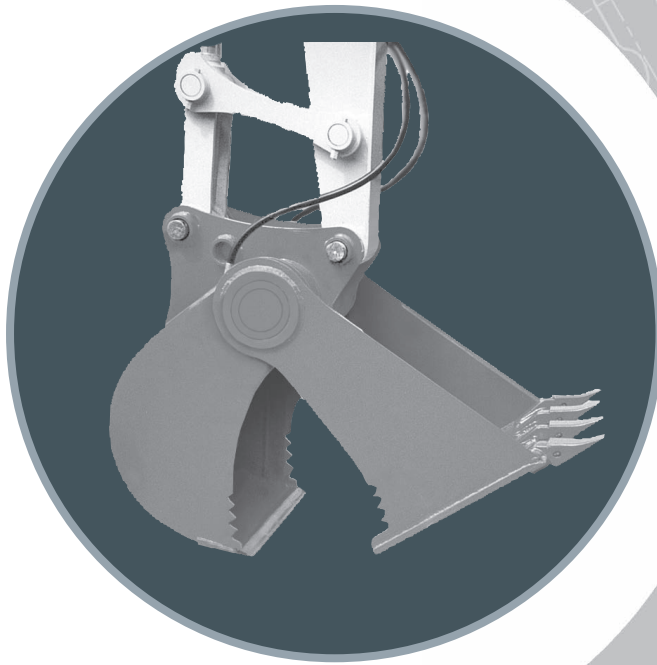


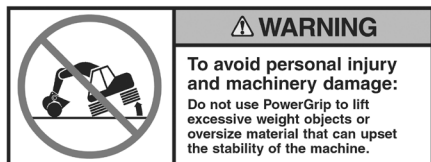
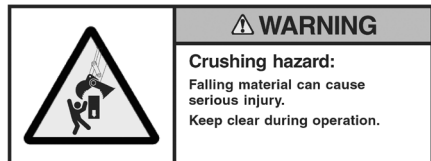
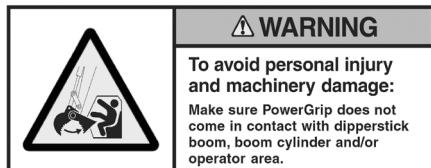
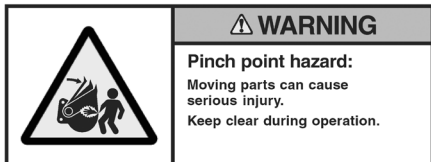
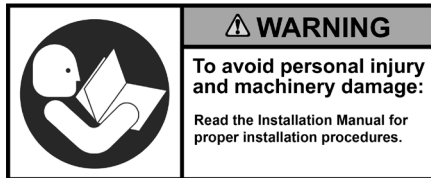
## **POWERGRIP®** Installation Guide



# General Safety Guidelines

## Cautionary Notices

Before beginning installation of the PowerGrip®, there are several cautionary notices that should be considered. If you are not comfortable with installation or maintenance of this product, contact your local dealer or Helac Corporation's Customer Service Department for assistance.



## Other Safety Guidelines and Precautions

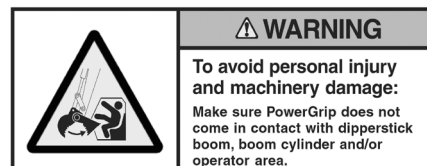
1. PowerGrip should only be used to perform tasks for which it was designed. Abusing the product and/or using it for purposes for which it was not intended can expose the operator and others to hazards as well as result in damage to the PowerGrip, carrier and/or other attachments.
2. The operation of the PowerGrip Bucket is similar to the operation of OEM buckets in trenching and material handling applications. However, the PowerGrip Bucket has the added ability to grip, hold and lift materials in a pick and place capability. This attachment is not designed for long term holding of materials.

Refer to the carrier manufacturer's instructions regarding safe material handling practices.

The bucket jaw should only be opened when needed for specific tasks. Failure to close the jaw can result in damage to the dipper arm.

