



DURACHUTE™

Installation Manual

33 Industrial Park Drive
Waldorf, MD 20602

1-800-882-4883

www.CHUTES.com



**Follow manual to ensure SAFE and CORRECT
system installation!!**



DURACHUTE™

Instructions for Assembly and Use of DURACHUTE's™ Plastic Debris Chute

Congratulations on the purchase of the finest plastic debris chute on the market. Its larger size, improved durability, and advanced design are quickly making **DURACHUTE™** plastic debris chute system contractors' first choice for the safe and economical removal of construction debris.

DURACHUTE™'s high impact-resistant, High Density/High Molecular Weight Polyethylene Debris Chute is a quick, simple, and safe debris removal system to install and use, provided that the following recommended precautions and instructions are followed.

Our debris removal system meets and exceeds the most rigid standards and regulations. By observing and following **ALL** of the instructions provided herein, you will have a safe and well planned chute system that will increase job safety and minimize costly clean up time.

All users of this system **MUST** be sure that all information and instructions for the assembly of the debris chute are clearly understood and followed for a safe installation and operation. If you have any questions related to the installation and operation of the **DURACHUTE™** plastic debris chute system, please call **800-882-4883** for assistance.



INCORRECT INSTALLATION OR MISUSE OF THIS DEBRIS HUTE SYSTEM COULD RESULT IN SERIOUS INJURY, DEATH, OR SEVERE PROPERTY DAMAGE. ALL EQUIPMENT MUST BE USED IN ACCORDANCE WITH SAFETY REQUIREMENTS AND STANDARDS.



Please note that this manual has been written in very basic and simple terminology, so that those installing the system require no advanced technical knowledge. However, the simplicity of this manual should not, in any way, detract from the importance of following all the enclosed safety guidelines and installation procedures. Therefore, please read the entire manual prior to starting any installation.

The following is a guideline only for the installation of **DURACHUTE™**'s plastic debris chute systems. Neither **DURACHUTE™** nor CHUTES International accepts responsibility for the installation or handling of the chute unless it is installed or supervised by **DURACHUTE™** /CHUTES International's personnel.

If at any time you have any questions regarding this information, please see your supervisor, your **DURACHUTE™** dealer, or call us directly at 800-88-CHUTE (800-882-4883). You can also visit our website at **www.CHUTES.com**.

Additional copies of this manual or further information about our other products can be obtained by calling, emailing or visiting us on the World Wide Web.

www.CHUTES.com

**33 Industrial Park Drive
Waldorf, MD 20602**

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info@chutes.com**



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DURACHUTE™ Components

A wide range of accessories permits a safe and easy installation of the material debris chute on all types of scaffolding, windows, parapets, flat roofs, etc. *NOTE: These components can be purchased online at: www.chutes.com.*

DESCRIPTION

PICTURE

Chute Section w/ Chains

0300

- Total Length 4'
- Useable Length 3'1"
- Inside Diameter (top) 32"
- Tapers to 28" Bottom
- Shipping Weight of 37 lbs.



Intake Hopper w/ Chains

0301

- Total Length 4'
- 29"W x 28"H Intake Dimensions
- Galvanized Steel Components
- Shipping Weight of 63 lbs.



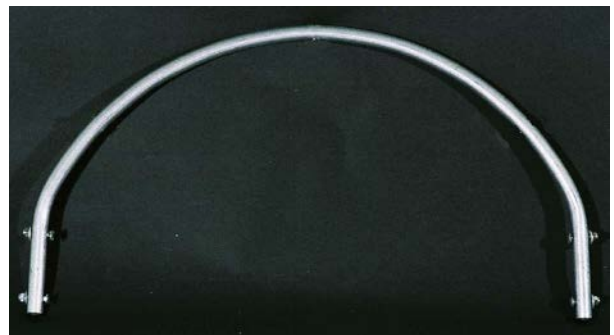
Intermediate Intake Hopper # 0305

- Regular Intake Hopper with Retainer Bar and Safety Flap Included
- Total Length 4'
- 29"W x 28"H Intake Dimensions
- Galvanized Steel Components
- Shipping Weight of 71 lbs.



Hopper Retainer Bar # 0322

- Add to **Intake Hopper** When Used in Intermediate Positions
- Includes Four (4) 5/16" Bolts, Four (4) Washers and Four (4) Locknuts
- Shipping Weight of 2 lbs.



Hopper Retainer Bar w/ Safety Flap # 0369

- Add to **Intake Hopper** When Used in Intermediate Positions
- Hopper Retainer Bar
- Includes Three (3) 5/16" Bolts, Three (3) Washers and Three (3) Locknuts
- Shipping Weight of 7 lbs.



Safety Flap**# 0372**

- Used with Hopper Retainer Bar to add to **Intake Hopper** When Used in Intermediate Positions
- Includes Three (3) 5/16" Bolts, Three (3) Washers and Three (3) Locknuts
- Shipping Weight of 5 lbs.

**Mounting Hardware**

All mounting hardware is hot dipped galvanized structural steel

DESCRIPTION**PICTURE****Basic Support Frame****# 0310**

- Required With All Outriggers
- Includes Hopper Stands with 2 Hair Pin Clips & 2 Flat Washers, Picking Chains, Litch Pins, and Breakaway Cable with Caution Tag for Guide Rope attachment
- Maximum length of chute on one Basic Support Frame is 150'.
- Shipping Weight of 69 lbs.



Window/Parapet Outrigger (Set) # 0311

- Used for Window or Parapet Mounting
- Minimum Window Opening is 38"
- Maximum Sill Depth is 30"
- 2"x 4" Softeners not provided
- Shipping Weight of 91 lbs.



“No-Touch” Parapet/Roof/Window Outrigger # 0313

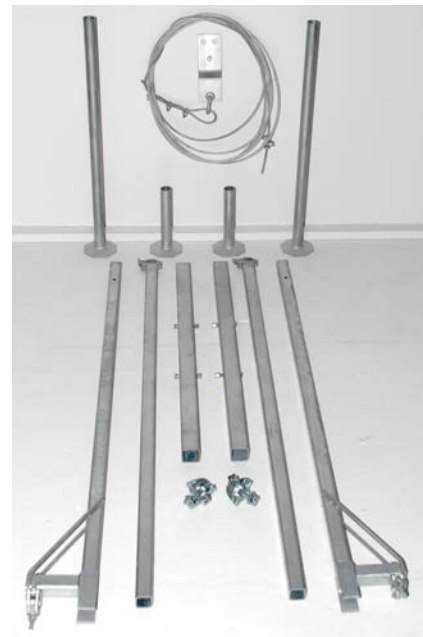
- 2 Counterweight Holder Stands
- Support Tube Assembly
 - o 2 Front Tubes - Chute & Hopper Support incl. Hopper Stands
 - o 2 Middle Tubes – Adjustable Insert
 - o 2 Back Tubes
 - o Tie-Back Cable
- 2 Front Parapet Stands
- Cross Member w/ U-Bolts & Nuts
- Shipping Weight of 818 lbs.



