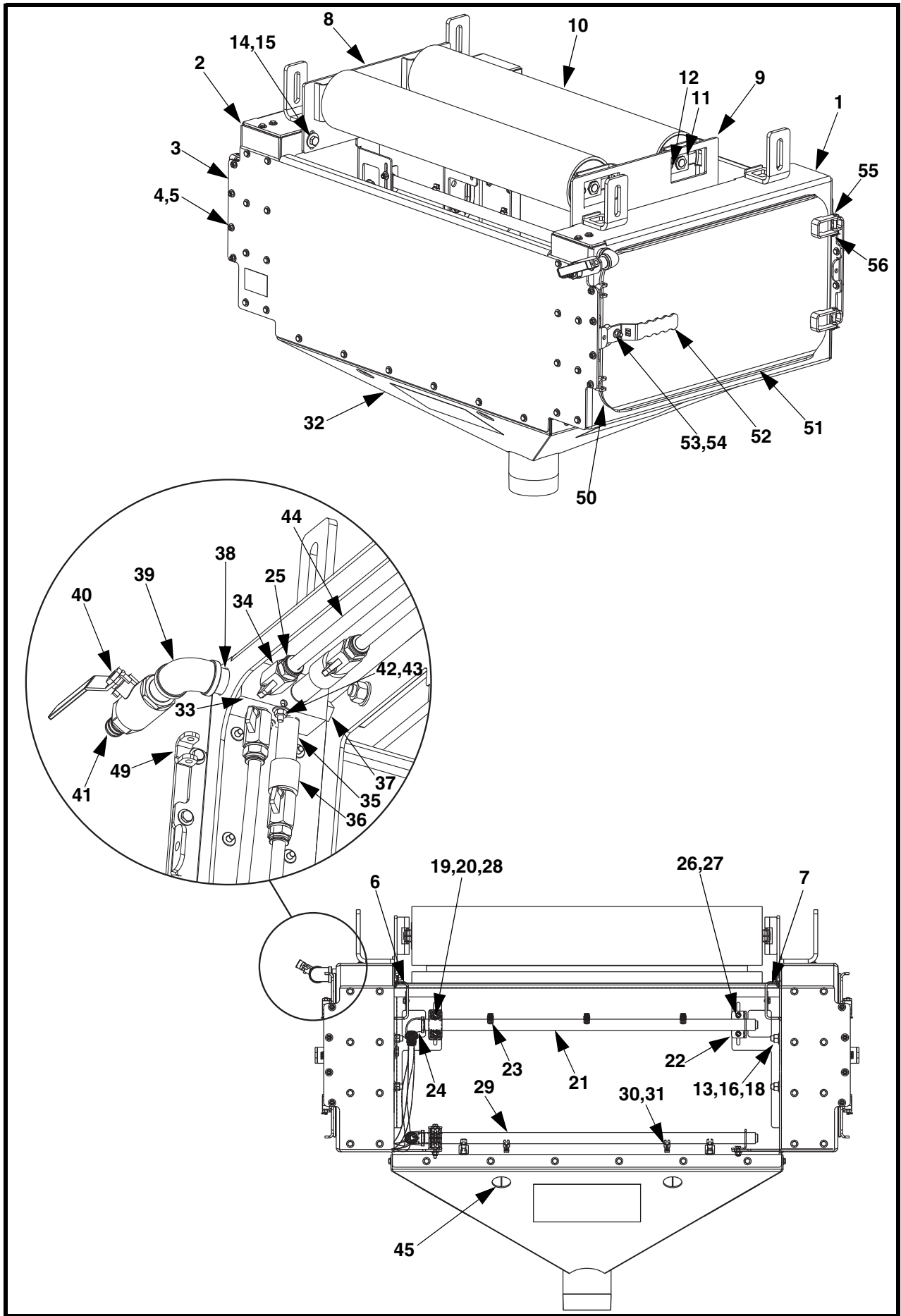


Figure 1. Martin® Washbox™ Cleaning System Assembly, P/N WBPXXXXXXXXXXXX

Item	Description	Part Number	Qty
1	Left-Side Panel Weldment	39258-L	1
2	Right-Side Panel Weldment	39258-R	1
3	End Panel	39259-XX*	2
4	Washer Compression 1/4	11521	Table I
5	Screw HHC 1/4-20NC x 3/4 ZP	11852	Table I
6	Entry Roller Bracket Left	39263-L	1
7	Entry Roller Bracket Right	39263-R	1
8	Bracket Weldment Right	38273-R	1
9	Bracket Weldment Left	38273-L	1
10	Roll Steel Return 5.50 Diameter	34595-XX*	3
11	Tie Tab	29852	6
12	Screw HHC 1/4-20NC x 3/8 ZP	32185	6
13	Washer Compression 1/2	11750	22
14	Washer Flat 1/2 Wide ZP	17328	22
15	Screw HHC 1/2-13NC x 1-1/4 ZP	13835	6
16	Nut Hex 1/2-13NC ZP	11771	22
17	Screw HHC 1/2-13NC x 1 ZP	13842	8
18	Screw HHC 1/2-13NC x 1-1/2 ZP	11763	8
19	Clamp Plate	39220-02	8
20	Clamp Pair Polypropylene	39212-07	4
21	Top Spray Bar	38296-XX*	2
22	Spray Bar Mounting Plate	39274C	4
23	Nozzle Spray 1/4 NPT Brass	38305	Table I
24	Elbow 90 Degree 3/4 NPT x 1/2 NPT	39266	4
25	Male Fitting 1/2 NPT x 1/2 OD	39216	8
26	Washer Flat 1/4 Wide ZP	15073	28
27	Nut Hex Elastic Lock 1/4-20NC ZP	30227	16
28	Screw HHC 1/4-20NC x 3 ZP	38951	8
29	Bottom Spray Bar	38297-XX*	2
30	Adapter Brass 1/4-NPTF x 1/4-NPTM	38304	4
31	Nozzle Spray 1/4-NPT Brass	28276-06	Table I
32	Outlet Funnel	Table I	1
33	Manifold Aluminum 3/4 NPT x 1/2 NPT	39264	1
