



RAILCAR UNLOADING SOLUTIONS

SYSTEMS TO IMPROVE RAILCAR UNLOADING

L3657



PROBLEM SOLVED





IMPROVING SAFETY AND EFFICIENCY

Unloading bulk materials from railcars is often a difficult, “dirty” job. It can be slow, labor-intensive, messy, noisy and unsafe.

Procedures Can Be Risky

Unloading requires workers to go underneath the car to connect the outlet to the under-track conveying system.

Slow Flow Is Costly

The material—compacted by miles of rail travel—hangs up in the cars, slowing the flow and lengthening the process.

Lost Material Is Costly

When the material is moving, it is exposed to the elements, becoming contaminated or escaping into the environment.

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BOOT-LIFT® RAILCAR CONNECTOR

Air-powered connector safely and cleanly funnels material from railcar to the under-track conveying system.

BOOT-LIFT® RAILCAR CONNECTOR



Installed between the tracks, Boot-Lift® Connectors form the link between the railcar and a plant's under-track conveying system. Powered by an air-over-hydraulic system, the unloading boots rise to the gates for clean, efficient and safe unloading of bottom discharge hopper cars. By funneling material to the under-track system, Boot-Lift® Railcar Connectors prevent material from being blown away by wind while eliminating the safety hazard of requiring workers to crawl under the car.

Boots automatically connect to and rise with railcar as it empties, maintaining an effective seal.

Unit uses only 1 cfm at 90 psi (28 L/min at 6.2 bar).

Easily and safely operated by remotely located control console.

Models available to suit any car, including double- or single-opening, round-opening and GATX.

Adapter Sheets and Transition Funnels allow interchangeability (see accessories on opposite page).

BOOT-LIFT® ACCESSORIES



A full range of railcar connector accessories simplify car spotting to speed railcar unloading by improving ease-of-use and allowing one unit to fit multiple car bottom designs.



BOOT-LIFT® MANUAL ALIGNER

P/N 17326

Simplifies car positioning by allowing adjustment of the Boot-Lift® Railcar Connector up to six inches (152 mm) total—three inches (76 mm) in either direction—along the track.



BOOT-LIFT® PNEUMATIC ALIGNER

P/N 34140

Air-powered aligner provides eight inches (203 mm) of total adjustment—four inches (102 mm) in either direction—along the track. Remote control operation requires only 10 psi (0.7 bar) of air.

BOOT-LIFT® CYLINDER COVERS

Lift cylinder cover P/N 18335 | Spread cylinder cover P/N 18331

Rugged vinyl-covered cloths prevent damage and contamination of air cylinders from material buildup and environmental conditions.

BOOT-LIFT® FUNNEL COVERS

SBL-24 standard P/N 19544 | stainless steel P/N 19544-SS

SBL-30 standard P/N 34884-CA | stainless steel P/N 34884-CAC

DBL-18/DBLG-18 standard P/N 18420 | stainless steel P/N 18420-C

BOOT-LIFT® SELECTION GUIDE



1 GATE PER HOPPER



When working with single-gate railcar hoppers, use **SBL Boot-Lift® Assemblies.***

BOOT-LIFT®

SBL BOOT-LIFT® ASSEMBLY

the width (parallel to the rails) of the largest hopper gate is

| | | | | |
|---|---------------------------|----|---|--------------------|
| ↓ | 24 INCHES OR LESS | OR | ↓ | 24 TO 34 INCHES |
| | MODEL # SBL-24 | | | SBL-30 |

the type of cargo being unloaded is

CARGO

| | | | | | | | |
|---|-----------------------|----|---|----------------------|----|---|-----------------|
| ↓ | FOOD-GRADE | OR | ↓ | CORROSIVE | OR | ↓ | STANDARD |
|---|-----------------------|----|---|----------------------|----|---|-----------------|

choose the following **features**

FEATURES

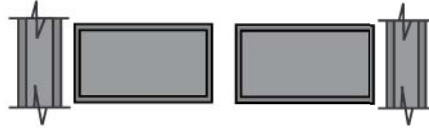
| | | |
|---|---|------------------------------------|
| White Paint | Gray Paint | Orange Paint |
| Stainless Funnel | Stainless Funnel | Painted Funnel |
| HDPE Adapter Sheet with Wrapped Foam | HDPE Adapter Sheet with Wrapped Foam | Standard Wood Adapter Sheet |
| Food-Grade Boot | Black Vinyl Boot | Black Vinyl Boot |

the following **features** are **optional**

| | | |
|-------------------------------|---------------------------------|------------------------------|
| Aligner w/FDA Paint | Aligner w/Steel-IT Paint | Standard Aligner |
| Stainless Funnel Cover | Stainless Funnel Cover | Standard Funnel Cover |