Flat Roof/Slab Outrigger (Set)

0314

- Used for Flat Roof or Slab Mounting
- Two (2) Front 6'Square Tubes w/ Clamps
- Two (2) Back 6'Square Tubes w/ Clamps
- Two (2) 90° Clamps
- Two (2) Outserts – 4' long
- Two (2) Kicker Stubs – 24" long
- Two (2) Counterweight Stubs - 42" Long
- Four (4) ½" x 3" Grade-Eight bolts w/ Self-Locking Nuts
- ¼" Safety Tie-Back Plate
- 5/8" Shackle
- 50' of 3/8" (7x19 galvanized) Aircraft Cable
- Six (6) 3/8" Cable Clamps
- Counterweights (Item # 0320) quantity as required for length of chute (to be purchased separately)
- Shipping Weight of 215 lbs.



Scaffold Outrigger

0312

- Used for Scaffold Mounting
- Four (4) 8' Round Tubes
- Six (6) 90° Clamps
- Four (4) Swivel Clamps
- Shipping Weight of 92 lbs.



Pitched Roof Outrigger

0316

- Used for Pitched Roof Mounting
- Two (2) 8' Round Tubes
- Two (2) 4' Diagonal Braces
- Four (4) Roof Tube Brackets
- Two (2) 90° Clamps
- 1/4" Safety Tie-Back Plate
- 5/8" Shackle
- 50' of 3/8" (7x19 galvanized) Aircraft Cable
- Six (6) 3/8" Cable Clamps
- Shipping Weight 115 lbs.



Accessories

80'/150' Scaffold Manual Winch

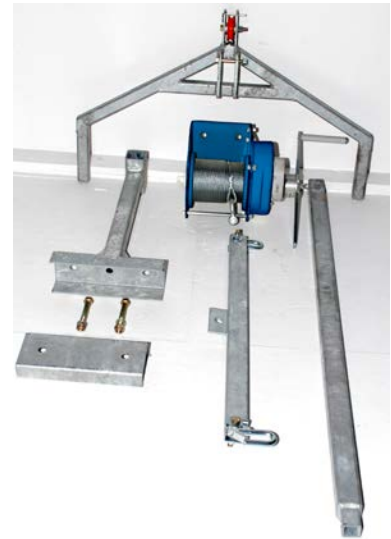
0321/0319

- Complete System Includes All Components (Frame, Winch, Picking Bar)
- Shipping Weight of 71/88 lbs



**80' & 150' No-Touch Parapet/Roof/Window # 0334/0333
Winch**

- Winch Roller Bar
- Winch Bar
- Support Arm
- Winch
- 2 5/8" Bolts
- Connection Cap
- Winch Picking Bar
- Shipping Weight of 131/150lbs.



80' & 150' In House Manual Winch

0336/0335

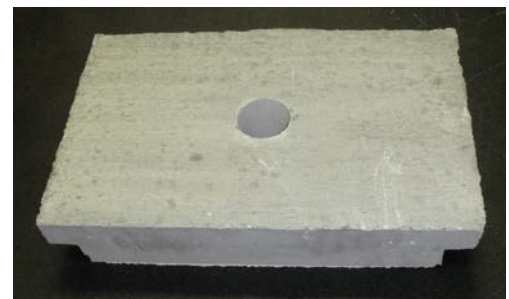
- Winch Roller Bar
- Winch Frame
- Winch
- Support Arm (2 pieces)
- Winch Picking Bar
- 5 5/8" Bolts
- 2) Frame Support Brackets w/ Caps
- Shipping Weight of 166/185lbs.



Counterweight

0320

- 50 lbs. Each
- Used with Flat Roof Outrigger & Roof Parapet Outrigger

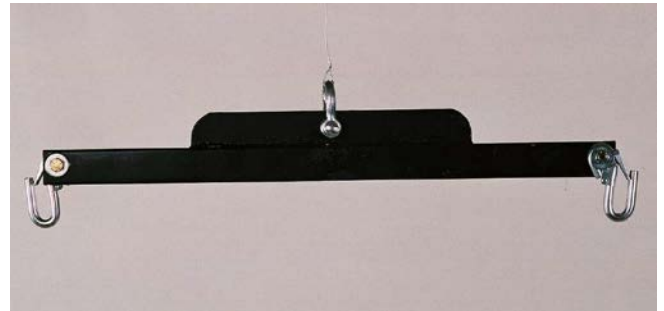


Flat Roof Safety Frame**# 0315**

- Used with Flat Roof Mounting
- 4' High x 8' Long
- Mounting Clamps Included
- Intermediate Horizontal Bar for Additional Safety
- Shipping Weight of 42 lbs.

**Crane Picking Bar****# 0323**

- For Use When a DURACHUTE™ Winch is Not Used
- Picking bar w/ 2 Bolts/Nuts, 2 Hooks, 1 Shackle
- 4,000 lbs. Maximum Load
- Shipping Weight of 10 lbs.

**Winch Picking Bar****# 0454**

- Picking bar w/ 2 Bolts/Nuts & 2 Hooks
- 4,000 lbs. Maximum Load
- Shipping Weight of 10 lbs.

**Section Chains w/ Bolts****# 0325**

- Sold in Pairs Only
- 2 Chains w/ Hooks, Plates & Bolts
- MUST use Retaining Compound
- Shipping Weight of 7 lbs.



Hopper Stands – SOLD INDIVIDUALLY # 0405

- Used with Basic Support Frame when Mounting Top Intake Hopper
- One (1) Washer and One (1) Hair Pin Clip are Included
- Shipping Weight of 3 lbs.



Lifting Chains w/ Bolts

0324

- Sold in Pairs Only
- 2 Chains w/ Hooks
- Shipping Weight of 4 lbs.



Breakaway Cable

0350

- Used with Basic Support Frame to attach Guide Rope
- Caution Tag
- Shipping Weight of 1 lb.



Dust Gaiter

0330

- Used to Help Contain Dust Particles in Confined Areas and on Occupied Buildings
- Fits Between Sections
- Shipping Weight of 1 lb.