34	Valve Mini Ball 1/2 NPT Male-Female	38631	4
35	Nipple Pipe 1/2 NPT SCH 40 x 2 Galv	39210-03	2
36	Coupling Pipe 1/2 NPT Galv	37141	2
37	Pipe Plug Square Head 3/4 NPT Galv	39267	1

Part Numbers

Item	Description	Part Number	Qty
38	Nipple Pipe 3/4 NPT SCH 40 x 2 Galv	39226-02	2
39	Elbow 90 Degree 3/4 NPT Galv	33246	1
40	Valve Ball 3/4 NPT Brass	17214	1
41	Hose Barb 3/4 NPT x 3/4 Hose	17918	1
42	Screw HHC 1/4-20NC x 2-1/2 ZP	33668	2
43	Nut Hex 1/4-20NC ZP	11769	20
44	Tubing Soft Nylon 1/2 OD 3/8 ID	104386	16 ft
45	Bottom Plug	39265	1
46 (NS)	Cleaner Tensioner	38664-WB	2
47 (NS)	Entry Belt Cleaner	See Assembly P/N Nomenclature	1
48 (NS)	Exit Belt Cleaner		1
49	Door Hinge	39260	4
50	Gasket Rubber Door Seal	38400-WB	2
51	Access Door Weldment	39262	2
52	Latch Handle	39159-C	2
53	Washer Compression 3/8 SS	28565	10
54	Nut Hex Top Lock 3/8-16NC SS	39152-C	2
55	Pin Clevis 1/4 x 1-7/8 SS	38641	4
56	Hairpin Cotter .06 Diameter x 1.13 SS	34951	4
57 (NS)	Sealant Silicone	28576	1
58 (NS)	Washer Flat 5/8 Narrow ZP	16814	4
59 (NS)	Screw HHC 5/8-11NC x 2 ZP	18831	4
60 (NS)	Washer Compression 5/8	11752	4
61 (NS)	Nut Hex 5/8-11NC	11772	4
62 (NS)	Regulator Water 3/4-NPT 10-35 PSI	38078-LF-75	1
63 (NS)	Gauge Liquid Filled 1/4 NPT	37021	1
64 (NS)	Label	22193-02	4
65 (NS)	Label	38048	2
66 (NS)	Operator's Manual	M3998	1
67 (NS)	Drain Kit (Dual Outlet Funnels Only)	38588-XX*	1

*XX indicates belt width.

