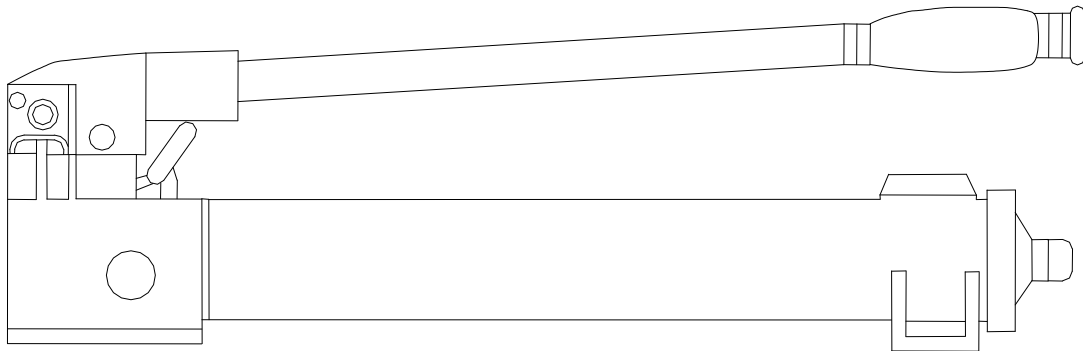


# HPU12M HYDRAULIC POWER UNIT



### 1.0 IMPORTANT RECEIVING INSTRUCTIONS

- Visually inspect all components for shipping damage. Shipping Damage is **not** covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement cost resulting from damage in shipment.

### 2.0 SAFETY

- Read all instructions, warnings, and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. DMC cannot be responsible for damage or injury resulting from unsafe product use, lack of maintenance, or incorrect product and/or system operation. Contact DMC when in doubt as to the safety precautions and operations.

Failure to comply with the following cautions and warnings could cause equipment damage and personal injury.

A **CAUTION** is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A **WARNING** indicates a potential danger that requires correct procedures or practices to avoid personal injury.

A **DANGER** is only used when your action or lack of action may cause serious injury or even death.

**WARNING:** Wear proper personal protective gear when operating hydraulic equipment.

**DANGER:** To avoid personal injury keep hands and feet away from cylinder and work piece during operation.

**WARNING:** Do not exceed equipment ratings. Overloading causes equipment failure and possible injury. The pump is designed for a max. pressure of 700 bars (10,000 psi).

**DANGER:** Never set the relief valve to a higher pressure than the maximum rated pressure of the pump. Higher settings may result in equipment damage and/or personal injury. Do not remove relief valve.

**CAUTION:** Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back pressure. Sharp bends and kinks will internally damage the hose leading to premature hose failure.

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**IMPORTANT:** Do not lift hydraulic equipment by the hoses or swivel couplers. Use the carrying handle or other means of safe transport.

**CAUTION:** Keep hydraulic equipment away from flames and heat. For optimum performance do not expose equipment to temperatures of 65° C (150° F) or higher.

**DANGER:** Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, see a doctor immediately.

**IMPORTANT:** Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact Daniels Manufacturing Corporation.

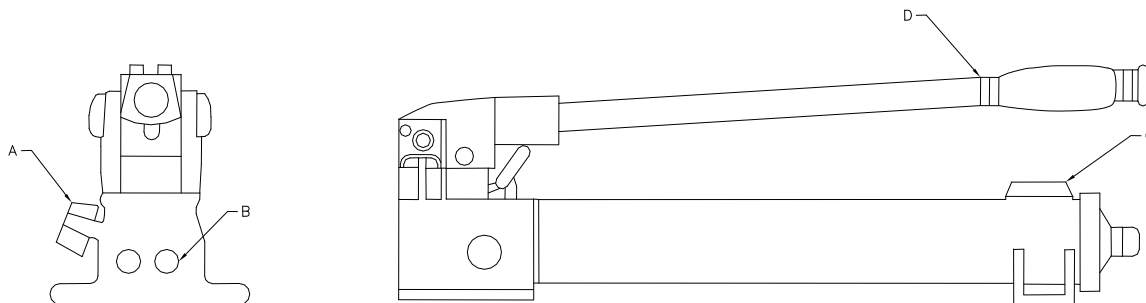
### 3.0 SPECIFICATIONS

- Type (Speed) = 2 Stage  
1<sup>st</sup> Stage = 200 psi (14 bar)  
2<sup>nd</sup> Stage = 10,000 psi (700 bar)
- Oil Volume per Stroke  
1<sup>st</sup> Stage = .687 in<sup>3</sup> (11.26 cm<sup>3</sup>)  
2<sup>nd</sup> Stage = .151 in<sup>3</sup> (2.47 cm<sup>3</sup>)
- Usable Oil Capacity  
55 in<sup>3</sup> (900 cm<sup>3</sup>)