Guide Rope w/ Caution Tag**# 0340 & 0348**

- 110' Rope (#0340) or
- 180' Rope (#0348)
- Caution Tag
- Quick Link or Shackle
- 110' Shipping Weight of 4 lbs.
- 180' Shipping Weight of 6 lbs.

**Protective Liner*****# 0303**

- Protects Sections Against Excessive Wear From Heavy Debris, Sharp Edges and at Slight Bends Creating Impact Areas
- Held in Place by Three (3) Clips
- Shipping Weight of 18 lbs.

** for DURACHUTE only NOT for DURAFLAT*

**Tie Back Plate & Cable****# 0326**

- 50' Cable with Plate
- 6 Cable Clamps
- Shipping Weight of 18 lbs.

**Liner Clips****# 0365**

- Used in Making Protective Liners
- Sold in 3-Packs ONLY
- 3 Clips w/ Nuts & Bolt
- Shipping Weight of 2 lbs.



**Flat Roof Outrigger Winch Frame
Brackets # 0371**

- For Use with Flat Roof Outrigger
- Sold in Pairs ONLY
- 1 Left and 1 Right
- Shipping Weight of 12 lbs.



Swivel Clamps

0368

- For Use with Scaffold Outrigger
- Shipping Weight of 3 lbs.



90-Degree/Right Angle Clamps

0367

- For Use with Scaffold Outrigger
- Shipping Weight of 2 lbs.



Sheave Assembly

0372

- For Use with Winch
- Six (6) Flat Washers
- One (1) 3" Carriage Bolt
- One (1) Sheave
- One (1) Self-Locking Nut
- Shipping Weight of 2 lbs.



Preparation For Chute Installation

Recommendations for a Safe and Efficient Operation

The following procedures should be performed before loading the equipment for delivery to the jobsite:

1. Check all equipment for proper operation.
2. Check all hardware welds and confirm that there are no visual cracks.
3. Check chain assemblies for any abnormalities. Confirm that links are uniform and not bent nor stretched, verify safety latches on hooks are in good working order and check that screw and plate are properly tightened to eye nut.
4. Check length of chute required and confirm that the number of sections and hoppers will be sufficient for building/floor heights.
5. Screw jacks should be free of any foreign material on the threads for proper tightening and maintenance free operation.
6. Check clamps and confirm that bolt threads and nuts work properly and are free of any foreign material.
7. Make sure that you have the right size winch for the job installation on hand.
8. Visually check winch cable condition for cut or broken strands and verify that the sheave and handle are in good working order.

Tools and Accessories Required to Perform a Safe and Efficient Installation

- 1/2" Drive Ratchet with 7/8" and 9/16" Deep Well Socket.
- 2 or 3 lbs. Hammer
- 12" Adjustable Wrench (Crescent)
- 25' Tape Measure
- OSHA approved Fall Protection Equipment, if required.
- Safety Boots, Hard Hats, Eye Protection and Work Gloves.

Unloading at Jobsite:

1. Unload and place debris chute sections so that they may be easily accessible when installation is in progress.
2. Arrange sections and hoppers on the ground in the order they will be placed on the building.
3. Stock the roof/floor(s) with the Outrigger(s), Basic Support Frame(s), Winch, Safety Frame(s) and Intake Hopper(s), as needed.
4. Ensure that ground area around chute location is clean and clear of all debris, vehicles and obstructions.



CAUTION: DO NOT INSTALL CHUTE UNLESS YOU FULLY UNDERSTAND THE FOLLOWING INSTRUCTIONS. IF YOU HAVE ANY QUESTIONS, SEE YOUR SUPERVISOR, YOUR LOCAL DURACHUTE™ DISTRIBUTOR OR CALL US DIRECTLY. INSTALLING THE CHUTE WITHOUT PROPER UNDERSTANDING OF THESE PROCEDURES SHOULD NOT BE ATTEMPTED OR ALLOWED AND CAN BE DANGEROUS!



CAUTION: THE DURACHUTE™ OUTRIGGERS AND WINCHES ARE AN INTEGRAL PART OF THE COMPLETE DURACHUTE™ SYSTEM. THE MANUFACTURER TAKES NO RESPONSIBILITY WHATSOEVER IF SECTIONS ARE NOT HUNG AS THIS MANUAL PRESCRIBES OR ON THE OUTRIGGERS AS MANUFACTURED BY OTHERS.



List Of Recommendations

For a quick, smooth, and safe installation and operation, and to avoid any unnecessary charges and/or back-charges, contractors are strongly advised to implement the following list of recommendations:

Prior to Installation and Dismantling:

1. Secure adequate window access where chute intakes are to be placed.
2. Clear all debris from work area at chute intake locations to allow a safe and suitable access for installation and dismantling operations.
3. Protect windowsills and finished building facade at chute location.
4. Remove any heating and air conditioning units that will interfere with the **Window/Parapet Outrigger**. Protect any heating and air conditioning units at the windows that have chute intakes.
5. Avoid creating angles or sharp bends within the chute. Chute should be straight or only have a **very slight, smooth curve**, if positively unavoidable.



A SLOPED CHUTE LINE EXPOSES THE CHUTE AND ITS SUSPENSION STRUCTURE TO HIGHER LOADS AND WILL GREATLY INCREASE THE CHANCE OF CLOGGING THE CHUTE WITH DEBRIS.



6. Provide necessary ramps, railings and safety barricades wherever required, in accordance with your local safety regulations.
7. Provide necessary protective safety equipment and clothing as required.
8. Provide suitable access for truck set-up and staging area at chute location.

After Installation:

1. Check screw jacks on **Window/Parapet Outriggers** for tightness.
2. Advise user to carefully dispose of any metal studs and other sharp objects, i.e. bend metal studs into manageable sizes and throw into chute bent-end first.
3. Do not allow debris to accumulate in chute. Always confirm that the debris thrown into the chute, exits the chute.

4. Be certain chute is clear of debris and untied from dumpster prior to removal of dumpster.
5. Remove chute from dumpster at the end of each workday.
6. Never throw lighted or ignited materials into chute.

Installation Of Window/Parapet Outrigger

Used to attach chutes through window openings and parapet walls.

Please refer to the illustrations while going through the instructions. Always wear your OSHA approved Fall Protection and Safety Equipment and follow all OSHA and local safety regulations.

Items used for window/parapet wall installation are the **Window/Parapet Outrigger (Part No. 0311)**, **Basic Support Frame (Part No. 0310)**, 2" x 4" boards (softeners for face wall not provided), and 2"x 6" oak boards (not provided).