NS = Not Shown

Figure 1. Martin® Washbox™ Cleaning System Assembly, P/N WBPXXXXXXXXXXXXX

Table I. Martin® Washbox™ Cleaning System Part Numbers and Quantities

Part Number	P/N Item 32	Qty Item 4	Qty Item 5	Qty Item 23	Qty Item 31
WBP18XXXXXXXXXX	39273-18C	92	76	4	6
WBP24XXXXXXXXXX	39273-24C	94	78	4	6
WBP30XXXXXXXXXX	39273-30C	96	80	6	8
WBP36XXXXXXXXXX	39273-36C	97	81	6	8
WBP42XXXXXXXXXX	39273-42C	98	82	8	8
WBP48XXXXXXXXXX	39273-48C	99	83	10	10
WBP54XXXXXXXXXX	39273H-54C	105	89	12	10
WBP60XXXXXXXXXX	39273H-60C	108	92	12	10
WBP72XXXXXXXXXX	39273H-72C	112	96	14	12
WBP84XXXXXXXXXX	39273H-84C	116	100	16	12

Part Numbers

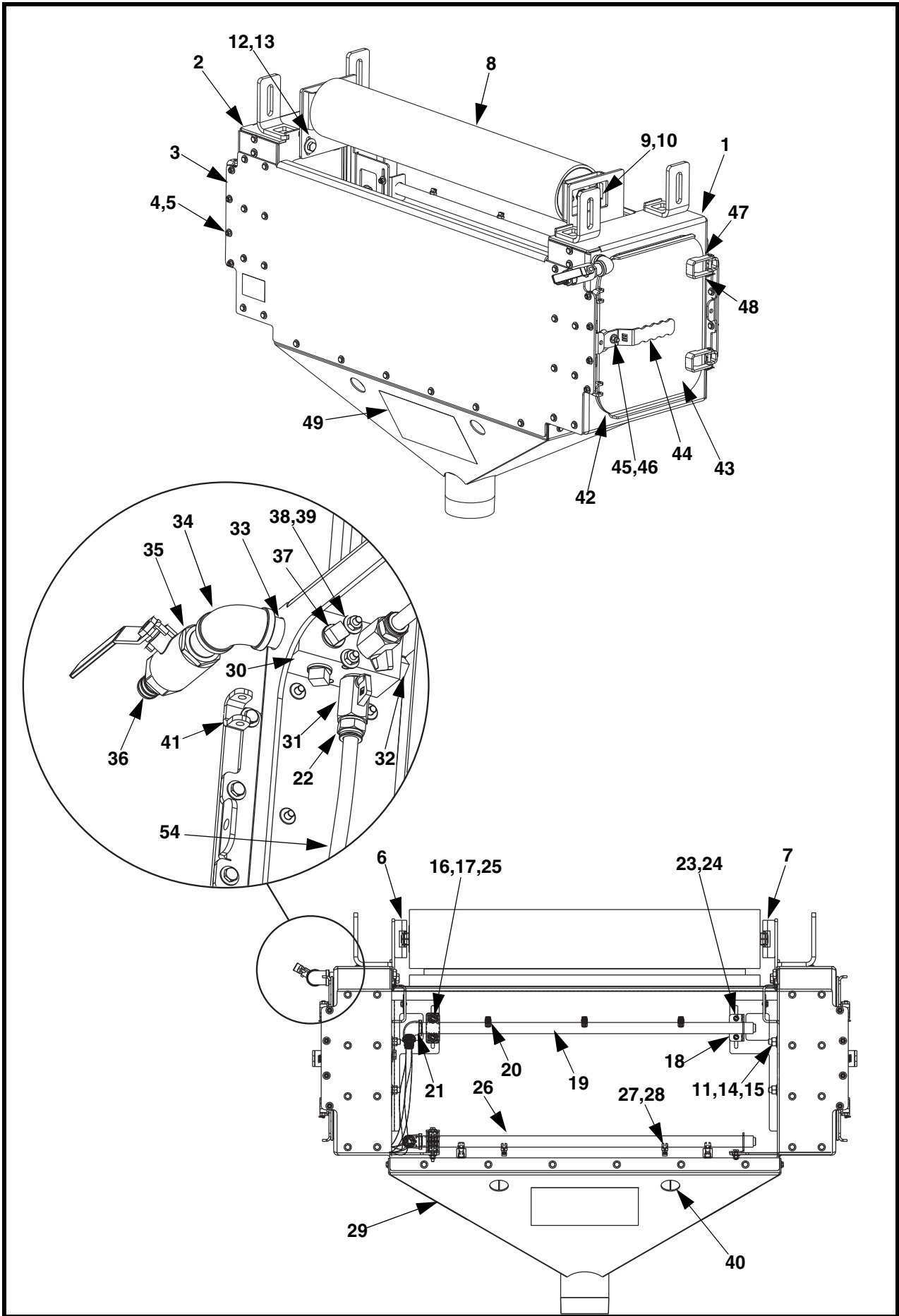


Figure 2. Martin® Washbox™ Cleaning System Assembly, P/N WBSCPXXXXXXXW

Item	Description	Part Number	Qty
1	Left-Side Panel Weldment	39258SC-L	1
2	Right-Side Panel Weldment	39258SC-R	1
3	End Panel	39259-XX*	2
4	Washer Compression 1/4	11521	Table II
5	Screw HHC 1/4-20NC x 3/4 ZP	11852	Table II
6	Entry Roller Bracket Right	38601-R	1
7	Entry Roller Bracket Left	38601-L	1
8	Roll Steel Return 5.50 Diameter	34595-XX*	1
9	Tie Tab	29852	2
10	Screw HHC 1/4-20NC x 3/8 ZP	32185	2
11	Washer Compression 1/2	11750	8
12	Washer Flat 1/2 Wide ZP	17328	8
13	Screw HHC 1/2-13NC x 1-1/4 ZP	13835	4
14	Nut Hex 1/2-13NC ZP	11771	8
15	Screw HHC 1/2-13NC x 1-1/2 ZP	11763	4
16	Clamp Plate	39220-02	4
17	Clamp Pair Polypropylene	39212-07	2
18	Spray Bar Mounting Plate	39274C	2
19	Top Spray Bar	38296-XX*	1
20	Nozzle Spray 1/4 NPT Brass	38305	Table II
21	Elbow 90 Degree 3/4 NPT x 1/2 NPT	39266	2
22	Male Fitting 1/2 NPT x 1/2 OD	39216	4
23	Washer Flat 1/4 Wide ZP	15073	16
24	Nut Hex Elastic Lock 1/4-20NC ZP	30227	8
25	Screw HHC 1/4-20NC x 3 ZP	38951	4
26	Bottom Spray Bar	38596-XX*	1
27	Adapter Brass 1/4-NPTF x 1/4-NPTM	38304	2
28	Nozzle Spray 1/4-NPT Brass	28276-06	Table II
29	Outlet Funnel	39273SC-XXC*	1
30	Manifold Aluminum 3/4 NPT x 1/2 NPT	39264	1
31	Valve Mini Ball 1/2 NPT Male-Female	38631	2
32	Pipe Plug Square Head 3/4 NPT Galv	39267	1
33	Nipple Pipe 1/2 NPT SCH 40 x 2 Galv	39226-02	2
34	Elbow 90 Degree 3/4 NPT Galv	33246	1
35	Valve Ball 3/4 NPT Brass	17214	1
36	Hose Barb 3/4 NPT x 3/4 Hose	17918	1
37	Pipe Plug Square Head 1/2 NPT Galv	39208	2

