



Blizzard + Chinook System User Manual



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1. Safety



Read and understand this manual and all safety instructions before using this product. Failure to do so can result in serious injury or death.

This document is intended for current and future operators of all devices in the Chinook vacuum lifting system. This operator's manual must always be available at the operation site or with the lifters. The Chinook system comprises several modules, which when used together are made to handle porous and nonporous, inanimate products, close to the ground, and not exceeding the stated capacity of the attached vacuum pad nor the rated capacity of the attached chassis or accessories.

Ensure all operators are familiar with this lifting device and all applicable health and safety rules and regulations within the local jurisdiction and associated workplace. MQUIP Group Inc. takes no responsibility for the inappropriate or negligent use of this lifting device or associated products.

The product shall only be used by personnel who have fully read and understood the contents of this user manual.

Keep all safety information and instructions for future reference and pass them on to subsequent users of the product.

1.1. Explanation of safety warnings

DANGER

Danger indicates a hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Warning indicates a hazardous situation that, if not avoided, may result in death or serious injury.


CAUTION

Caution indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates information considered important, but not hazard related.

1.2. General safety rules

 **DANGER** Improper use of lifting equipment can result in serious injury and death! Read all instructions carefully and use caution during each lift. The following general safety rules and all safety warnings in this manual must be adhered to at all times.

- Always wear personal protective equipment that is appropriate for the load and the operating site.
- Do not exceed the safe working load of either the lifting equipment or the attached vacuum pad.
- The vacuum gauge must show a safe vacuum level of -20 kPa (-6 inHg) to achieve the rated load capacity.
- Remain clear of the load whenever it is elevated. **Never place any part of your body underneath the load!**
- Loads must be lifted in the true horizontal orientation. Ensure the load is centered.
- **Loads must be handled close to the ground.** Do not drag loads across the ground.
- Do not lift or lower load faster than 1 m/s or 3 ft/s. Do not perform abrupt movements when moving loads.
- All movements with the lifter while supporting loads should be executed with smooth and steady control, whether handled manually or by machine.
- Ensure that the vacuum lifting device is not used in explosive/hazardous environments.
- The supporting lift equipment must be rated to lift more than the sum weight of all components being lifted: all lifting equipment, vacuum pad, accessories, and load.
- Load must be clear of dirt, debris, mud, water, and any other objects or substances that would impede effective sealing of the vacuum pad to the surface of the load.
- Load must be free of contaminants that may degrade the vacuum seal material, such as chemicals or oils.
- Operating temperature range is 0°C to 30°C (32°F to 86°F).
- Do not submerge any part of the Chinook system in water.
- The Chinook blower motor systems are powered by 120 VAC line voltage, either through a common receptacle or a generator. **There is a serious risk of electric shock with improper use!** Before each use, check for worn or cut electrical cords. Do not use the system in wet conditions, including in the rain. Use only on a GFCI protected circuit with a 15 A fuse or breaker.
- The Blizzard and Backvac turbines provide the high airflow required to lift porous loads by running continuously. **If the power cord is unplugged or the power switch is turned off, the load will immediately be released!** Manage the power cord in use so that it does not become accidentally unplugged. Guard the power switch so that it is not accidentally turned off.
- Use an extension cord rated for at least 15 amps at 120V AC. Multiple extension cords should not be used. Use of improperly rated or very long extension cords will result in weak performance and is unsafe!
- Prolonged periods of lifting or holding suction can starve the vacuum of cooling air and cause it to overheat. The maximum duration of each lift must be no more than 3 minutes. In addition, allow a cool down period of at least half the lift time - for example, after a 3 minute lift, leave the vacuum running without suction or blockage for 1.5 minutes.
- The duty cycle of the Blizzard should be no more than 50% per hour. For example, after using the Blizzard for 30 minutes, ensure it is left off for 30 minutes.

1.3. Gauge

Chinook system components feature a factory installed vacuum gauge on the vacuum release handle, which helps to determine if effective vacuum has been achieved for lifting the load. The weight of the load, the size and capacity of the vacuum pad, and porosity or roughness of the load surface will all affect the ability of the vacuum to achieve a seal. A gauge reading of -20 kPa (-6 inHg) indicates the Chinook attachment has effectively clamped to the surface of the load, and the rated lifting capacity of the attached vacuum pad has been reached. Do not attempt to lift if this safe vacuum level cannot be reached!

1.4. Lifting capacity

Each lifting frame and vacuum pad has a rated maximum lift capacity. When attaching vacuum pads to frames, the lifting capacity of the system is the lowest of any attached component. For example, when using the Solo lifting frame with the 10.5 x 9.5 pad, the lifting capacity is 100 lb, taking the lower capacity of the Solo as shown in Section 7. It is critical that all users are aware of the weight of the loads that are to be handled, the need for effective vacuum sealing, and the rated vacuum pad and lifting frame capacity to ensure safe operation of the Chinook vacuum lift system.

2. Overview

2.1. Description

The Chinook is one of many vacuum lifting products offered by MQUIP Group. The system is made up of several vacuum pads, lifting frames, and vacuum sources which can be combined to handle a wide variety of lifting jobs. The Chinook system can assist in moving porous and non-porous loads up to 970 lb, depending on the vacuum pad and lifting frame in use. The lifting frames include the Grip, Solo, Duo, and Hoist components, each of which is meant for a different lifting method and weight range.

The Solo is a one person lifting frame for picking and placing pavers up to 100 lb (45 kg) with an upright posture, which minimizes bending.

The Duo is a two person lifting frame for picking and placing pavers and slabs up to 240 lb (108 kg), depending on the attached vacuum pad.

The Grip is a one handed attachment designed for picking and placing of smaller pavers up to 80 lb (36 kg) in a kneeled position.