### 4.0 DESCRIPTION

See Figure 1 and the corresponding table below for details on the main components of the pump. The dual purpose vent/fill cap acts as a pressure relief valve in case of accidental reservoir pressurization.

Table 1	
Figure 1	Feature
A	Release Valve
B	3/8 NPTF Outlet Port
C	Vent/Fill Cap
D	Actuation Handle



**Figure 1**

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## 5.0 INSTALLATION

### Connecting the Pump

1. Thread the hose (DMC P/N = 12-4040) into pump outlet.
2. Install a pressure gauge (DMC P/N = HPU11-PG) in-line from the pump for added safety and better control.
3. Connect the hose to the crimp head.

### Pump Venting

Venting of the pump is optional. Venting provides slightly better performance, but the pump does not need to be vented. If opened, close the vent prior to transporting the pump to prevent oil leakage.

### Pump Position

The pump can be mounted either horizontally or vertically.

**NOTE:** When operating the pump in the vertical position, the hose end must be pointed down, or the pump will pickup air and will not build pressure properly.

## 6.0 OPERATION

### Before Using the Pump

1. Check all system fittings and connections to be sure they are tight and leak free.
2. Check oil level in reservoir before operating pump. See "Adding Oil to the Pump" on Page 4.

**WARNING:** In certain situations the pump handle can "kick back". Always keep your body to the side of the pump, away from the line of force of the handle.

**NOTE:** To reduce handle effort at high pressure, take short strokes. Maximum leverage is obtained in the last 5° of stroke.

### Using Two-Speed Pumps

These pumps provide 2-stage flow. Under no-load, the pump operates in the high flow first stage for rapid advance. When the load is contacted, the pump automatically shifts to the second stage for building pressure.

**NOTE:** For best performance, operate pump handle at moderate speed during the high flow first stage. Rapid handle speed in the first stage will prevent the pump from delivering full volume of oil.

### Single-Acting Applications with Release Valve

1. Close the release valve by turning clockwise, as shown in Figure 1.

**CAUTION:** Close release valve finger tight ONLY. Using tools on release valve can damage it and cause the pump to malfunction.

2. Operate the pump actuation handle to deliver hydraulic power to the system.

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3. Continue actuating the handle until 10,000 psi is read on the pressure gage. Pressure will be maintained until the release valve is opened. DO NOT release the pressure in the system until 10,000 psi is reached EXCEPT in cases of emergency. Crimping with less than 10,000 psi will result in insufficient compression, and produce bad crimps.
4. Open the release valve by turning counter clockwise to release pressure, and allow oil to flow back to the reservoir.  
**NOTE:** If the tool is closed on a part of the body, or incorrectly on the part being crimped, immediately open the release valve until the tool fully opens.

### 7.0 AIR REMOVAL

Removing air from the hydraulic system will help the cylinder to advance and retract smoothly.

#### Pump with Single-Acting Cylinder

1. Vent pump reservoir and close release valve.
2. Position pump at a higher elevation than crimp head. (i.e. on a work bench)
3. Position the crimp head with the pushrod pointing down at a lower elevation. (i.e. on the floor)
4. Operate the pump to fully extend the pushrod.
5. Open the release valve to retract the pushrod. This will force the trapped air to move up to the pump reservoir.
6. Repeat the above steps as necessary.
7. Add oil if necessary. See below.
8. Return vent/fill cap to operating position

### 8.0 MAINTENANCE

Use only oil that is ISO Viscosity Grade 32, Viscosity SUS @ 100 Degrees Fahrenheit 150/165, Flash Point 400 Degrees Fahrenheit, Pour Point -25 Degrees Fahrenheit.