2 GATES PER HOPPER



When working with double-gate railcar hoppers, use **DBL Boot-Lift® Assemblies.***

BOOT-LIFT® DBL BOOT-LIFT® ASSEMBLY

the type of railcar is

| | |
|---------------------------|----------------------------|
| STANDARD | GATX |
| MODEL # DBL-18 | MODEL # DBLG-18 |

the type of cargo being unloaded is

| | | |
|-------------------|------------------|-----------------|
| FOOD-GRADE | CORROSIVE | STANDARD |
| | | |

choose the following features

| | | |
|-------------------------|--------------------------|--------------------------|
| White Paint | Gray Paint | Orange Paint |
| Stainless Funnel | Stainless Funnel | Painted Funnel |
| Food-Grade Boots | Black Vinyl Boots | Black Vinyl Boots |

the following features are optional

| | | |
|-------------------------------|---------------------------------|------------------------------|
| Aligner w/FDA Paint | Aligner w/Steel-IT Paint | Standard Aligner |
| Stainless Funnel Cover | Stainless Funnel Cover | Standard Funnel Cover |

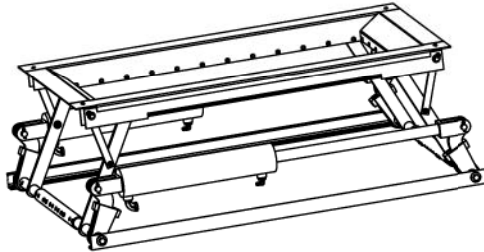
*** When working with a combination of single- and double-gate railcar hoppers, select a DBL Boot-Lift® Assembly with a Transition Funnel and Transition Adapter Sheet in order to accommodate both the single- and double-gate hoppers.**

BOOT-LIFT® ASSEMBLY SELECTION GUIDE



SINGLE-OPENING ASSEMBLIES for Single-Gate Hoppers

SBL-24/-30



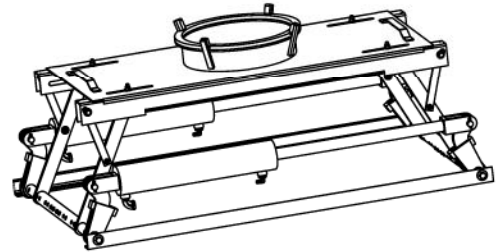
Part # Prefix & Model #: **SBL-24 or SBL-30**

Funnel Opening:

SBL-24: **22 x 42 in. (559 x 1067 mm)**

SBL-30: **30 x 42 in. (762 x 1067 mm)**

SBLR-18



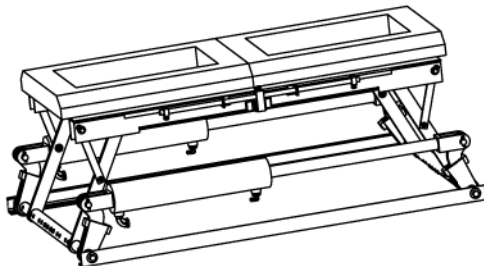
Part # Prefix & Model #: **SBLR-18**

Funnel Opening:

15 in. (381 mm)

DOUBLE-OPENING ASSEMBLIES for Double-Gate Hoppers

DBL-18



Part # Prefix & Model #: **DBL-18**

Funnel Openings:

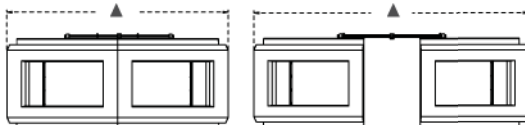
12.5 x 16.5 in. (318 x 419 mm)

Closed Width:

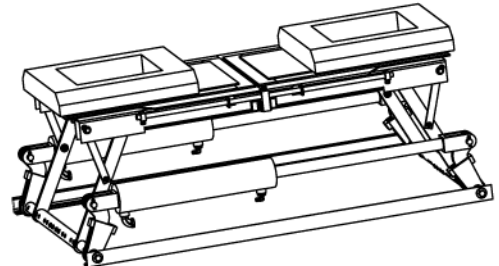
54 in. (1372 mm)

Opened Width:

69 in. (1753 mm)



DBLG-18



Part # Prefix & Model #: **DBLG-18**

Funnel Openings:

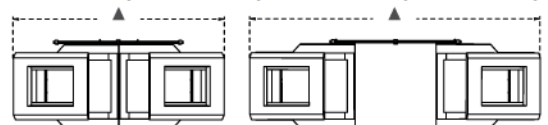
12.5 x 16.5 in. (318 x 419 mm)

Closed Width:

55.4 in. (1407 mm)

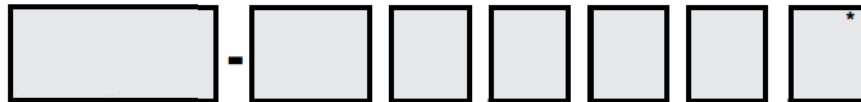
Opened Width:

78.5 in. (1994 mm)





Build-a-Boot-Lift® Custom Part Number



▼ Refer to the part number key below.