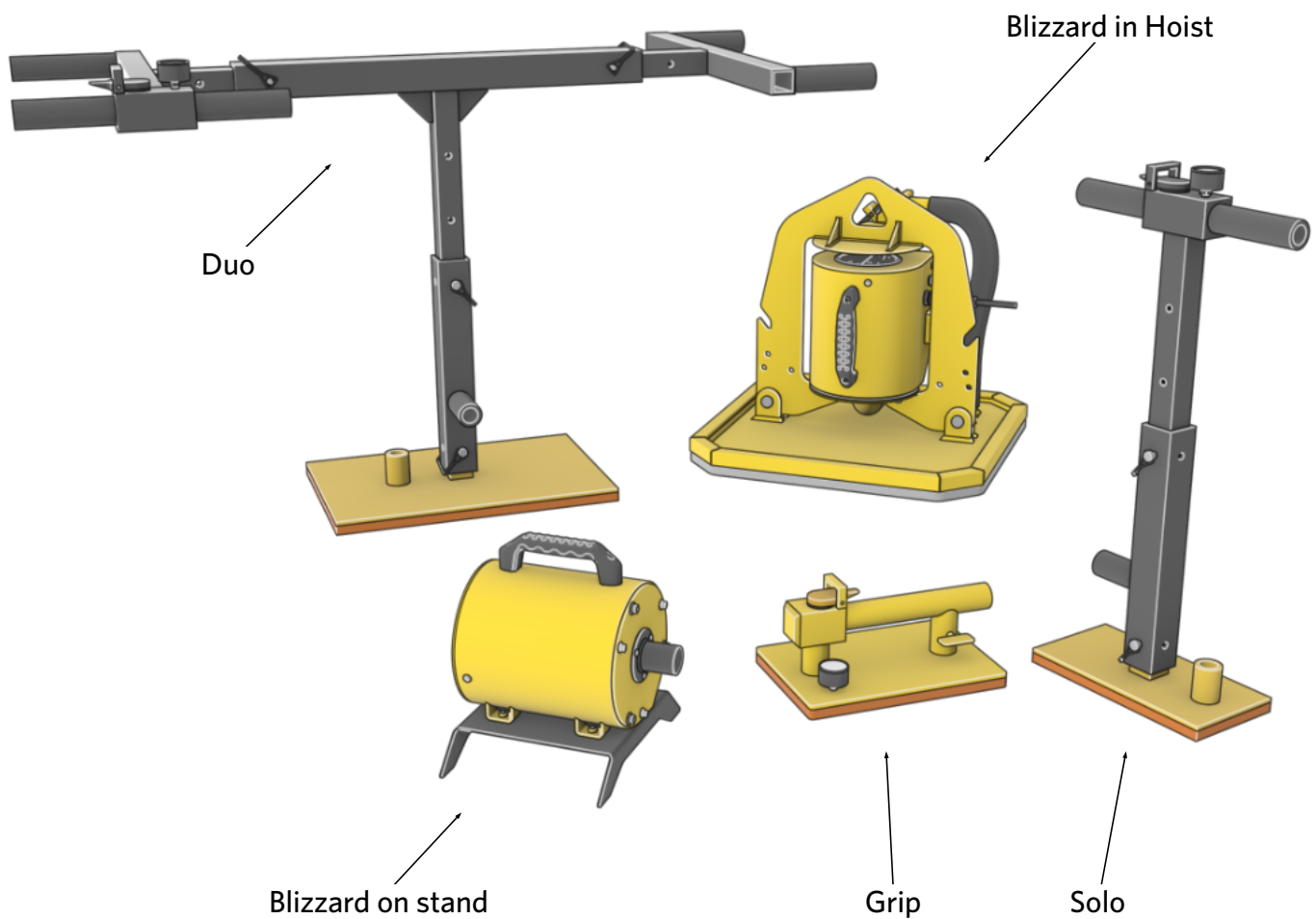
The Hoist is a two person or machine capable lifting frame for picking and placing pavers, slabs, and steps up to 240 lb (108 kg) if handled manually or 970 lb (440 kg) if handled by machine, depending on the attached vacuum pad.

The Blizzard consists of a vacuum turbine in a modular enclosure. It is powered by a standard 120V electrical outlet, whether via line voltage or generator. The Blizzard can be mounted to the Duo and Hoist to provide powerful, mobile lifting platforms. It can also be mounted to a stand and connected via a vacuum hose to the Grip and Solo for a lightweight, single-user lifting solution.

The Backvac is an alternate power source, combining a vacuum turbine and reservoir worn on the user's back. The attached vacuum hose can be connected to a Solo, Duo, or Grip.

This document will outline how to safely use, maintain, and troubleshoot the Chinook system. Before operating the lifters, ensure that you and any other users have thoroughly read and understood this manual and its safety instructions.

If any part of this manual is unclear, or there is an issue with the lifting unit, please contact our support staff at (905) 315 1955.