Item	Description	Part Number	Qty
38	Screw HHC 1/4-20NC x 2-1/2 ZP	33668	2
39	Nut Hex 1/4-20NC ZP	11769	20
40	Bottom Plug	39265	1
41	Door Hinge	39260	4
42	Gasket Rubber Door Seal	38400-WBSC	2
43	Access Door Weldment	39262SC	2
44	Latch Handle	39159-C	2
45	Washer Compression 3/8 SS	28565	10
46	Nut Hex Top Lock 3/8-16NC SS	39152-C	2
47	Pin Clevis 1/4 x 1-7/8 SS	38641	4
48	Hairpin Cotter .06 Diameter x 1.13 SS	34951	4
49 (NS)	Label	22193-02	2
50 (NS)	Label	38048	2
51 (NS)	Tensioner	38664-WB	1
52 (NS)	Belt Cleaner	See Assembly P/N Nomenclature	1
53 (NS)	Sealant Silicone	28576	1
54	Tubing Soft Nylon 1/2 OD 3/8 ID	104386	4 ft
55 (NS)	Washer Flat 5/8 Narrow ZP	16814	4
56 (NS)	Screw HHC 5/8-11NC x 2 ZP	18831	4
57 (NS)	Washer Compression 5/8	11752	4
58 (NS)	Nut Hex 5/8-11NC	11772	4
59 (NS)	Regulator Water 3/4-NPT 10-35 PSI	38078-LF-75	1
60 (NS)	Gauge Liquid Filled 1/4 NPT	37021	1
61 (NS)	Operator's Manual	M3998	1

*XX indicates belt width.