P/N Prefix / Model #
Paint Color
Funnel Type
Cylinder Controls
Lift Cylinders
Spread Cylinder Type*

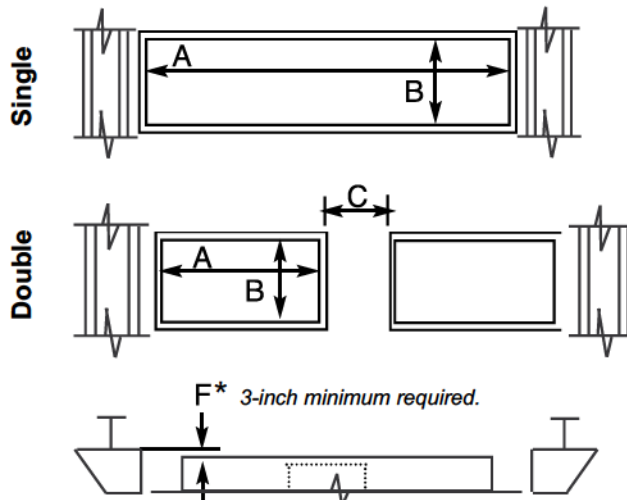
| PAINT COLOR | FUNNEL TYPE | CONTROL CONSOLE | LIFT CYLINDERS | SPREAD CYLINDERS* |
|--------------------------------------|----------------------------|---------------------------------------|------------------------------------|-------------------------------|
| S: Orange (Standard) | Ø: No Funnel | Ø: No Controls | Ø: No Lift Cylinders | Ø: No Spread Cylinders |
| F: White (Food Grade) | 1: Painted Funnel | 1: Air-Over-Hydraulic Controls | 1: Hydraulic Lift Cylinders | 1: Standard Hardware |
| C: Gray (Corrosion Resistant) | 2: Stainless Funnel | | | 2: Stainless Hardware |

* Double-opening assemblies only. Air requirements are 1 cfm (0.028 m³/sec) at 90 psi (6.2 bar). Air line should include filter, regulator, and lubricator.

EXAMPLE:



| INNER DIMENSIONS OF THE RECEIVING HOPPER OPENINGS: | |
|--|---|
| Single openings | Length (A) _____ x Width (B) _____ Bottom of rail to top of hopper (F) _____ |
| Double openings | Length (A) _____ x Width (B) _____ Distance between openings (C) _____ * 3-inch minimum required. Bottom of rail to top of hopper (F)* _____ |



Build-a-Boot Custom Part Number



▼ Refer to the part number key below.

P/N Prefix / Model #
Boot Material
Liner


| P/N PREFIX / MODEL # | BOOT MATERIAL | LINER |
|---|---|-----------------------------------|
| 19760: SBL-24 21055: SBLR | B: Black Vinyl F: Food Grade | L: 0.01 Polyethylene Liner |
| 35038: SBL-30 17840: DBL-18 | H: White Hypalon R: Flame Retardant | Ø: No Liner |



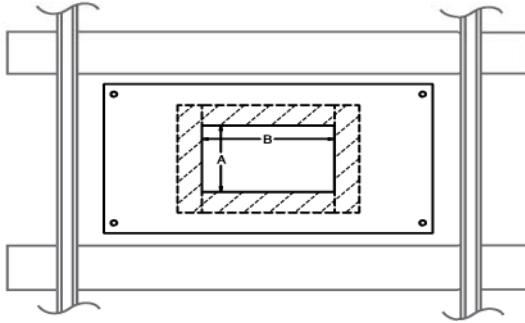
BOOT-LIFT® ADAPTER SHEET SELECTION GUIDE