3. Assembly & Operating Instructions

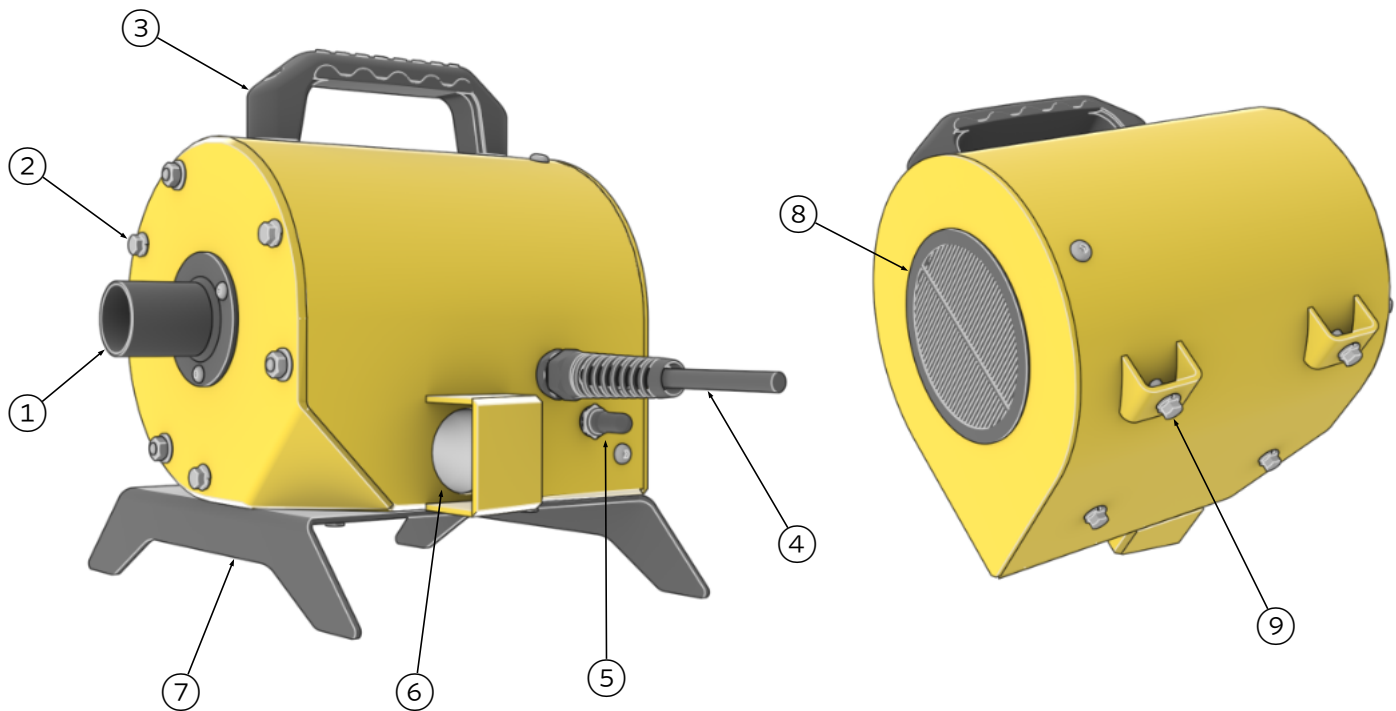
3.1. Blizzard

The Blizzard provides the vacuum power required by the other attachments and lifting frames. It can be mounted to the Duo and Hoist, or set on a stand and connected to the Solo and Grip with a vacuum hose. This section will describe use of the Blizzard in general, and later sections will describe its use with each lifting frame.

To mount the Blizzard to its stand (7), use the included bottom mounting bolts (9).

Ensure that the air inlet (1), air exhaust (6), and cooling air inlet (8) are not blocked during use.

Note that the three hex bolt heads marked (2) are for mounting. The other three bolt ends on the front face are used to mount the turbine internally, and should not be removed.



- | | |
|---|------------------------------|
| 1. Air inlet flange (vacuum connection) | 6. Air exhaust |
| 2. Face mounting bolts (3) | 7. Stand |
| 3. Carry handle | 8. Cooling air inlet |
| 4. Power cable with strain relief | 9. Bottom mounting bolts (4) |
| 5. Power switch | |

3.2. Backvac

The Backvac is an alternative to the Blizzard. It is worn on the user's back and features a reservoir which catches dirt and debris collected by the vacuum pads. Connect a vacuum hose from the top inlet of the Backvac to a Solo, Duo, or Grip for a mobile lifting solution.

When using the Backvac, tighten the straps so that it is not at risk of sliding while you are walking, bending, and lifting the load. The Backvac power switch is located on the lower left panel when it is being worn. Once plugged in and turned on, the turbine will run continuously.

Read and follow the user manual for the Backvac before use.

NOTICE

The Backvac is being phased out in favour of the Blizzard as of 2022.



WARNING

The Blizzard and the Backvac are powered by 120V AC line voltage, either through a common receptacle or a generator. There is a serious risk of electric shock with improper use! Before each use, check for worn or cut electrical cords. Do not use the system in wet conditions, including rain. Always use a GFCI protected circuit rated for 15A.

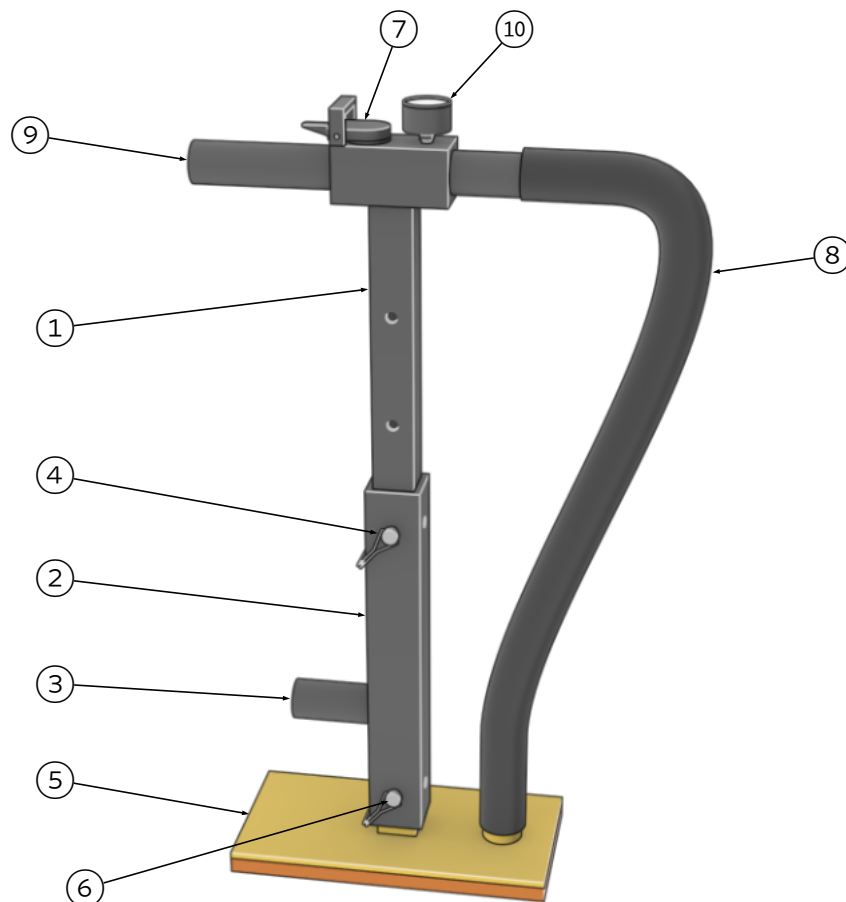
WARNING

The Blizzard and the Backvac turbines provide the high airflow required to lift porous loads by running continuously. If the power cord is unplugged or the power switch is turned off, the load will immediately be released! Manage the power cord in use so that it does not become accidentally unplugged. Guard the power switch so that it is not accidentally turned off. Use an extension cord rated for 15A. Do not use more than one extension cord.

3.3. Solo

Assembly

1. To assemble the Solo, slide the upper handle ① into the lower post ② so that the handhold ③ on the lower post is towards the ground. Adjust the height as needed and secure by inserting a pin ④.
2. Choose an appropriate pad ⑤ based on the size and weight of the load to be lifted. See Section 7 for pad sizes and capacities. Place the Solo frame over the pad connection point and secure with a pin ⑥.
3. Ensure that all pin cages are in place, preventing them from falling out.
4. The Solo's handle doubles as a passage for the vacuum air, so that the control flap ⑦ can be used to release the load. Connect a vacuum hose ⑧ from one side of the Solo handle to the pad. The elbow fitting should be attached to the handle.
5. Mount the Blizzard to a stand using the 4 included bolts. Plug the Blizzard into an electrical outlet and take care to route the cable so it will not be tripped over or accidentally unplugged.
6. Connect a vacuum hose from the Blizzard to the open end of the handle ⑨. Ensure the hose is long enough that motion is not restricted.