3. Modification to the PowerGrip is done at the owner's risk and may void the Helac Corporation, Attachments Division warranty.
4. It is the owner's responsibility to be sure all safety equipment is in place and operating properly at all times. If safety decals fade, are damaged or become unreadable from a distance of 10 feet, they should be replaced immediately.

Be sure to post the warning decal provided by Helac Corporation to the cab of the carrier machine.



5. PowerGrip should be used in conjunction with attachments that do not adversely affect the stability of the machine.

# Installation and Mounting

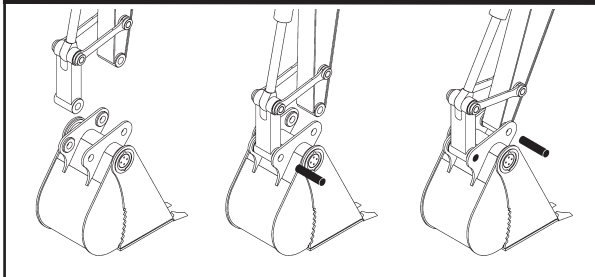
Each PowerGrip is engineered for a specific backhoe or excavator and is designed to be pin mounted directly to the machine. When using Universal or Hydraulic Quick Couplers, contact the respective coupler manufacturer for instructions and maintenance requirements.

## Installing the PowerGrip Bucket onto the Carrier

All PowerGrip models should be mounted to the carrier according to the instructions outlined below.

1. Position the PowerGrip close to the carrier boom to ensure easy use of the lifting reach and range of the carrier boom.
2. Lower the dipper to approximately 2-3 inches (50-75 mm) above the PowerGrip. Roll out the bucket cylinder to lower the link bars to the PowerGrip.
3. Align the PowerGrip and link bar holes and install the link pin.
4. Slowly lift the PowerGrip to a safe height with the bucket and boom cylinders.
5. Curl the bucket cylinder until the PowerGrip and dipper holes align and install the bucket pivot pin. Rotate the pins as necessary and install the required retainers.

## PowerGrip Installation



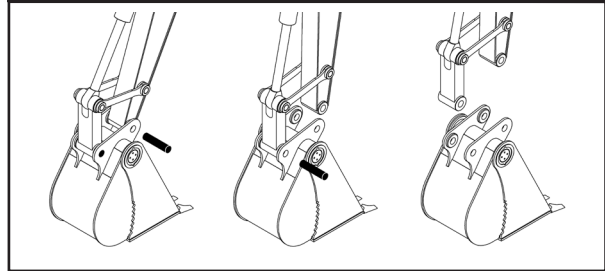
6. Safety check. Check that the Helac Attachment is fitting correctly by maneuvering it with the machine and at the same time watching for any interference or resistance to movement that may exist. If there is any sign of problems with the smooth functioning of the PowerGrip, DO NOT attempt to carry out any modifications to it, or the host machine. Instead contact Helac's Customer Service Department who will advise as necessary.

## Removing the PowerGrip Bucket from the Carrier

To remove the PowerGrip bucket follow the instructions outlined below.

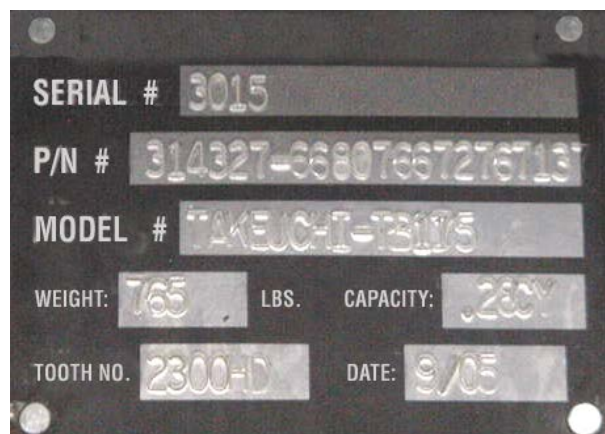
1. Position the bucket so it is lightly supported by the ground and in a position so it will not move or fall when a pin is removed.
2. Remove the bucket pivot and link pins.

