ZK3
Flow Sensitive Unloader

FEATURES
• All stainless and brass internal parts.
• No external moving parts or springs.
• Unique balance nozzle principle: Eliminates high pressure in all lines while unit is in bypass mode. Eliminates pressure peaks normally generated by conventionally designed unloaders.
• Unique unbalanced piston design permits precise pressure adjustment.
• Mounts in discharge line; flow-through design.
• Convenient bypass location
• Minimum 5% bypass required for operation.
• Dual gauge ports.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Part Number</th>
<th>ZK30</th>
<th>ZK31</th>
<th>ZK32</th>
<th>ZK33</th>
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</thead>
<tbody>
<tr>
<td>Maximum Volume</td>
<td>2.1 - 3.0 GPM</td>
<td>3.0 - 4.2 GPM</td>
<td>4.2 - 5.5 GPM</td>
<td>5.0 - 6.0 GPM</td>
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<tr>
<td>Maximum Discharge Pressure</td>
<td></td>
<td>0 - 1500 PSI</td>
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<td></td>
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<tr>
<td>Maximum Temperature</td>
<td></td>
<td></td>
<td>165°F</td>
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<tr>
<td>Port Sizes:</td>
<td>Inlet</td>
<td>3/8”-1”-BSP-F</td>
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<tr>
<td>Bypass</td>
<td>3/4”-14-BSP-M</td>
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<tr>
<td>Outlet</td>
<td>3/8”-19-BSP-M</td>
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<tr>
<td>Dimensions</td>
<td>5.75” x 3.5” x 2.75”</td>
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<tr>
<td>Weight</td>
<td>1.7 lb.</td>
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</table>

INSTALLATION

APPLICATION
This product is to be used with clean, fresh water. For different or corrosive liquids, contact GP Companies Inc. technical support department. Appropriate filtration should be installed when used with liquids containing any solids. Select the proper unloader valve based on the nominal operating rating: system rated pressure, max flow and max temperature. Under no circumstances should the pressure of the system exceed the maximum rated pressure of any component.

INSTALLATION
When installed on hot water cleaners, this valve is to be installed before the boiler. Installing safety devices which limit the accidental increase of the fluid temperature is required. Always install a safety valve (pop-off) to protect the operator and system.

UNLOADER ADJUSTMENT:
READ AND UNDERSTAND THESE INSTRUCTIONS PRIOR TO USE
DO NOT ATTEMPT TO ADJUST THE ZK3 WITHOUT A PRESSURE GAUGE INSTALLED ON THE SYSTEM!

Choose the correct nozzle size, able to discharge regularly, on bypass, at least 5% of the total flow of the system in order to achieve a constant pressure, and avoid troublesome pressure spikes. Prior to start-up set the ZK3 unloader to its lowest pressure setting by turning the adjusting screw (item 12) clockwise until stop and make sure the system has an adequate water supply. Follow pressure washer manufacturer’s safety guidelines for start-up and start the washer. Once running, cycle trigger gun open and closed four or five times to purge any remaining air and to make sure the ZK1 unloader is functioning properly. With the trigger gun open (spray mode) gradually increase the pressure by turning the adjusting screw (item 12) counter-clockwise, increasing pressure by increments no greater than 200 psi cycling the gun at each interval. If at any point the unloader does not unload properly, return the pressure to minimum and repeat adjusting sequence. Once the system is brought up to rated pressure cycle the trigger gun four or five times to make sure it is functioning properly and set the jam nut (item 13). Shut down the system and restart and confirm the pressure setting.
<table>
<thead>
<tr>
<th>PROBLEMS</th>
<th>PROBABLE CAUSES</th>
<th>SOLUTIONS</th>
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</table>
| Unloader cycles in spraying mode  | • Restricted discharge  
• Undersized spray tip  
• Clogged chemical injector (if applicable) | • Correct source of restriction  
• Replace with properly sized nozzle  
• Clean / replace chemical injector |
| System does not come up to pressure | • Oversized spray tip  
• Foreign material in nozzle  
• Restricted discharge | • Replace with properly sized nozzle  
• Clean / replace nozzle  
• Correct source of restriction in discharge |
| Pressure spikes                    | • Unloader improperly adjusted  
• Less than 5% flowage in bypass | • See instructions for adjusting unloader |
| Unloader does not unload properly  | • Foreign material in unloader  
• Pump starving for water  
• Leaks in system | • Check filters and/or strainers. Clear unloader of debris  
• Correct inlet conditions  
• Correct leaks |