Operation

1. Once the Blizzard is safely positioned and plugged in, turn the power switch on. Once plugged in and turned on, the turbine will run continuously. The Solo's control flap will pull shut in use.
2. Press down on the control flap tab ⑦ with your thumb to open the vent and release the load, allowing you to lift the Solo.
3. Place the pad onto the load to be lifted and release the control flap. If the surface is suitable, the vacuum will pull the Solo down onto the load and compress the seal. The reading on the pressure gauge ⑩ must maintain at least -20 kPa (-6 inHg) to achieve the rated capacity of the pad.
4. You can now lift and place the load. Once the load is properly positioned, press down on the control flap tab to release it. The handhold ③ can be used to lift loads higher more comfortably or accurately guide loads into place.

 WARNING

The load must be centered and balanced to prevent bending of the lifting frame. Do not exceed the rated capacity of any part of the lifter or the comfort level of the person lifting.

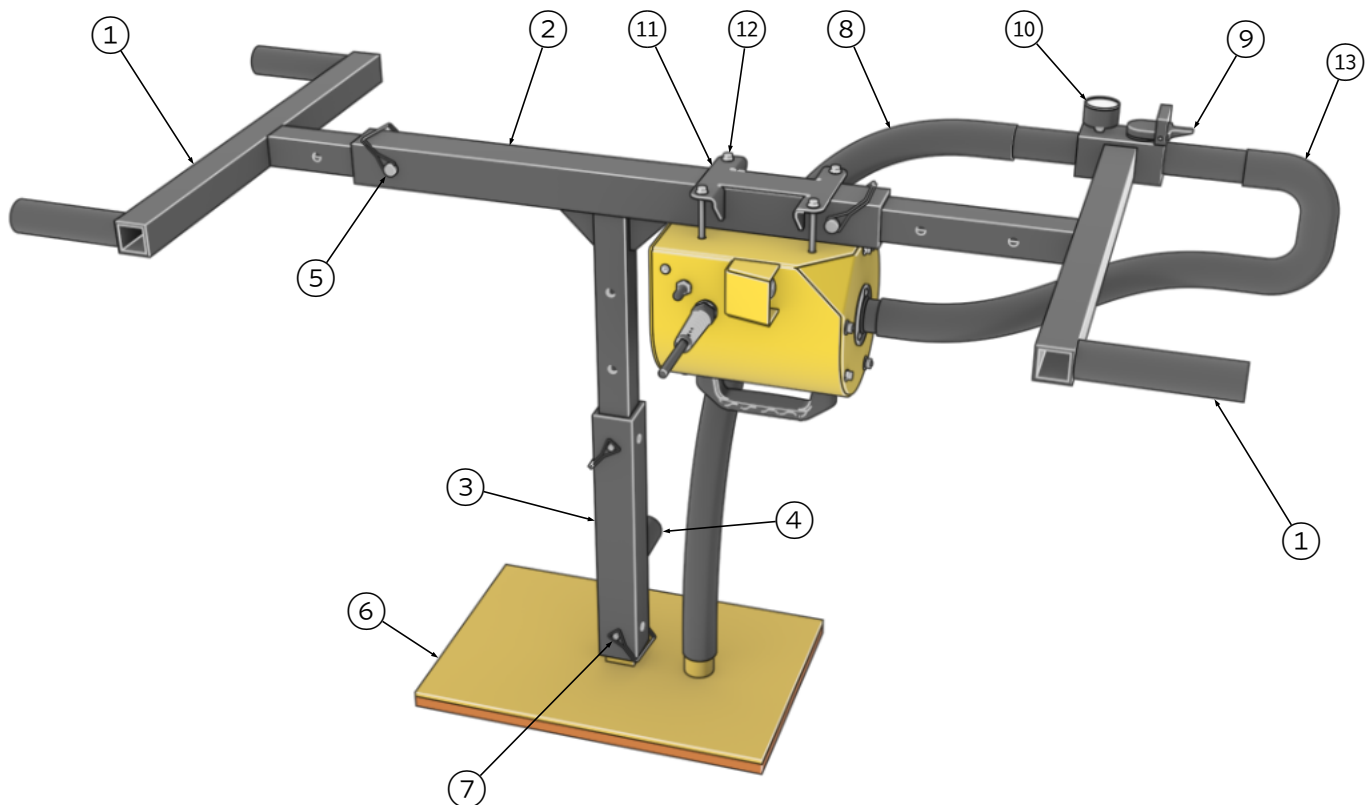
 WARNING

Prolonged periods of lifting or holding suction can starve the vacuum of cooling air and cause it to overheat. The maximum duration of each lift must be no more than 3 minutes. In addition, allow a cool down period of at least half the lift time - for example, after a 3 minute lift, leave the vacuum running without suction or blockage for 1.5 minutes.

3.4. Duo

Assembly

1. To assemble the Duo, slide the two handle yokes ① horizontally into the central T ②, and slide the lower post ③ onto the bottom of the central T. The handhold ④ on the lower post should be toward the ground.
2. Adjust the height and spread of the handles as needed and secure with 3 pins ⑤.
3. Choose an appropriate pad ⑥ based on the size and weight of the load to be lifted. See Section 7 for pad sizes and capacities. Place the Duo frame over the pad connection point and secure with a pin ⑦.
4. Ensure that all pin cages are in place, preventing them from falling out.
5. One of the Duo's handles doubles as a passage for the vacuum air, so that the control flap can be used to release the load. Connect a vacuum hose ⑧ from one side of the Duo handle to the pad.
6. The Blizzard can be mounted to the underside of the central T ②, or placed on a stand nearby. To mount the Blizzard to the Duo, remove the 4 short bottom bolts from the Blizzard. Position the Blizzard as shown and secure to the Duo mount plate ⑪ with 4 long mounting bolts ⑫. Ensure the Blizzard's power cable is routed safely, with enough slack to allow unrestricted movement.
7. Connect a vacuum hose ⑬ from the other side of the Duo handle to the Blizzard. If the Blizzard is on its stand on the ground, ensure that the hose is long enough to move the Duo around as planned.