## PowerGrip Removal



## Serial Number Location

A unique serial number is located on each PowerGrip. This serial number is stamped on one end of the actuator and is also located on an Identification (ID) Tag. It may be necessary to remove paint to expose the serial number.



# Hydraulic Requirements and Plumbing

## Important Notice

Helac Corporation does not assume any responsibility beyond the design and performance of its construction equipment attachment products. The customer is solely responsible for engineering of mating structures, fasteners, and other associated components related to the installation of the product and its ultimate application.

## Hydraulic Requirements

The Typical PowerGrip Circuit Chart and the Tool Circuit Requirements Table (shown on this page) illustrate the control circuit requirements for the PowerGrip. The hydraulic pressures and flow requirements must be observed or damage to the actuator can occur.

The installer of the PowerGrip is responsible for selecting control circuits that are compatible with the excavator and meet the tool circuit requirements. Helac can be contacted for additional control circuits and methods for controlling the PowerGrip.

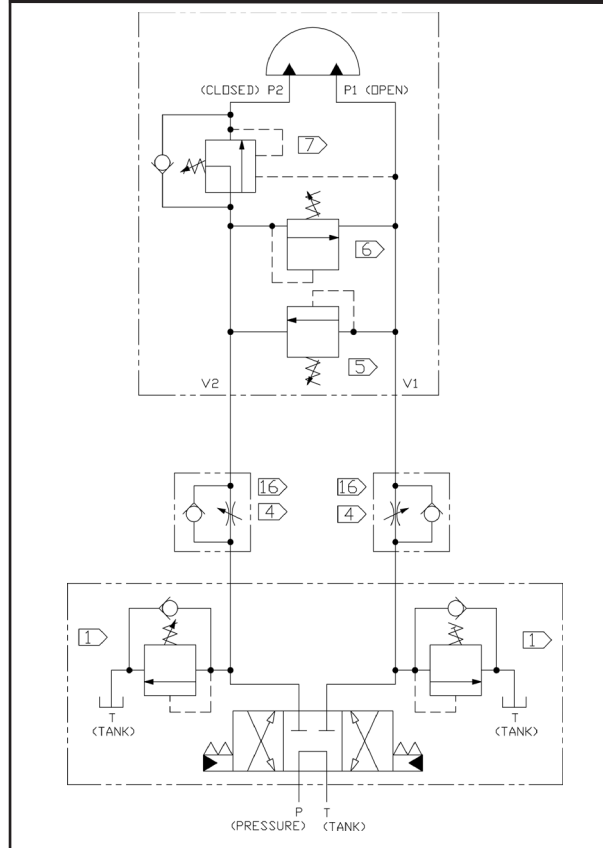
### NOTICE

PowerGrips are equipped with a standard pressure control/load lock manifold welded to the bucket shell. Refer to the Suggested Hose Routings Diagram on Page 6 for the recommended routings.

## Hydraulic Kits

Helac can provide the necessary hydraulic kit to operate the PowerGrip. Please contact Helac sales for further information and pricing.

## Typical PowerGrip Circuit



## Tool Circuit Requirements

Model Sizes		PG06	PG07	PG08
Displacement	in <sup>3</sup>	84.8	118.5	211
	(cm <sup>3</sup> )	(1,390)	(1,942)	(3,458)
Required Oil Flow	gpm	2-7	3-10	5-18
	(liters/minute)	(8-28)	(12-39)	(21-70)
Port Connections*	SAE	6	6	6
	BSPP	(1/4)	(1/4)	(1/4)
Hydraulic Circuit Min. Hose Tube Size	in	1/2	5/8	5/8
	(mm)	(12)	(16)	(16)
Whip Hose Size	in	3/8	3/8	3/8
	(mm)	(10)	(10)	(10)
Hydraulic Pressures				
Cross Port Relief Valve Pressure (opening)		1,000-1,500 psi		(70-103 bar)
Cross Port Relief Valve Pressure (closing)		3,200-3,300 psi		(220-230 bar)
Circuit Pressure		3,650-3,750 psi		(250-260 bar)
Maximum Circuit Back Pressure		580 psi		(40 bar)