- * Place the two sides of the Parapet Outriggers in the desired location at an inside dimension of 34 3/4" and secure by tightening the screw jacks.



IT IS CONTRACTORS'/INSTALLERS' RESPONSIBILITY TO ENSURE THAT THE STRUCTURAL INTEGRITY OF THE PARAPET WILL SUPPORT THE CHUTE SYSTEM.



- * Take care to insert, in sufficient length, 2"x 6" oak boards (or similar) on the inside of the wall, extending beyond the left and right sides of the outrigger, to ensure proper distribution of the weight load to the structure. Tighten clamps to avoid movement. In the case of thin masonry walls (e.g. in radiator recesses), the wall must be adequately supported to resist the forces introduced by the chute (we recommend using oak boards on the outside and suitable bracing on the inside of the building). With concrete walls, check to ensure that the wall strength is sufficient to resist the chute loads without additional bracing.
- * Make sure that the parapet outrigger is horizontally level to the windowsill.
- * Install the Basic Support Frame by sliding it into the two (2) J-brackets at the bottom of the Parapet Outrigger and secure it with the two (2) half clamps mounted on the Parapet Outrigger.
- * If using the **In House Manual Winch (0335/0336)**, ensure back end of parapet measures 34" inside in order for winch frame to install easily.





DURACHUTE™ RECOMMENDS THAT ALL BASIC SUPPORT FRAMES ARE TIED BACK SECURELY TO A SAFE ANCHORAGE POINT ON THE STRUCTURE BEFORE PROCEEDING WITH CHUTE INSTALLATION PER THE DESCRIPTION ON PAGE 34.



- * If using **In House Manual Winch**, remove Detent Pin at sheave from Roller Bar then insert Roller Bar into **Basic Support Frame** ensuring bracket for Support Tube is facing 'in house' toward outrigger,



- * Install Winch Frame into horizontal tubes of Parapet Outrigger,



- * Attach Support Tube to bracket on Roller Bar and on Winch Frame using provided bolts.



NOTE: INCORRECT INSTALLATION OF SUPPORT TUBE MAY CAUSE SERIOUS INJURY



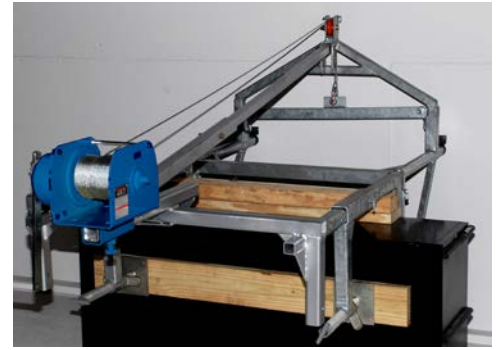
- * Slide Winch onto Winch Frame, secure mounting bolt under Winch,



- * Release enough cable to allow Picking Bar to reach over sheave on Roller Bar, then reinstall Detent Pin.



- * Proceed with chute installation.



OR

- * For **Manual Scaffold Winch**, follow instructions on page 33.
- * After complete installation of chute and top hopper, secure the Safety Frame to the **Basic Support Frame** with the two clamps provided on the Safety Frame.



**A MINIMUM OF THREE (3) WRAPS MUST ALWAYS REMAIN ON DRUM
OF WINCH BEFORE RAISING CHUTE.**



Installation Of “No Touch” Parapet/Roof/Window Outrigger

Used to attach chutes on roofs or through windows with parapets without actually attaching to parapet.

Please refer to the illustrations while going through the instructions.



ALWAYS WEAR YOUR OSHA APPROVED FALL PROTECTION AND SAFETY EQUIPMENT AND FOLLOW ALL OSHA AND LOCAL SAFETY REGULATIONS.



Items used for roof parapet installation are the ‘No Touch’ Parapet/Roof/Window Outrigger Set (Part No. 0313),

- * Place the Adjustable Insert into the Rear Tube and install Pin with Key for desired length.



- * Slide Rear Tube onto Counterweight Holder Stand and install Pin with Key to the corresponding parapet height. Make sure that Tie Back Bracket is to the rear side of stand.
- * Repeat above steps for other side.



- * Slide Cross Member onto two (2) Front Parapet Stands. Install Pins with Keys, allowing for parapet height clearance.



- * Slide Front Tube onto Adjustable Insert and Pin to desired length.



- * Lift Support Tube Assembly and set on Cross Member allowing for desired parapet width.



- * Repeat above steps for other side.



- * Set U-Bolts into Cross Members. Install Base Plates, Washers & Nuts onto U-Bolts. **Do not tighten at this time.** Support Tube Assembly should be apart 36" on center to accept Roller Bar or Winch Frame.



- * Install Winch Roller Bar or Winch Frame into Pipe Stubs at end of Support Tube Assembly.



- * Spread Counter Weight Holder Stands approximately 65" apart to allow unencumbered access to chute.



- * Make sure that Winch Roller Bar or Frame and Cross Member are parallel to parapet and that Winch Roller Bar or Frame can be removed freely from base.

- * Tighten U-Bolts.
- * Install required number of Counterweights according to the table on page 24.



DURACHUTE™ RECOMMENDS THAT ALL SUPPORT FRAMES ARE TIED BACK SECURELY TO A SAFE ANCHORAGE POINT ON THE STRUCTURE BEFORE PROCEEDING WITH CHUTE INSTALLATION.



Setting the **In House Manual Winch #0333/0334** Assembly:

- * Install Support Arm for Winch Bar, by centering on Cross Member.
 - * Attach Connection Cap loosely with two bolts.
 - * Slide Winch Bar thru Support Arm and connect to Roller Bar with Pin.
 - * Align Arm to Winch Roller Bar/Sheave and tighten Connection Cap Bolts on Support Arm Base.
-
- * Attach Tie-Back Cable to base of Outrigger and safely secure tieback plate to a concrete structure on roof and loop other end of tieback cable over shackle and secure with three (3) clamps. If unable to safely install plate, cable should be secured to a structural element on the roof.
-
- * Set the Winch (see page 29).