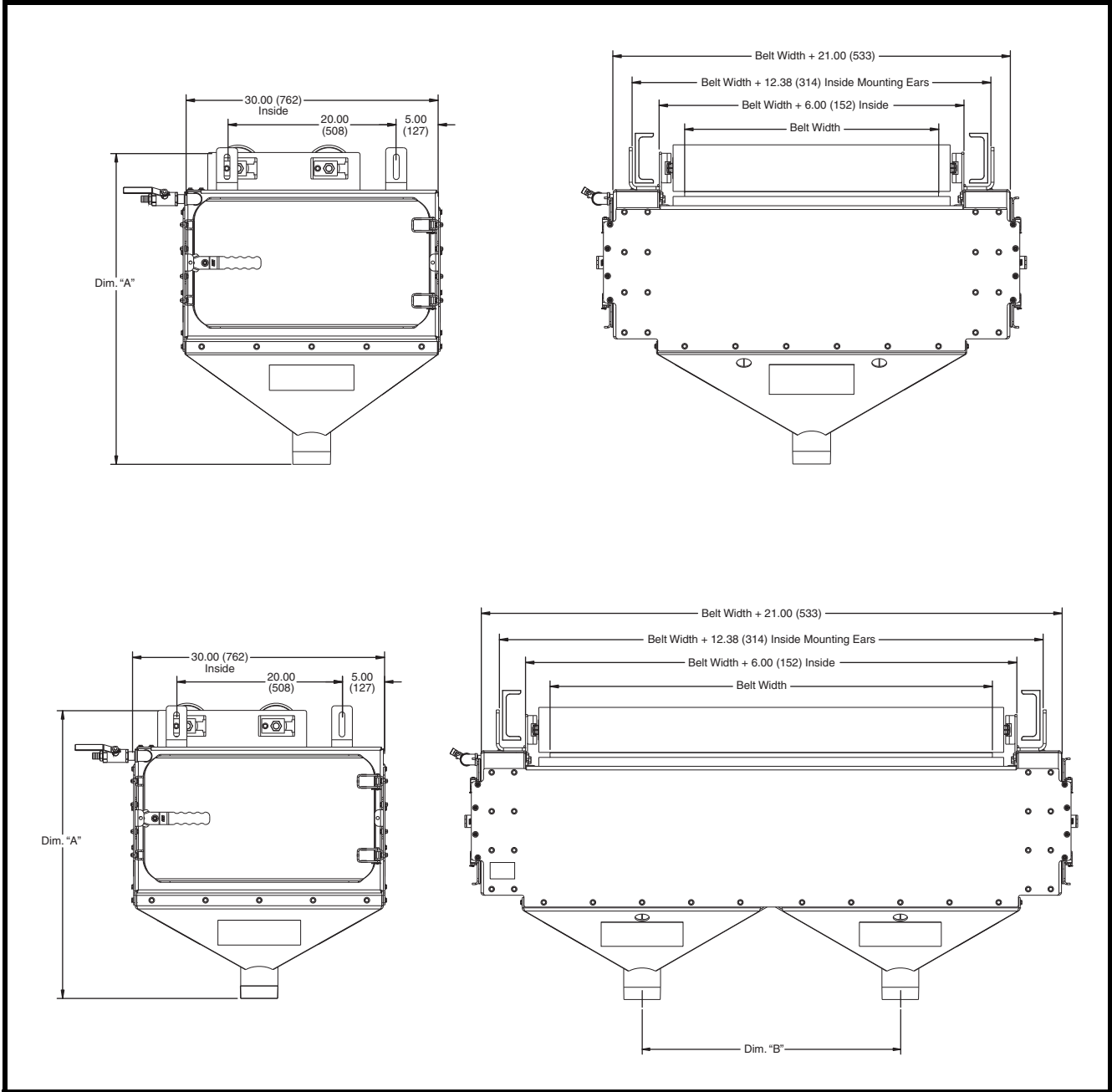
NS = Not Shown

Figure 2. Martin® Washbox™ Cleaning System Assembly, P/N WBSCPXXXXXXXXW

Table II. Martin® Washbox™ Cleaning System Part Numbers and Quantities

Part Number	Qty Item 4	Qty Item 5	Qty Item 20	Qty Item 28