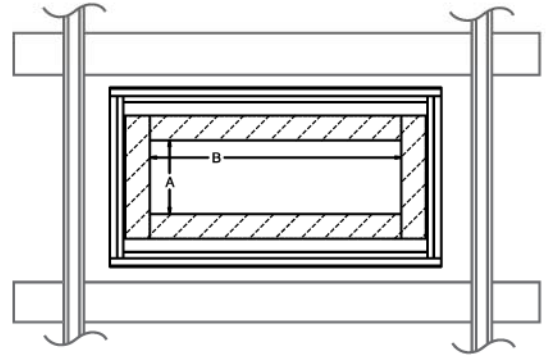
SINGLE- & DOUBLE-OPENING ADAPTER SHEETS

 Sponge Seal
(4-inch width)

SBL-24AS/-30AS



DBL-18AS

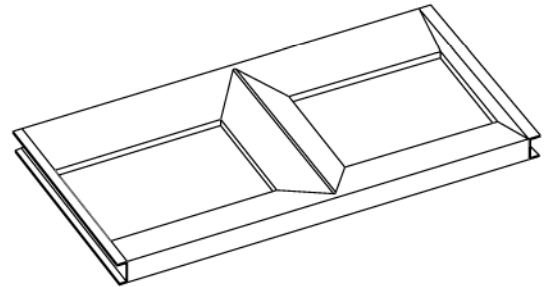


Part # Prefix & Model #:
SBL-24AS or SBL-30AS

Part # Prefix & Model #:
DBL-18AS *For use with a transition funnel.*

TRANSITION FUNNELS

These convert various models from double- to single-opening unloading. Simply remove the standard sponge seals and install the appropriate transition funnel and adapter sheet.



DBL Transition Funnel
P/N 17272

Converts DBL and DBLG to SBL; requires DBL Adapter Sheet to fit opening.

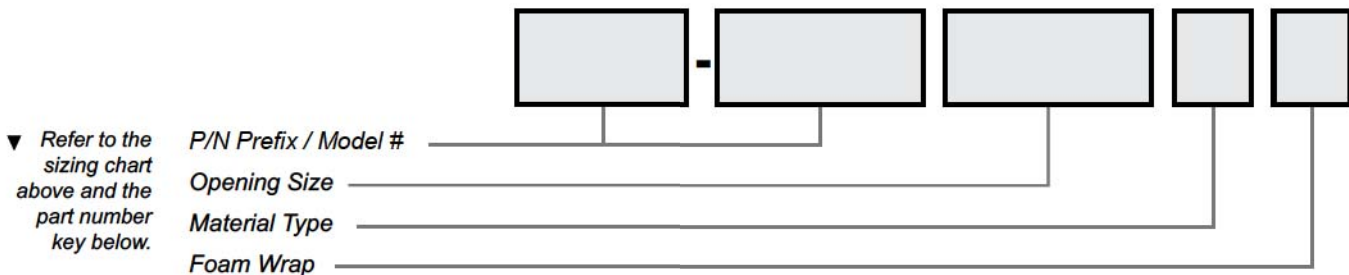


ADAPTER SHEET SIZES

Opening size examples. Approximate opening size in inches (A x B).*

| SBL-24AS Sizes | | in. (mm) | | SBL-30AS Sizes | | in. (mm) | | DBL-18AS Sizes | | in. (mm) | |
|----------------|-----------|----------|--|----------------|-----------|----------|--|----------------|-----------|----------|--|
| Dim. A | Dim. B | | | Dim. A | Dim. B | | | Dim. A | Dim. B | | |
| 12 (305) | 41 (1041) | | | 12 (305) | 42 (1067) | | | 12 (305) | 23 (584) | | |
| 13 (330) | 30 (762) | | | 19 (483) | 42 (1067) | | | 12 (305) | 41 (1041) | | |
| 13 (330) | 48 (1219) | | | 24 (610) | 30 (762) | | | 13 (330) | 48 (1219) | | |
| 16 (406) | 42 (1067) | | | 24 (610) | 42 (1067) | | | 15 (381) | 30 (762) | | |
| 17 (432) | 24 (610) | | | 30 (762) | 24 (610) | | | 16 (406) | 24 (610) | | |
| 19 (483) | 22 (559) | | | 30 (762) | 30 (762) | | | 16 (406) | 44 (1118) | | |
| 19 (483) | 24 (610) | | | 32 (813) | 36 (914) | | | 23 (584) | 29 (737) | | |
| 19 (483) | 26 (660) | | | 30 (762) | 42 (1067) | | | 24 (610) | 42 (1067) | | |

* Gate opening can measure as listed dimension plus up to 4 additional inches (101 mm).
 Example: A 17 x 24 inch adapter sheet will fit a gate opening up to 21 x 28 inches.