⚠ CAUTION

Mounting the Blizzard to the Duo may result in tipping over when using smaller pads. In this case, carefully lay the Duo on its side when not in use, or mount the Blizzard on its stand and run a vacuum hose of sufficient length to the Duo.

Operation

1. Once the Blizzard is safely positioned and plugged in, turn the power switch on. Once plugged in and turned on, the turbine will run continuously. The Duo's control flap will pull shut in use.
2. Press down on the control flap tab ⑨ with your thumb to open the vent and release the load, allowing you to lift the Duo.
3. Place the pad onto the load to be lifted and release the control flap. If the surface is suitable, the vacuum will pull the Duo down onto the load and compress the seal. The reading on the pressure gauge ⑩ must maintain at least -20 kPa (-6 inHg) to achieve the rated capacity of the pad.
4. You can now lift and place the load. Once the load is properly positioned, press down on the control flap tab to release it. The handhold ④ can be used to accurately guide loads into place.

⚠ WARNING

Always lift with 2 people. The load must be centered and balanced to prevent bending of the lifting frame. Do not exceed the rated capacity of any part of the lifter or the comfort level of the people lifting.

⚠ WARNING

Prolonged periods of lifting or holding suction can starve the vacuum of cooling air and cause it to overheat. The maximum duration of each lift must be no more than 3 minutes. In addition, allow a cool down period of at least half the lift time - for example, after a 3 minute lift, leave the vacuum running without suction or blockage for 1.5 minutes.

3.5. Grip

Assembly

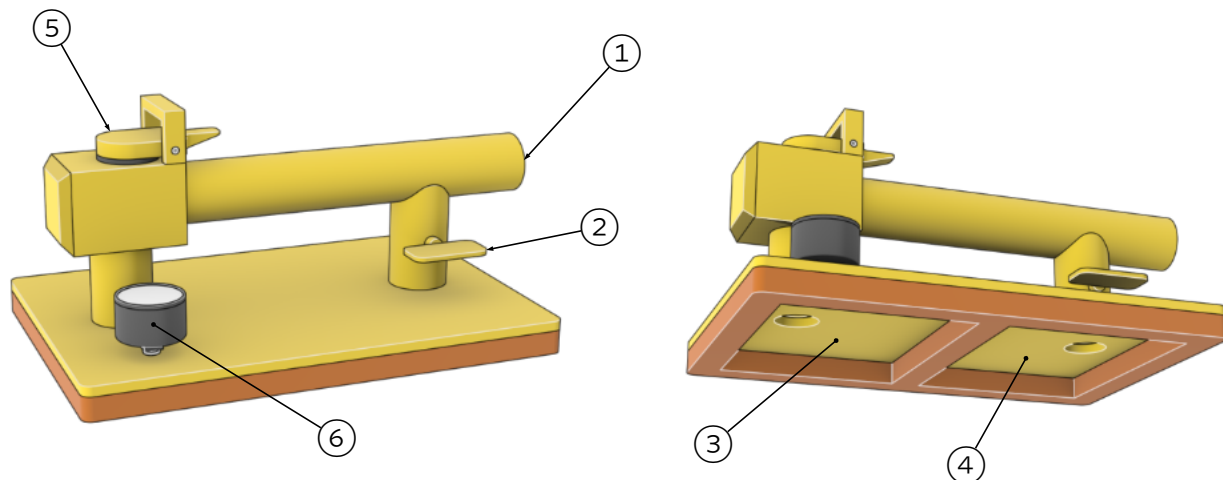
1. The Grip is designed for one handed operation by one person. It is powered by the Blizzard, which can be placed on its stand nearby. Ensure that the Blizzard power cable is routed so that it will not be tripped over or pulled on during use.
2. Connect a vacuum hose from the Blizzard to the open tube ① on the Grip.


Operation


1. The Grip features a dual zone pad. When using both zones, the Grip can pick and place pavers which cover the entire pad surface. When using one zone, the Grip can pick and place small pavers or bricks which only cover the front half of the pad surface.

To use both zones, turn the valve handle ② so that it is vertical. The interior disk will be positioned vertically, allowing vacuum to reach the rear zone.

2. To use only the front zone ③, turn the valve handle so that it is horizontal. The interior disk will be positioned horizontally, blocking the vacuum air from reaching the rear zone ④.
3. Once the Blizzard is safely positioned and plugged in, turn the power switch on. Once plugged in and turned on, the turbine will run continuously. The Grip's control flap ⑤ will pull shut in use.
4. Press down on the control flap tab ⑤ with your thumb to open the vent and release the load, allowing you to lift the Grip.
5. Place the pad onto the load to be lifted and release the control flap. If the surface is suitable, the vacuum will pull the Grip down onto the load and compress the seal. The reading on the pressure gauge ⑥ must maintain at least -20 kPa (-6 inHg) to achieve the rated capacity of the Grip (see Section 7).
6. You can now lift and place the load. Once the load is properly positioned, press down on the control flap tab to release it.



 **WARNING** The Grip is designed for handheld lifting - never lift by machine. The load must be centered and balanced to prevent possible injury. Do not exceed the rated capacity of the Grip or the comfort level of the person lifting.

 **WARNING** Prolonged periods of lifting or holding suction can starve the vacuum of cooling air and cause it to overheat. The maximum duration of each lift must be no more than 3 minutes. In addition, allow a cool down period of at least half the lift time - for example, after a 3 minute lift, leave the vacuum running without suction or blockage for 1.5 minutes.