WBSCP18XXXXXW	86	70	2	4
WBSCP24XXXXXW	87	71	2	4
WBSCP30XXXXXW	88	72	3	6
WBSCP36XXXXXW	89	73	3	6
WBSCP42XXXXXW	90	74	4	6
WBSCP48XXXXXW	91	75	5	8

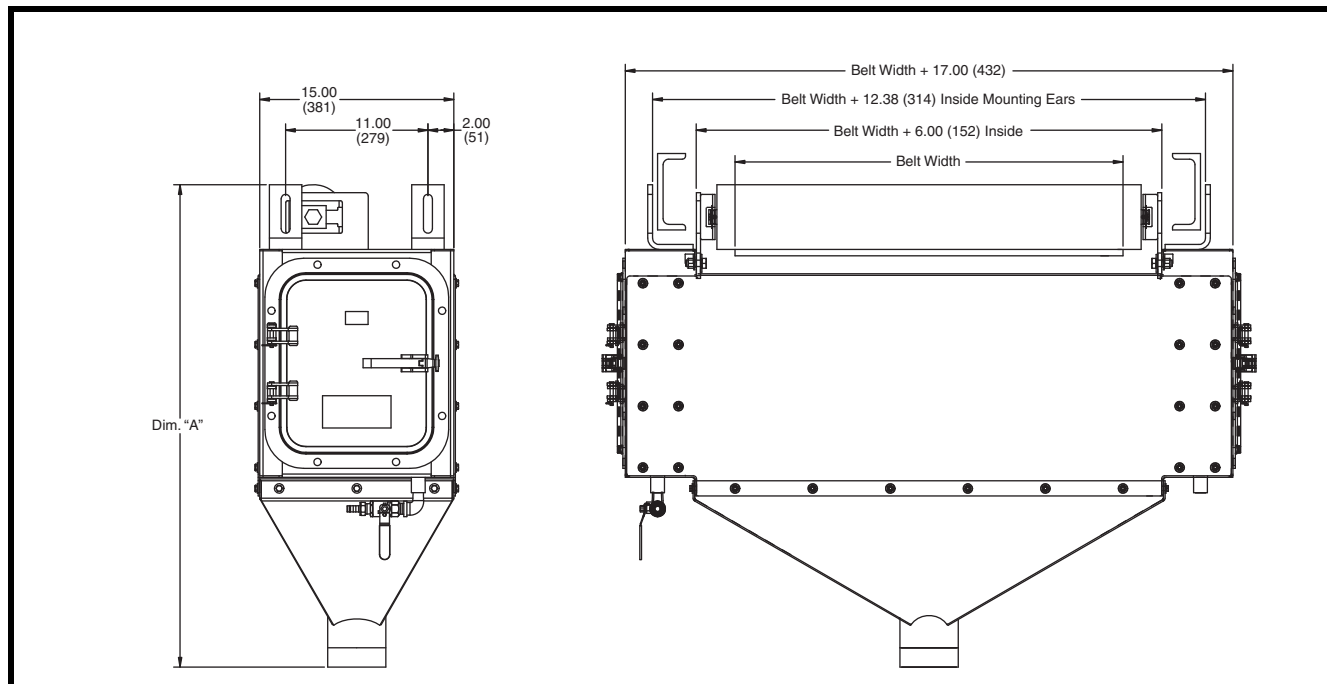
Appendix A
Martin® Washbox™ Cleaning System Dimensions