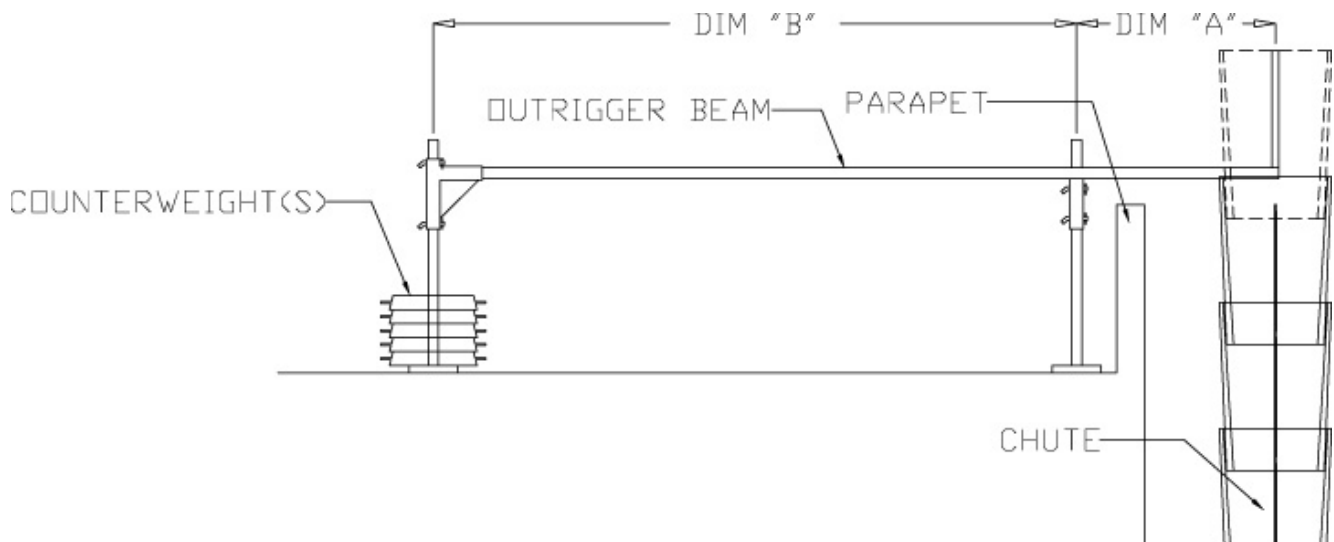


For Manual Winch, follow instructions on page 33.

“No Touch” Parapet/Roof/Window Outrigger Counterweight Chart

Distance 'A' from* U-Bolt to Chute Hanging Point	Distance 'B'* Between Front and Back Stands	Chute Length				
		50'	80'	100'	120'	150'
		Number of Counterweights				
20" - 32" (up to 1' sill)	14'	10	16	20	24	30
	13'	12	18	22	28	32
	12'	12	18	22	28	34
32" - 38" (up to 1' 6" sill)	14'	12	18	24	28	34
	13'	12	20	26	30	38
	12'	14	22	28	32	40
38" - 44" (up to 2' sill)	14'	14	22	28	32	40
	13'	16	24	30	36	---
	12'	16	26	32	38	---

NOTE: Please call manufacturer for recommended counterweight use for situations not specifically covered above.



Installation Of Flat Roof/Slab Outrigger

Used for the installation of chutes on a flat roof or open slab.

Please refer to the illustrations while going through the following instructions. Always adhere to all OSHA and local safety regulations.

Items used for flat roof attachment are the **Flat Roof/Slab Outrigger (Part No. 0314)**, the **Basic Support Frame (Part No. 0310)**, the **Flat Roof Safety Frame (Part No. 0315)**, **Counterweights (Part No. 0320)**, **2"x 6" Oak Board** (not provided) and **In House Manual Winch (Part No. 0335/0336)** recommended.



BE SURE TO OBSERVE ALL LOCAL SAFETY AND ACCIDENT PREVENTION REGULATIONS.



- * Assemble the **Flat Roof/Slab Outrigger** and the **Basic Support Frame** in their entirety at a distance of at least 6' to 8' from the edge of the roof.



- * If using the **In House Manual Winch**, insert the Winch Frame Brackets onto the front 6' square tubes, slide all the way forward until the brackets meet the gusset round bars. Set bolts should be facing outwards, resulting in the winch frame brackets marked L on the left side (standing in-house facing outward) and the R Winch Bracket on the right.



- * Connect the two free ends of the 6' tubes by putting on the outserts and securing them with the bolts provided.



- * Insert one (1) counterweight on each 42" counterweight stub, then secure the counterweight stubs to one end of the **Flat Roof/Slab Outrigger** by attaching the clamps above the inserted counterweight.



Attach the **Basic Support Frame** on the other end.

- * Attach the two kicker stubs (2' tubes) to the lower horizontal element of the **Basic Support Frame** and evenly space out and adjust their positions to keep the **Basic Support Frame** at a 90-degree angle with the roof outrigger tubes.



- * Move the flat roof attachment assembly (with the two fitted counterweights) toward the outside of the building until the **Basic Support Frame** fits over the edge of the roof.



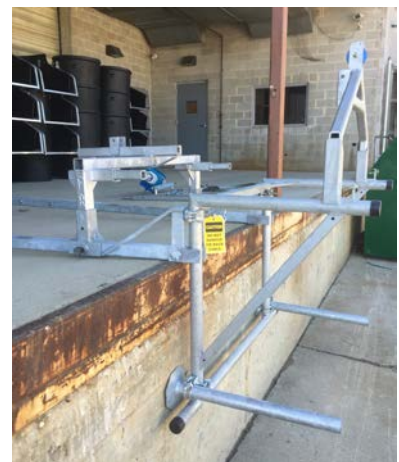
- * Set the **Flat Roof/Slab Outrigger** on a 2"x 6" Oak board, if needed, at the edge of the roof.

- * If using the **In House Manual Winch**, counterweight stubs need to be spread 62-65" apart to ensure alignment of the winch frame to the winch stands.



- * Adjust the horizontal tubes to end up with the **Basic Support Frame** square to the face wall.

- * Proceed to insert the remaining counterweights according to the length of the chute.



THE GAP BETWEEN THE ROOF EDGE AND THE BASIC SUPPORT FRAME MUST NOT EXCEED ONE INCH IN ORDER TO AVOID HAZARDOUS OVERLOADS ON THE SUPPORT TUBES. PROVIDE ADEQUATE SUPPORT ALONG THE ROOF EDGE TO DISTRIBUTE THE CHUTE LOAD. TAKE CARE NOT TO EXCEED THE MAXIMUM LOAD CARRYING CAPACITY OF THE ROOF.