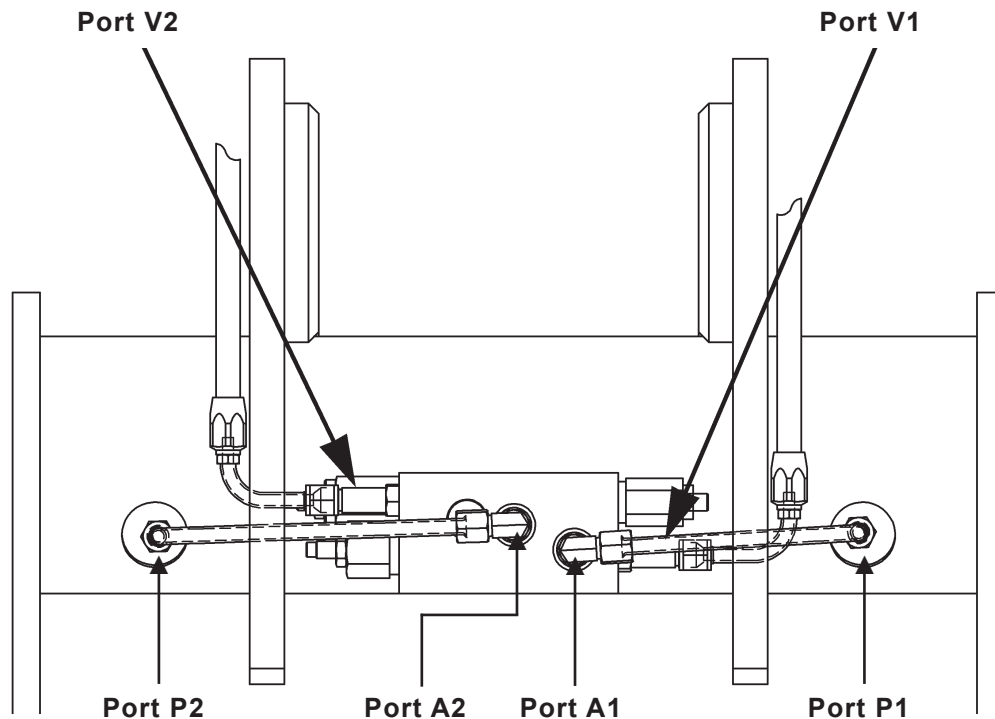
\* 3-10 second open/close time

# Hydraulic Requirements and Plumbing

## Installing and Removing Hydraulic Lines

The manifold incorporates two ports for hydraulic hose connections, Port V1 and Port V2. When pressure is applied to Port V1 the jaw opens; when pressure is applied to Port V2 the jaw closes.

After installing the PowerGrip onto the equipment and attaching the hydraulic lines, it is important that all safety devices are properly reattached.



## Plumbing

Hose and tube size recommendations can be found in the Tool Circuit Requirements Chart shown on Page 4.

The position of the hoses is important for reliable operation. Refer to the Suggested Hose Routings Chart on Page 6 for suggested hose routings.

Connect hydraulic hoses to the appropriate ports. Be sure the hoses do not cross, foul, crush or chafe when operating the PowerGrip or machine. Verify proper hose routing for all possible positions of the PowerGrip and all attachments, which are to be used with the PowerGrip. Repair any oil leaks immediately.

### NOTICE

When installing a new tool circuit or hydraulic lines, flush all the tool circuit lines with hydraulic oil prior to connecting the PowerGrip. This will help remove any contaminants from the circuit components which may have accumulated during manufacturing and/or installation.



# Hydraulic Requirements and Plumbing

## Suggested Hose Routings



# Maintenance

## Daily

1. Grease the PowerGrip at the two grease fittings with a high quality Lithium-based grease. Apply grease until clean grease flows from the grease reliefs. Severe operating conditions such as abrasive dust or prolonged submersion in water may require more frequent grease applications.
  2. Make sure the grease reliefs are functioning properly. Open or replace non-functioning grease reliefs immediately.
- NOTICE** Never replace the grease relief valves with grease fittings or plugs.
- NOTICE** Do not operate the PowerGrip if the grease reliefs are not functioning.
3. Inspect the PowerGrip for loose, worn or damaged components and replace or repair immediately.
  4. Mounting pins should be greased upon installation and thereafter according to the equipment manufacturer's instructions.