Martin® Washbox™ Cleaning System Dimensions, P/N WBPXXXXXXXXXXXX

Part Number	Dim. A
WBP18XXXXXXXXXXXX	34.35 (872)
WBP24XXXXXXXXXXXX	36.10 (917)
WBP30XXXXXXXXXXXX	37.72 (958)
WBP36XXXXXXXXXXXX	39.35 (999)
WBP42XXXXXXXXXXXX	41.03 (1042)
WBP48XXXXXXXXXXXX	42.63 (1083)

Part Number	Dim. A	Dim. B
WBP54XXXXXXXXXXXX	35.66 (906)	31.52 (801)
WBP60XXXXXXXXXXXX	36.53 (928)	34.52 (877)
WBP72XXXXXXXXXXXX	38.25 (972)	40.51 (1029)
WBP84XXXXXXXXXXXX	39.85 (1012)	46.51 (1181)



Martin® Washbox™ Cleaning System Dimensions, P/N WBSCPXXXXXXXXW

Part Number	Dim. A
WBSCP18XXXXXXXXW	34.35 (872)
WBSCP24XXXXXXXXW	36.10 (917)
WBSCP30XXXXXXXXW	37.72 (958)
WBSCP36XXXXXXXXW	39.35 (999)
WBSCP42XXXXXXXXW	41.03 (1042)
WBSCP48XXXXXXXXW	42.63 (1083)

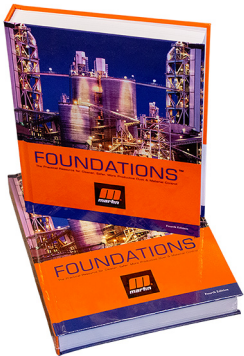
Martin[®] Washbox[™] Cleaning System Water Consumption

Belt Width	Total Nozzles	Pressure PSI (bar)						
		5 (0.34)	10 (0.69)	15 (1.03)	20 (1.38)	30 (2.07)	40 (2.76)	60 (4.14)
18 (400-500)	10	5 (20)	8 (28)	9 (35)	11 (42)	13 (49)	15 (57)	18 (68)
24 (500-650)	10	5 (20)	8 (28)	9 (35)	11 (42)	13 (49)	15 (57)	18 (68)
30 (650-800)	14	7 (28)	11 (40)	13 (49)	15 (57)	18 (69)	21 (79)	25 (95)
36 (800-1000)	14	7 (28)	11 (40)	13 (49)	15 (57)	18 (69)	21 (79)	25 (95)
42 (1000-1200)	16	8 (32)	12 (45)	15 (57)	18 (67)	21 (79)	24 (91)	29 (109)
48 (1200-1400)	20	11 (40)	15 (57)	18 (70)	22 (83)	26 (98)	30 (114)	36 (136)
54 (1400-1600)	22	12 (44)	17 (62)	20 (77)	24 (92)	29 (108)	33 (125)	40 (150)
60 (1600-1800)	22	12 (44)	17 (62)	20 (77)	24 (92)	29 (108)	33 (125)	40 (150)
72 (1800-2000)	26	14 (52)	20 (74)	24 (91)	29 (108)	34 (128)	39 (148)	47 (177)
84 (2000-2200)	28	16 (60)	23 (85)	28 (104)	33 (125)	39 (148)	45 (170)	54 (204)

Consumption is measured in approximate gallons per minute (L/min) and is intended for reference only.

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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.



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