The following counterweight table is given for reference purposes only, and is not to be taken as a guideline. Each job is to be figured individually based upon its own specific conditions (number of hoppers, number of protective liners, etc.). The following table is based on a system with one top hopper intake, outrigger, basic support frame and a safety frame (additional intakes will require additional counterweights):

<u>CHUTE LENGTH UP TO</u>	<u>MINIMUM NUMBER OF 50-LB. COUNTERWEIGHTS</u>
50' (17 Sections)	10
80' (27 Sections)	14
100' (34 Sections)	18
120' (40 Sections)	20
150' (50 Sections)	24



OSHA AND DURACHUTE™ REQUIRE THAT ALL FLAT ROOF/SLAB OUTRIGGERS ARE TIED BACK SECURELY TO A SAFE ANCHORAGE POINT ON THE STRUCTURE (AS OUTLINED BELOW) BEFORE PROCEEDING WITH CHUTE INSTALLATION.



- * Loop one end of tie-back cable around either left or right horizontal tube on the **Basic Support Frame** behind the $\frac{3}{4}$ " round stock horizontal bracing, leaving a minimum of 1' (one foot) tail to be secured with three (3) cable clamps. Safely secure tieback plate to a concrete structure on roof and loop other end of tieback cable over shackle and secure with three (3) clamps. If unable to safely install plate, cable should be secured to a structural element on the roof.



NOTE THAT IT IS THE CONTRACTOR / INSTALLER'S RESPONSIBILITY TO ENSURE THE STRUCTURAL INTEGRITY OF THE TIEBACK ATTACHMENT TO THE BUILDING.



- * Insert the Winch Frame Legs into the Winch Frame Brackets.

NOTE: The horizontal tubes should spread apart by approximately 62-65" between the centers of the of counterweight stubs.



- * Tighten the 1/2" Winch Frame Bracket bolts and snug the 3/4" set bolts.

- * Remove Detent Pin at sheave from Roller Bar then insert Roller Bar into **Basic Support Frame** ensuring bracket for Support Tube is facing 'in house' toward outrigger.



- * Attach Support Tube to bracket on Roller Bar and on Winch Frame using provided bolts.



**NOTE: INCORRECT INSTALLATION OF SUPPORT TUBE MAY CAUSE
SERIOUS INJURY**



- * Slide Winch onto Winch Frame, secure mounting bolt under Winch.



- * Release enough cable to allow Picking Bar to reach over sheave on Roller Bar, then reinstall Detent Pin.



- * Go to page 34 to proceed with chute hoisting/installation.



- * If using, **Manual Scaffold Winch** instead of recommended **In House Manual Winch**, go to page 33 & 34 to proceed with chute installation.
- * After complete installation of chute and top hopper, secure the **Safety Frame** to the **Basic Support Frame** with the two clamps provided on the **Safety Frame**.



Installation Of Scaffold Outrigger

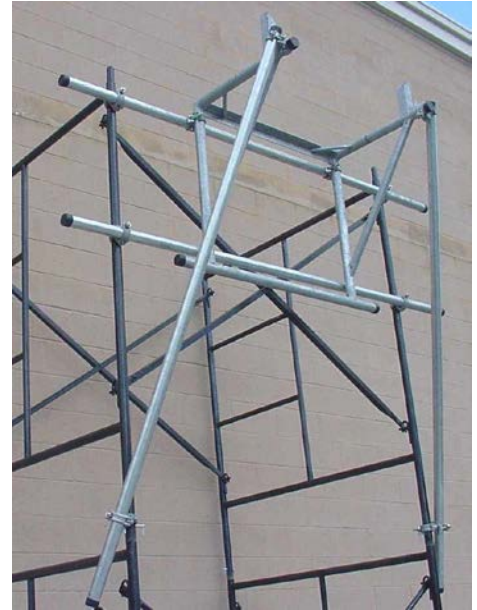
Used for the attachment of CHUTES directly onto scaffolding.

Please refer to the illustrations while going through the following instructions.

Always adhere and conform to all OSHA and local safety regulations.

Items used for scaffold attachment are the **Scaffold Outrigger (Part No. 0312)**, and the **Basic Support Frame (Part No. 0310)**.

- * Install the two (2) horizontal cross tubes onto scaffolding at the top intake location. Cross tubes to be installed 24" apart on center using four (4) 90-degree clamps.
- * Attach the **Basic Support Frame** to the two (2) cross tubes using two (2) 90-degree clamps and brace with the two (2) additional tubes. Use four (4) swivel clamps for this purpose.



MAKE SURE THAT THE STRENGTH AND STABILITY OF THE SCAFFOLDING INTENDED FOR DEBRIS CHUTE ATTACHMENT IS VERIFIED BY THE CONTRACTOR. THIS IS THE RESPONSIBILITY OF THE CONTRACTOR.



DURACHUTE™ RECOMMENDS THAT ALL BASIC SUPPORT FRAMES ARE TIED BACK SECURELY TO A SAFE ANCHORAGE POINT ON THE STRUCTURE BEFORE PROCEEDING WITH CHUTES INSTALLATION



- * Go to page 33, **Manual Scaffold Winch**, to proceed with chute installation.
- * After complete installation of chute and top hopper, secure the **Safety Frame** to the **Basic Support Frame** with the two clamps provided on the **Safety Frame**.

Installation Of Pitched Roof Outrigger

Used for the attachment of CHUTES onto pitched roofs.

Please refer to the illustration while going through the following instructions.

Always adhere and conform to all OSHA and local safety regulations.

Items used for pitched roof attachment are the **Pitched Roof Outrigger (Part No. 0316)**, and the **Basic Support Frame (Part No. 0310)**.



- * Install Roof Tube Support Brackets to roof.
- * Install the two (2) 8' Round Tubes to the Roof Tube Support Brackets (ensure all items are plumb, square and attached firmly to roof).
- * Attach the two (2) 90° Clamps to the horizontal bottom tube of the **Basic Support Frame**, next to the two (2) vertical tubes of the **Basic Support Frame**.
- * Install the **Basic Support Frame**, with clamps, to the desired location of the Roof Tubes.
- * Attach the two (2) 4' Diagonal Braces to the top of the vertical tube of the **Basic Support Frame** with the half clamp.
- * Install the other end of the Diagonal Brace to the Roof Tube ensuring that the **Basic Support Frame** is vertical and plumb.
- * Loop one end of tie-back cable around either left or right horizontal tube on the **Basic Support Frame** behind the $\frac{3}{4}$ " round stock horizontal bracing, leaving a minimum of 1' (one foot) tail to be secured with three (3) cable clamps. Safely secure tieback plate to a concrete structure on roof and loop other end of tieback cable over shackle and secure with three (3) clamps. If unable to safely install plate, cable should be secured to a structural element in the roof.