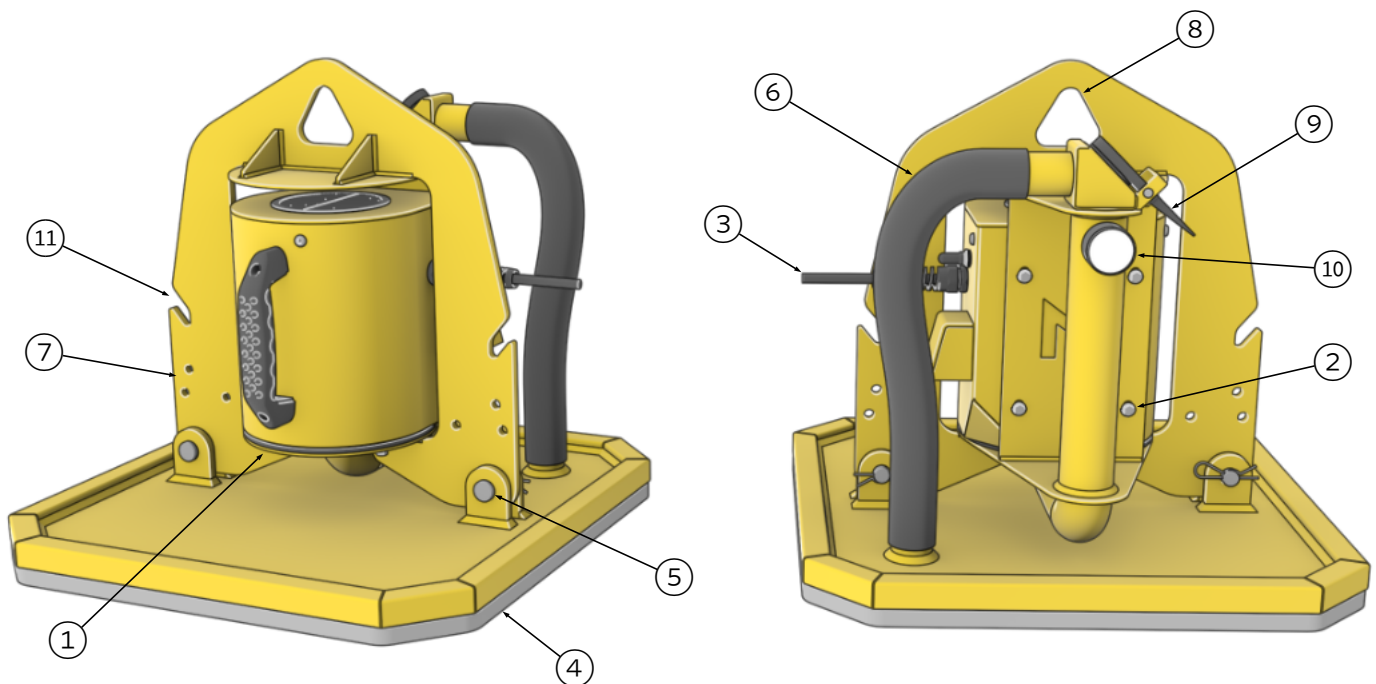
3.6. Hoist

Assembly

1. Remove the black vacuum connection flange from the Blizzard by unscrewing the 3 small screws. Unscrew the 3 face bolts and the 4 bottom bolts from the Blizzard.
2. Place the Blizzard in the Hoist frame as shown by first guiding the power cord ③ behind the Hoist's main plate and out the right rear side. Rotate the Blizzard into place.
3. Secure the Blizzard with 2 face bolts ① on the underside of the Hoist, and all 4 bolts ② at the rear of the Hoist.
4. The electrical cord ③ should be unraveled and plugged into an appropriate power source, where it is positioned not to interfere with the movement of the Hoist in use. Ensure that the cord is long enough to reach the Hoist throughout the lift.

⚠ WARNING Accidental unplugging of the electrical cord will cause instant loss of power and will drop the load! Careful, slow movements and constant management of the electrical cord along with the suspended material is critical. Always lift low to the ground and never place any part of your body under the load.

5. Choose an appropriate pad ④ based on the size and weight of the load to be lifted. See Section 7 for pad sizes and capacities. Place the Hoist frame over the pad and secure with 2 pins ⑤ and cotter pins.
6. Connect a vacuum hose ⑥ from the Hoist inlet to the pad as shown.



- If lifting manually, connect handles to the handle connection points ⑦ using 2 pins per handle. The angle of the handles can be adjusted by using one of the two outer holes. If lifting by machine, use the lift point ⑧.

Operation

- Once the Blizzard is safely positioned and plugged in, turn the power switch on. Once plugged in and turned on, the turbine will run continuously. The Hoist's control flap will pull shut in use.
- Press down on the control flap tab ⑨ to open the vent and release the load, allowing you to lift the Hoist.
- Place the pad onto the load to be lifted and release the control flap. If the surface is suitable, the vacuum will pull the Hoist down onto the load and compress the seal. The reading on the pressure gauge ⑩ must maintain at least -20 kPa (-6 inHg) to achieve the rated capacity of the pad.
- Use the chain slots ⑪ to secure the load by passing chain underneath the load and through the slots on both sides. The chain slots are designed for up to 9/32" trade size chain. Ensure the chosen chain is rated for the load being lifted and the angle of the chain in use.
- You can now lift and place the load. The handles can be used to guide and position the load. The lift point ⑧ may be used for connection to other lifting equipment. Ensure all lifting equipment is properly rated for the load to be handled plus the weight of the Hoist, Blizzard, and vacuum pad.
- Once the load is properly positioned, press down on the control flap tab to release it.

WARNING

The load must be centered and balanced to prevent bending of the lifting frame. Do not exceed the rated capacity of the lifter, the pad, or supporting equipment.

WARNING

Prolonged periods of lifting or holding suction can starve the vacuum of cooling air and cause it to overheat. The maximum duration of each lift must be no more than 3 minutes. In addition, allow a cool down period of at least half the lift time - for example, after a 3 minute lift, leave the vacuum running without suction or blockage for 1.5 minutes.

WARNING

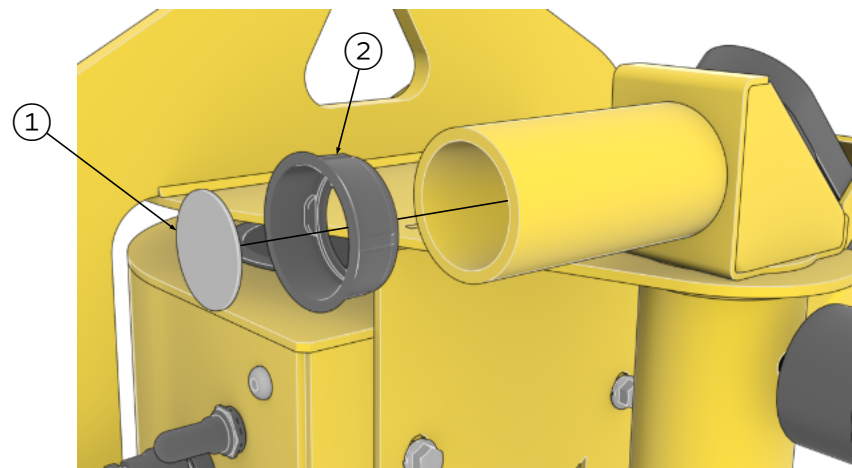
If a hose comes loose or is blocked during a lift, either on the Hoist or with the control handle, vacuum will be lost and the load will be dropped. Check that the hoses are secure before each lift and manage them during each lift to ensure they are not pulled or kinked.