MATERIAL TYPE

W: Wood H: High-Density Polyethylene

FOAM WRAP

Ø: No Wrap W: White Vinyl (FDA Nitrile)

EXAMPLE: SBL - 30AS 1342 H W

MARTIN® RAILCAR OPENER

Martin® Railcar Openers power open stubborn car-bottom gates, reducing safety risks for personnel and improving unloading efficiency.

The weight of the railcar's cargo load against the discharge gate makes the gate very hard to open. Martin® Railcar Openers use compressed air to provide powerful force to open even the most stubborn gate, improving the efficiency and safety of unloading operations.

MARTIN® RAILCAR OPENER

Tech Data Sheet **L3534** | P/N **38475**

The Martin® Railcar Opener is a powerful solution to improve the efficiency of railcar unloading. It easily opens tough railcar hopper gates without backbreaking labor, gate damage or high noise.

Powerful: 2700 ft-lb (1225 kg-m) of torque at 90 psi (6.2 bar).

Maneuverable: Three pivoting wheels allow for maximum maneuverability; unit can easily be positioned by one worker.

Adjustable Height: Change capstan height to fit various car gates and compensate for variations in unloading platforms. Handle easily adjusts to suit operator preference.

Adjustable Width: Stabilizers slide out to provide wide base for increased leverage; slide in to fit through narrow doors and small spaces.

Durable: Steel tube frame provides long life in "real world" conditions. 10" x 4" pneumatic wheels maneuver easily over rough rail-side conditions.

Controlled & Efficient: Smooth, non-impacting force opens gate without damage or high noise (83 dBa at operator position). Operates from 90–120 psi (6.2 to 8.2 bar) air supply at 20 cfm (566 L/min).



MARTIN® GATE JACK OPENER

Tech Data Sheet **L3595** | P/N **M90**

This air-powered wrench provides up to 1750 ft-lb (235 kg-m) of torque to open the most stubborn rack and pinion hopper gate.

Fast, Efficient Unloading: Spot the car, open the gate and start unloading. There's no time wasted trying to muscle the gate open.

One-Worker Operation: Weighs only 45 lb (20 kg) for easy positioning and use by one worker.

Efficient Air Use: Operates from an air supply of 20 cfm (566 L/min) at 80 to 125 psi (5.5 to 8.6 bar).

Easy To Apply: Capstan extension reaches even "hard-to-get-at" recessed railcar capstans.



MARTIN® RAILCAR VIBRATORS

The vibration of a railcar over the track will compact the car's bulk material cargo, prohibiting the cargo from flowing out freely once the discharge gate is opened. Railcar Vibrators from Martin Engineering provide powerful vibratory energy that enhances material flow to achieve full unloading. Martin® Railcar Vibrators will help you receive the cargo you paid to have shipped to your facility.



COUGAR® IMPACTING RAILCAR VIBRATOR

Tech Data Sheet **L3832**

Linear vibrator provides powerful force to boost material flow.

Lightweight vibrator and shoe make mounting/dismounting a strain-free procedure.

Compact vibrator and mount assembly provides plenty of power to unload the most stubborn materials.

Vibrator and wedge system weighs only 48 lbs (21 kg), reducing risk of injury from manhandling large, cumbersome vibrators into railcar brackets.



COUGAR® 4400 SERIES RAILCAR VIBRATOR

Tech Data Sheet **L3849**

4-inch hardened pistons

Low air consumption

Produces uniform directional force



BRUTE® MOTOR DRIVEN RAILCAR VIBRATOR

Tech Data Sheets **L3412 / L3413**

A motor-driven eccentric provides powerful rotary force to improve railcar unloading efficiency.

Easy Mounting: Clamp foot provides for fast, simple mounting.

Built Tough, Works Hard: Rugged construction features ductile iron case with aluminum end bell. Sealed oilbath bearings eliminate the need for lubrication.

Meet Your Needs: Pneumatic- or hydraulic-powered models provide up to 9600 force-pounds (42,725 N) at 80 psi (4.14 bar).



MARTIN® PORTABLE RAILCAR VIBRATOR

P/N **28459-RB**

With its powerful 3-inch piston vibrator and rugged wedge bracket, the Martin® Portable Railcar Vibrator is the economical answer for improved railcar unloading.

Powerful Vibration: Vibrator with three-inch (76-mm) piston provides force up to 985 pounds (4381 N) at 80 psi (5.5 bar).

Metal Wedge Bracket: Durable mounting shoe slides readily into the female bracket on hopper bottom railcars.

Minimal Maintenance: Limited maintenance required for life of the vibrator when used with filtered and lubricated air.

Easily Handled By One Person: Unload bulk materials in less time with less work.