MAKE SURE THAT THE STRENGTH AND STABILITY OF THE ROOF USED FOR PITCHED ROOF ATTACHMENT IS VERIFIED BY THE CONTRACTOR. THIS IS THE RESPONSIBILITY OF THE CONTRACTOR.



Manual Scaffold Winch (80' & 150')

The 150' and 80' winches are intended **EXCLUSIVELY** for the raising and lowering of the **DURACHUTE™** system **DURING** installation and dismantling onto a **Scaffold Outrigger**. **DURACHUTE™**'s winch is a complete system that requires no additional site assembly.

- * Set the Winch Frame into the **Basic Support Frame** by inserting the two legs of the Winch Frame into the two Brackets on the top of the **Basic Support Frame** as shown in the illustration.
- * Slide the Winch onto the horizontal arm of the Winch Frame all the way until it hits the diagonal brace. Tighten the set bolt with a crescent wrench.
- * Pass the cable with the Picking Bar over the sheave and lock the thru-pin on the sheave bracket.
- * Clockwise raises the chute; counterclockwise lowers the chute.
- * Remove both picking chains from the **Basic Support Frame** and hook one side of the picking chain by the third link (from the picking chain hook) on the hook at each end of the picking bar leaving the other length of chain hanging free.



A MINIMUM OF THREE (3) WRAPS MUST ALWAYS REMAIN ON DRUM OF WINCH BEFORE RAISING CHUTE.



ALWAYS WRAP WINCH CABLE SECURELY AND NEATLY. KINKS IN CABLE MAY CAUSE PROBLEMS IN CABLE FIBERS!!



RIGHT WAY





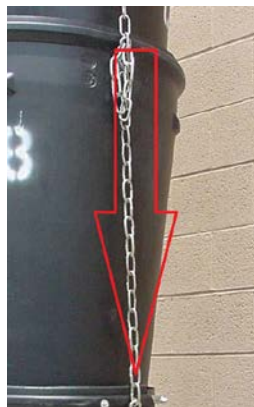
WRONG WAY

Hoisting The Chute

- * Lower the picking bar to approximately 4' above ground level.
- * Hook top chute section through the eye nuts to the picking chain's hooks at each end of the picking bar and hoist up approximately 4'.
- * Add the next section by sleeving it over the previous section, and then secure it by hooking the chains from the section above into its eye nuts.



 **CHECK THAT THE CHAINS ARE IN A RELAXED POSITION (DOWNWARD) BEFORE HOOKING THEM TO THE SECTION BELOW TO AVOID ANY TWISTING OF THE CHAINS THAT WOULD CAUSE UNDUE STRESSES ON THE MATERIAL.** 



- * Hoist up approximately 4' and repeat above step for remaining chute sections to achieve desired chute length.
- * Alternatively, and after some experience handling the chute is gained, up to five sections may be hooked together, stood up, and lifted, instead of hooking only one section at a time.
- * Raise chute until the **Picking Bar** goes past the top of the **Basic Support Frame** by a couple inches.



- * Attach the top most chute section by inserting the third link of free sides of picking chains over the lugs of the **Basic Support Frame**.
- * Lower picking bar so weight of chute is supported by **Basic Support Frame**.
- * Unhook picking bar from picking chains.
- * Wrap the now free lengths of picking chains around the **Basic Support Frame** and insert end links over the lugs and secure with the litch pins.
- * Remove Winch Frame from **Basic Support Frame**.



THE CHUTE MUST BE HOISTED UP IN A VERTICAL LINE. RAISING THE CHUTE AT AN ANGLE MIGHT DANGEROUSLY DAMAGE THE HOISTING FRAME AND CAUSE UNDUE STRESSES ON THE SUPPORTING STRUCTURE.



ALL HOOKS, EYENUTS AND CHAINS ARE TO BE KEPT IN A STRAIGHT, VERTICAL LINE WHILE SECTIONS ARE HOISTED.



ALWAYS HAVE THE HOOKS OF THE SECTION ABOVE INTO THE EYE NUTS OF THE SECTION BELOW.



THE MAXIMUM LENGTH OF CHUTE ON ONE (1) SET OF OUTRIGGERS/HANGERS IS 150'.



IF NO INTERMEDIATE HOPPERS ARE NEEDED, SKIP THE 'INSTALLATION OF INTERMEDIATE INTAKE HOPPERS' SECTION.



Installation Of Intermediate Intake Hoppers

Make sure that **Hopper Retainer Bars** and **Safety Flaps** are installed on all **Intermediate Hoppers**. If the chute is to be fed from intermediate building levels as well, ensure the corresponding hoppers are inserted at the desired intervals as the chute is hoisted upward as follows:

- * Measure the distance from the top of the **Basic Support Frame** to the location of the uppermost intermediate hopper pan.
- * Deduct 6" (allowance for the picking chains) from your previous measurement. This is the distance from the top section to the first intermediate hopper opening.
- * Measure the distance from the entry level of this hopper to the next one. Repeat the intake-to-intake measurements for the remaining **Intermediate Hoppers**.



Chain Adjustment

Adjust chains on the sections above the section above the **Intermediate Hoppers** to accommodate for the required distances between intake locations as per the illustration and following directions:

- * Determine the number of links by which you need to shorten the chain assembly to compensate for the required distances between intakes.
- * Count the links that are not going to be used, starting from the hook end.
- * Assuming we need to shorten the chain by 5 links, hold the 6th link (from the eye nut end of the assembly) and simply insert this 6th link into the hook from the section above.



MAKE SURE THAT NON-WEIGHT BEARING LINKS ARE NOT TRAPPED BETWEEN CHUTE SECTION AND CHAIN ASSEMBLY AND ARE HANGING FREE OF ANY WEIGHT TO THE OUTSIDE OF THE CHUTE SECTION AND CHAIN ASSEMBLY.



- * Proceed with the installation of the **Intermediate Hopper**.
- * Repeat above steps for subsequent **Intermediate Hoppers**.



ALWAYS ENSURE THAT CHAIN ASSEMBLIES ON BOTH SIDES OF CHUTE SECTION ARE OF SAME LENGTH.



Protective Liners

for use with DURACHUTE™ only...NOT intended for DURAFLAT sections

In order to prolong the life of the chute sections and to prevent increased wear in deflection areas within the chute, a **Protective Liner (Part No. 0303)** can be fitted inside the chute sections.