## Important Notice

Refer to the PowerGrip Service & Repair Manual regarding any product repairs or adjustments. To view or print a PowerGrip Service & Repair Manual go to [www.helac.com](http://www.helac.com).

## Helac Customer Service

To contact our Service Department call:

+1 800 797 8458 (U.S. and Canada) or  
+1 360 802 1039 (Worldwide) from 7 a.m. to  
4 p.m. PST on weekdays (excluding holidays)  
or visit us on the web at [www.helac.com](http://www.helac.com)

## Technical Support

To contact Technical Support e-mail us at  
[TechSupport@Helac.com](mailto:TechSupport@Helac.com)

## Parts Support

To contact a parts representative e-mail us at  
[Parts@Helac.com](mailto:Parts@Helac.com)

## Service & Repair Support

To contact a service and repair representative  
e-mail us at [Repairs@Helac.com](mailto:Repairs@Helac.com)

# Warranty Information

Helac Corporation warrants its products to be free from defects in material and factory workmanship for a period of two (2) years or 2,000 service hours, whichever occurs first, for applications defined as medium duty, on the machine for which the Helac Attachment (PowerTilt® or PowerGrip®) was originally designed and with cross port or work port relief valves installed according to Helac Corporation's recommendations. The warranty period shall begin when the Helac Attachment is first placed into service as documented on the Warranty Registration Card. Parts and labor will be covered for the first 12 months or 1000 service hours after the start of the warranty period. Parts only will be covered for the remainder of the warranty period.

This warranty shall be voided as to any products which have been repaired, worked upon, or altered by persons not authorized by Helac Corporation, or which have been subject to misuse, misapplication, negligence, accident, overload, field alteration, severe use or service applications beyond what the Helac Attachment was designed to perform. In no event shall Helac Corporation be liable for any incidental or consequential damages or claims including, but not limited to, the application in which the product was placed, field travel, freight charges, oil samples, downtime, etc. Warranty related repair and/or replacement issues will be satisfied according to how the product was originally purchased:

## Sales Through Equipment Dealers

This warranty covers labor at predetermined, fixed flat rates and repair or replacement of products or parts, which under normal use and service disclose defective material and factory workmanship. Claims under this warranty will be satisfied only by repair or replacement of the unit or any defective part thereof. Products under warranty shall be returned to a factory authorized dealership location, transportation prepaid by the purchaser, for inspection by the dealer with factory consultation. Warranty repairs are only to be made

at the selling dealer's location according to time maximums and at rates pre-established by Helac Corporation.

## Direct Sales to End Users

This warranty covers repair or replacement of product or parts, which under normal use and service disclose defective material and/or factory workmanship. Only repairs completed at the Helac factory or factory replacement (at Helac's option) will satisfy claims under this warranty. Products under warranty shall be returned to the Helac factory for evaluation and repair. The customer shall contact the Helac Warranty Department for a Return Authorization Number prior to shipping the product in question. The factory will not accept products returned without a Return Authorization Number. Transportation shall be prepaid by the purchaser. On receipt, Helac factory personnel will inspect the product for warrantable issue(s). Upon warranty acceptance, Helac Corporation will repair the warranty issue(s) of the product at no cost to the customer and return the product freight prepaid. If it is determined that the issue(s) are not covered by the warranty, the product (repaired or not) will be returned COD to the customer.

Helac Corporation reserves the right to make changes in the design or construction of any of its products at any time without incurring any obligations to make changes or alterations to products previously sold. Helac Corporation reserves the right to alter this warranty and/or its terms at any time. This warranty is in lieu of all other and/or prior warranties, expressed or implied, and no other company or person is authorized to represent or assume for Helac Corporation any liability in connection with the sale of Helac Corporation products other than set forth herein.

PowerGrip - U.S. patent #6370801

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