#### Adding Oil to the Pump

Check oil level regularly

**WARNING:** Always add oil with the cylinders fully retracted, or the system will contain more oil than the reservoir can hold.

1. Remove vent/fill cap from reservoir.
2. Fill reservoir only to level mark shown on the pump.
3. Remove air from the system if necessary. See above. Recheck oil level after removing air.
4. Return vent/fill cap to proper position.

**NOTE:** Non-vented hand pumps require air in the reservoir to function properly. If the reservoir is completely filled, a vacuum will form preventing oil from oil from flowing out of the pump.

#### Keeping Oil Line Clean

When coupler halves are disconnected, always screw on the dust caps. Use every precaution to guard the pump against entrance of dirt because foreign matter may cause pump, cylinder, or valve failure.

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### Lubricating the Pump

1. Drain all oil and refill with clean oil every 12 months. If pump is used in dirty environments, change oil more often.
2. Remove vent/fill cap from reservoir.
3. Tilt pump to drain out old oil.
4. Fill reservoir only to level mark shown on pump.
5. Replace the vent/fill cap.
6. Dispose of used oil properly.

### 9.0 TROUBLESHOOTING GUIDE

The following information is intended as aid in determining if a problem exists. For repair service, contact Daniels Manufacturing Corporation.

Problem	Troubleshooting	
	Possible Cause	Solution
Cylinder does not advance, advances slowly, or advances in spurts.	<ol style="list-style-type: none"> <li>1. Oil level in pump reservoir is low.</li> <li>2. Release valve open.</li> <li>3. Loose hydraulic coupler.</li> <li>4. Air trapped in system.</li> <li>5. Cylinder pushrod binding.</li> </ol>	<ol style="list-style-type: none"> <li>1. Add oil according to the maintenance instructions.</li> <li>2. Close release valve.</li> <li>3. Check that all couplers are fully tightened.</li> <li>4. Remove air according to the maintenance instructions.</li> <li>5. Return to DMC.</li> </ol>
Cylinder advances, but does not hold pressure.	<ol style="list-style-type: none"> <li>1. Leaking connection.</li> <li>2. Leaking seals.</li> <li>3. Internal leakage in pump.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check that all connections are tight and leak free.</li> <li>2. Locate leak(s) and have equipment serviced by a qualified hydraulic technician.</li> <li>3. Return to DMC.</li> </ol>
Cylinder does not retract, retracts part way, or retracts more slowly than normal.	<ol style="list-style-type: none"> <li>1. Release valve closed.</li> <li>2. Pump reservoir is over filled.</li> <li>3. Loose hydraulic coupler.</li> <li>4. Air trapped in system.</li> <li>5. Cylinder return spring broken or other cylinder damage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Open release valve.</li> <li>2. Drain oil level to full mark. See maintenance instructions for adding oil.</li> <li>3. Check that all couplers are tight.</li> <li>4. Remove air according to the maintenance instructions</li> <li>5. Return to DMC.</li> </ol>

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### *Limitation of Liability*

DANIELS MANUFACTURING CORPORATION IS NOT LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY NATURE OR KIND RESULTING FROM THE USE, OR MISUSE, OF ANY OF ITS PRODUCTS. OWNERS AND USERS OF DMC PRODUCTS ASSUME FULL RESPONSIBILITY FOR INSTRUCTING THEIR EMPLOYEES IN THE PROPER AND SAFE USE OF SUCH PRODUCTS.

### *Limited Warranty*

DMC (Daniels Manufacturing Corporation) warrants each new product sold by it to be free from defects in material and workmanship under normal use and service. DMC's obligation under this warranty is limited to the free correction or, at DMC's option, the refund of the purchase price of any such product which proves defective in normal service within ninety (90) days after delivery to the first user, provided that the product is returned to DMC with all transportation charges prepaid and which shall appear to DMC's satisfaction, after DMC's inspection, to have been defective in material and workmanship, it being understood that DMC products are not consumer products. This warranty shall not cover any damage to any product which, in the opinion of DMC, was caused by normal wear, misuse, improper operation, tampering, neglect or accident. This warranty is in lieu of all other warranties express or implied. No warranty, express or implied, is made or authorized to be made or assumed with respect to products of Daniels Manufacturing Corporation other than those herein set forth.

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