Filter

A filter screen ① and filter cup ② inside the Hoist air inlet block large particles from entering the turbine.

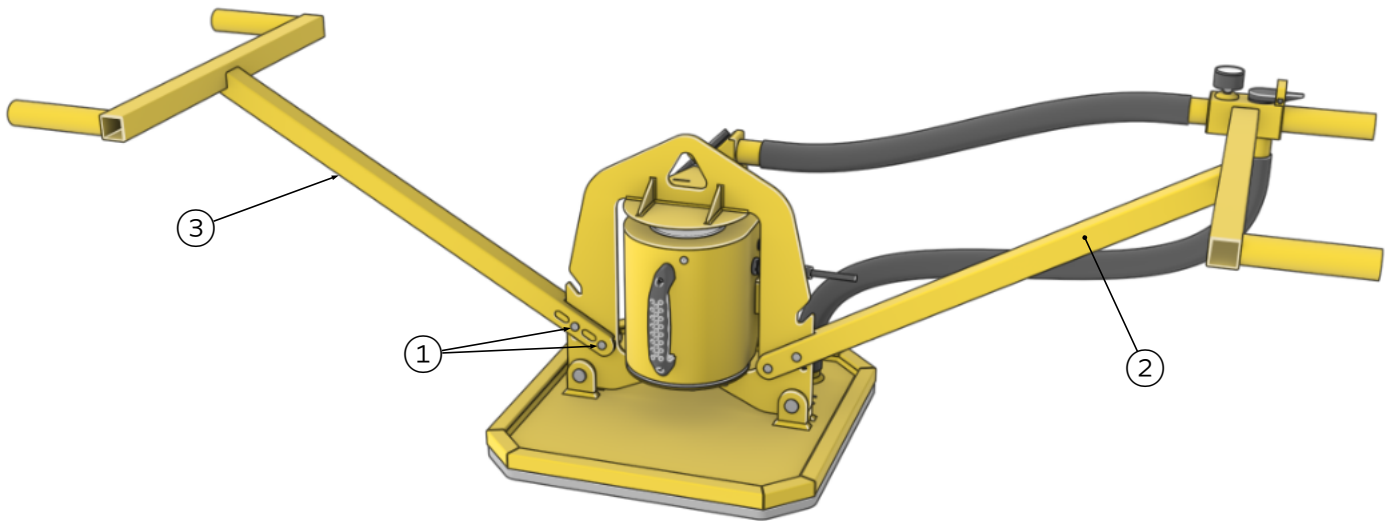
Each day before lifting, remove the vacuum hose and inspect the filter. Blow out the filter with compressed air to clean.

The filter screen snaps into the bottom of the filter cup. The filter cup is then pressed into the air inlet tube.

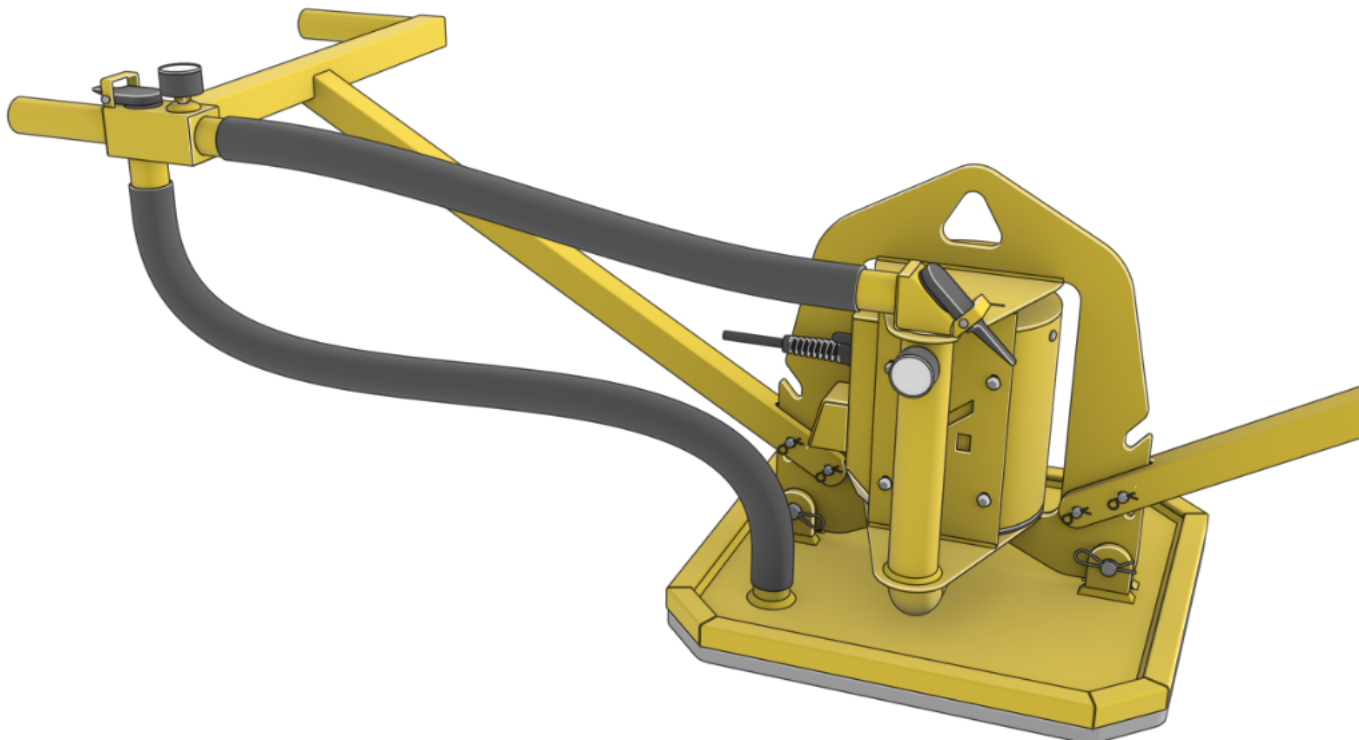


Handles

A handle set is available to allow manual lifting with the Hoist frame. Two handles can be used, one on each side of the Hoist, to lift loads manually. Or, one may be used to guide loads lifted by other equipment. To install the handles, place the handle yoke around the Hoist body and insert 2 clevis pins ① through the holes as shown. Secure with cotter pins. The handles can be installed 30° inclined for lifting as shown, or 0° inclined for guiding.