- * Simply hook the clips of the **Protective Liner** over the top of the chute section.
- * Make sure that stops on liners align with and nest in the stops of the chute section(s).
- * Continue to follow standard installation instructions.
- * It is recommended that **Protective Liners** be used with the last few chute sections in a longer chute system and/or at any slight curve in the chute system.



A SLOPED CHUTE LINE EXPOSES THE CHUTE AND ITS SUSPENSION STRUCTURE TO HIGHER LOADS AND WILL GREATLY INCREASE THE CHANCE OF CLOGGING THE CHUTE WITH DEBRIS.



Dust Gaiters

- * Stand chute section on ground.
- * Install **Dust Gaiter** over top of reinforcing ring around top of chute section.
- * Position chute section under installed chute location. Lower attached section into the opening of the **Dust Gaiter** installed on the standing section on the ground.
- * Pull the **Dust Gaiter** over the bottom-reinforcing ring of the attached section above.
- * Hook the chains from the attached section to the standing section on the ground.
- * Raise up the chute system following the guidelines and warnings in “Hoisting The Chute” section on page 19, and repeat the above steps to add **Dust Gaiters** to the sections below.



CHECK THAT THE DUST GAITERS ARE PROPERLY INSTALLED OVER THE REINFORCING RINGS BEFORE PROCEEDING WITH RAISING THE CHUTE, AND CONFIRM THAT THE CHAINS WERE IN A RELAXED POSITION BEFORE HOOKING THEM TO THE SECTION BELOW TO AVOID ANY TWISTING OF THE CHAINS THAT WOULD CAUSE UNDUE STRESSES ON THE MATERIAL.



Installation Of The Top Intake Hopper



ENSURE THAT THE GUIDE ROPE IS ATTACHED TO THE BASIC SUPPORT FRAME PRIOR TO INSTALLING THE TOP INTAKE HOPPER.



- * Insert the two (2) **Hopper Stands** into the brackets on each side of the **Basic Support Frame** with the pins turned to the inside.
- * Simply insert the **Top Intake Hopper** into the uppermost chute section.
- * Make sure that the hopper eye nuts are turned horizontally, and insert them over the pins on the **Hopper Stands**.
- * Secure the eye nuts with attached washers and hair pin clips.
- * Wrap the chains around the **Basic Support Frame** and hook to chain link, as per illustration.



Intermediate Anchoring

Debris chute systems measuring up to 100' in length may generally be installed without intermediate anchoring unless jobsite conditions and/or location (wind, etc.) require it. Longer chutes should be secured at intermediate levels.



USERS ARE CAUTIONED THAT JOB SITE CONDITIONS DIFFER FROM JOB TO JOB AND EVERY INSTALLATION SHOULD BE EVALUATED ON ITS OWN MERITS.



Guide Rope Tie-Off

- * Connect **Guide Rope** to the **Breakaway Cable** attached to the **Basic Support Frame**.
- * Two sizes are available: 110' and 180'.
- * Run the rope inside the chute system's second section from the top and secure it to a fixed ground point.
- * Disconnect tie-off from dumpster prior to moving or emptying the dumpster.
- * Remove chute from dumpster at the end of each workday.



Dismantling Chute

The installation process is reversed to dismantle the chute. The **Top Hopper** and **Hopper Stands** are removed; the **Winch** is installed; the **Picking Bar** is hooked to the picking chains; chute picked up; picking chains unwrapped from **Basic Support Frame**; chute is lowered to the ground. The **Winch**, **Basic Support Frame**, and **Outrigger** are removed.

Transporting Chute

If on a flat bed, chute sections must be sleeved together and be laid down on the truck bed with the large end of sections toward the front of the truck. (Number of sections sleeved together depends on length of bed).

This is the most safe and secure method of transporting sections.



Storage

Ten (10) sections can be sleeved together and stood up vertically with the large end on the floor.

Three (3) hoppers can be sleeved into each other and stood up.

NOTE: Within a 100 square foot area, 90 Sections, 6 Hoppers, 2 Complete Outrigger Assemblies, 2 Basic Support Frames, 2 Safety Frames and 1 Winch can be stored (see illustration).



Precautions

Always take adequate operating precautions to prevent the chute from getting clogged, as any obstruction may cause hazardous overloading of the chute and rigging. Ensure that no piece of debris with any dimension larger than 2' is thrown into the chute.

If the chute does get clogged despite these precautions, stop using it immediately and call your local dealer and **DURACHUTE™**. The obstruction must be cleared before any more debris is introduced into the chute. A crane or hoist will most likely be required to lower the clogged chute to the ground where the sections will be taken apart to clear the obstruction.

Do not get into chute. Do not put head, arms or legs into the chute. Do not stand under chute or in dumpster while attempting to unclog.

Check that the outlet opening is free from obstructions at all times in order to prevent clogging and overloads.

If clogging does occur, check load-bearing elements (chains, suspension brackets, cross members, frame components, etc.) for deformations or damage and replace as necessary.

Make it a habit to inspect all load-bearing elements and wearing parts at regular intervals, at minimum at the end of every job and before the sections are restocked for reuse on the next job. Get a specialist to inspect your material debris chute for safety at least once a year, or more frequently as dictated by operating conditions.

FIRE HAZARD WARNING! Never dispose ignited or burning materials into chute. All plastic debris chutes are flammable, so be sure to remove chute from dumpster each night.

Limited Warranty And Notification Of Defects

Our products come with a six-month warranty from the date of delivery. This warranty is limited to actual material and labor defects; it does not cover degradations due to natural wear and tear, improper handling, or acts of God. We reserve the right to determine how (and by whom) such defects are to be remedied.

Disclaimer Of Warranties

DURACHUTE™ makes no express or implied warranty, and hereby disclaim any and all express or implied warranties of any kind whatsoever with respect to the equipment, including, but not limited to, its merchantability or fitness for any particular purpose, the design for or workmanship in the equipment (with respect to the workmanship in the equipment--please refer to the Limited Warranty and Notification of Defect Statement in the previous paragraph). Compliance of the equipment with any requirements of any law, rule, specification or contract pertaining thereto or patent or latent defects, all liabilities arising therefore being expressly assumed by a contractor/user at its sole risk and expense. CHUTES International and **DURACHUTE™** shall not be liable and contractor/user hereby waives any claims for any loss, delay or damage of any kind or character (including, but not limited to incidental or consequential damages, or damages for lost profits, down time, injury to person or property or other incidental or consequential loss) resulting from defects in or inefficiency of the equipment or accidental breakage thereof, or any delay in delivery.

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