A control handle ② and non-control handle ③ are available. To use the control handle, route two hoses as shown below. The control flap and gauge can be used either on the control handle or on the Hoist. Manage the hoses during lifts to ensure they do not come loose, which will result in dropping the load.



4. Inspection



WARNING

For safe operation of the lifter, it is critical that these inspections are performed. Conduct inspections at the following intervals:

Each lift

- Visually inspect the lifter for damage to the lifting frame, pad, or Blizzard.
- Check that the vacuum seal is not compromised.
- Ensure that the gauge is fully operational.
- Ensure that the turbine sounds strong and maintains vacuum on the material to be lifted.

Daily checks

- Examine the lifter, all pads, and connection points for any evidence of looseness, excessive wear, deformation, cracks, corrosion, dents to structure, or damage to functional components which may have occurred during use or transport.
- Check for damage to the vacuum hose. If found, contact MQUIP Group for repair or replacement.
- Before the first lift, test the lifter on the ground with the material to be used and ensure a proper seal is made and a safe level of vacuum is produced.
- With Blizzard unplugged, inspect the vacuum air inlet and clean out any debris. The inlet flange may be removed for easy cleaning.

Annual checks

If the lifter is not used for over a year, these checks should be conducted by a certified technician. Contact MQUIP Group for details.

- Check wear on all lift points. If significant wear, or any bending or damage is found, the unit should be replaced.
- Visually inspect the vacuum pads and seals for cracks, corrosion, degradation, and excessive wear.
- Vacuum test the unit and ensure it maintains a proper working vacuum level.
- Conduct a load test by suspending a load low to the ground and check for any other issues.

5. Travel & storage

If transported in a vehicle, properly tie down the Chinook system components. Each lifting frame can be disassembled for easy storage. If the lifter or pads will not be used for a long period, store in a dry, temperature-controlled area. Perform the inspection checks above before returning to use.

6. Warranty

The Chinook system is covered by a 1 year limited warranty on workmanship and quality. Items not covered by the warranty include consumables such as the vacuum pad seals, and any damage caused by the neglectful or

improper use of the vacuum lifter.

The warranty will be voided if the product is not operated, serviced, and inspected according to this manual. Repairs under warranty may only be carried out by qualified personnel after consulting MQUIP Group. Any modifications to the product or the use of non-original parts will void the warranty.

7. Product & order information

MQUIP Chinook - 120V AC powered vacuum lifter

Standards: ASME B30.20 using ULC/CSA approved components.

Harmonized code: 8428.90

Made in Canada with domestic and imported parts.

Information	Value
Model	Chinook System
Serial number	
Blizzard serial number	
Date of construction	

Component information

Component	Maximum lifting capacity at -20 kPa		Self weight		Included
	kg	lb	kg	lb	
Solo	45	100	3.6	8	
Duo	108	240	8.2	18	
Grip	36*	80*	2.3	5	
Hoist	440	970	11.3	25	
Blizzard	-	-	5.4	12	

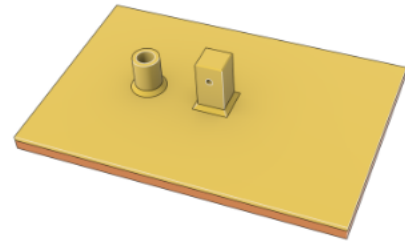
*Grip lifting capacity is for dual zone mode. Single zone use restricted to 40 lb (18 kg).

⚠ WARNING Each lifting frame and vacuum pad has a rated maximum lift capacity. When attaching vacuum pads to frames, the lifting capacity of the system is the lowest of any attached component. For example, when using the Solo lifting frame with the 10.5 x 9.5 pad, the lifting capacity is 100 lb, taking the lower capacity of the Solo as shown in Section 7. It is critical that all users are aware of the weight of the loads that are to be handled, the need for effective vacuum sealing, and the rated vacuum pad and lifting frame capacity to ensure safe operation of the Chinook vacuum lift system.

See vacuum pad capacities on the next page.

Vacuum pads - Solo/Duo

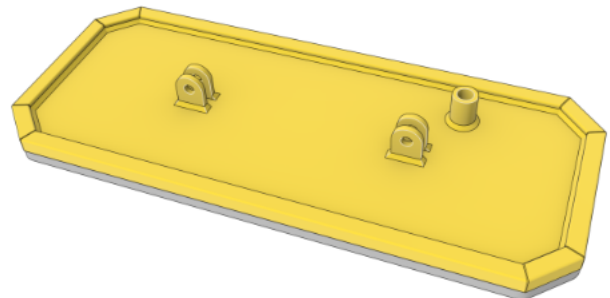
Vacuum pads for the Solo and Duo have a central post and are secured with a pin.



Vacuum pad	Size		Lifting capacity at -20 kPa		Self weight		Included
	cm	in	kg	lb	kg	lb	
12 x 6	30.5 x 15	12 x 6	29	65	1.2	2.7	
10.5 x 9.5	27 x 24	10.5 x 9.5	50	110	1.5	3.4	
18 x 12	46 x 30.5	18 x 12	108	240	2.8	6.2	
20 x 20	51 x 51	20 x 20	200	440	9.3	20.5	
34 x 13	86 x 33	34 x 13	227	500	10.2	22.5	

Vacuum pads - Hoist

Vacuum pads for the Hoist have 2 sets of connection lugs and are secured with 2 pins.



Vacuum pad	Size		Lifting capacity at -20 kPa		Self weight		Included
	cm	in	kg	lb	kg	lb	
18 x 12	45.7 x 30.5	18 x 12	111	245	2.7	6	
20 x 20	50.8 x 50.8	20 x 20	208	460	5.9	13	
34 x 14	86.4 x 35.6	34 x 14	245	540	7	15.3	
28 x 28	71.1 x 71.1	28 x 28	440	970	10.9	24	

8. Document revisions

Revision	Date	Description
1	July 26, 2021	Initial publication.
2	March 3, 2022	Addition of Blizzard and Hoist products.
3	June 22, 2022	Addition of Hoist handles.
4	August 11, 2022	Addition of Hoist filter.

9. Notes

