FLOW SENSITIVE

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GENERAL PUMP *A member of the Interpump Group*

ZH168 / ZH288

Trapped Pressure Unloader Valve

FEATURES

- Suitable for Industrial use
- Dual bypass port
- Extremely reliable
- Easy maintenance



ZH168



ZH288

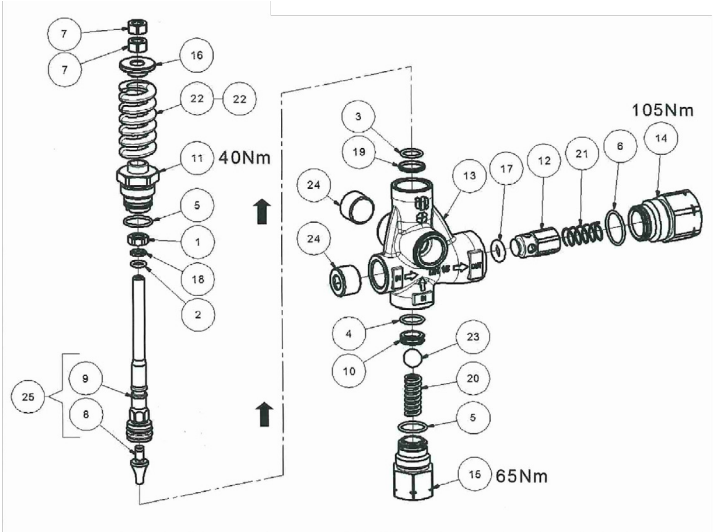
SPECIFICATIONS

Part Number	ZH168	ZH288
Max Volume*	21.1 GPM	
Max Operating Pressure	2,320 PSI	4,060 PSI
Max Temperature	185° F	
Port Sizes Inlet:	(2) 1/2” NTP-F	
Outlet:	1/2” NPT-F	
Bypass:	(2) 1/2” NPT-F	
Dimensions	7.79" x 3.96" x 2.16”	
Weight	2.87 lbs	

*NOTE: If unloader is fed through the lower connection max flow rate: 10.5 GPM / 40 l/min

General Pump recommends using a pressure reducing device in conjunction with this unloader valve when installed on a positive displacement pump. General Pump is not liable and assumes no responsibility when used in a customer’s high pressure system.

PARTS LIST



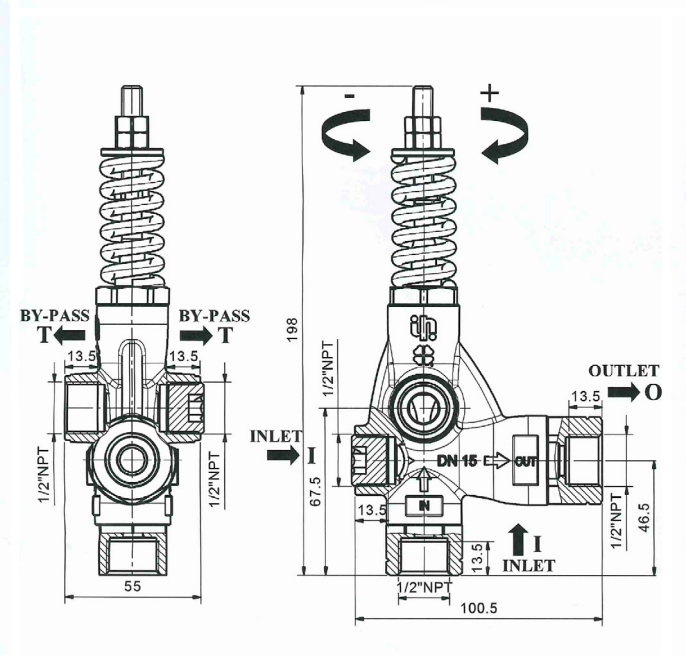
No.	Part No.	Description	Qty.
1	92221600	Nut, M8x5x13	1
2*	90357800	O-ring, Ø 7.66x1.78	1
3*	90358900	O-ring, Ø 12.42x1.78	1
4*	90359100	O-ring, Ø 14x1.78	1
5	90359400	O-ring, Ø17.17x1.78	2
6*	90360000	O-ring, Ø21.95x1.78	1
7	92222300	Nut, M8-8	2
8	36351966	Shutter	1
9	36352066	Rod	1
10*	36352166	Seat	1
11	36352270	Rod Guide	1
12	36352370	Shutter By-Pass	1
13	36352841	Valve Body, NPT	1
14	36352970	Check Valve Coupling	1
15	36353070	Inlet Coupling, NPT	1
16	36353470	Spring Guide	1
17*	90417400	O-ring, Ø 8.00x4.00	1
18*	90503300	Anti-Extrusion Ring, Ø 8x11x1.5	1
19*	93185900	Gasket, Ø 18.0x13.1x2.2	1
20*	94738450	Spring, Ø 9.8x29	1
21	94740730	Spring, Ø 12.4x27	1
22	94750000	Spring, Ø 20x50.5, Yellow (ZH168)	1
	94750700	Spring, Ø 21x53, Green (ZH288)	1
23*	97485000	Ball, 1/2"	1
24	98217230	Plug, 1/2"-NPTx14.3	2
25	36727801	Guide Rod Group	1
*	KIT386	Repair Kit	

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DIMENSIONS



SELECTION AND OPERATION

SELECTION

This product is intended to be incorporated on a finished machine. This product is to be used with clean fresh water, for use involving different or corrosive liquids, contact the GP Customer Service Department. Appropriate filtration should be installed when using impure liquids. Choose the valve appropriate to the working data of the pump (permissible pressure, flow and rated temperature of the system). The pressure of the pump must not exceed the maximum pressure of the valve.

OPERATION

The valve regulates the maximum pressure of the system by varying the flow discharged by the bypass. The adjustment is made by altering, by means of a piston, the position of a sphere which partially closes the bypass opening. The valve is sensitive to water flow. At gun opening, the water flows through the valve which maintains the system in pressure until the gun closes, the interruption of the flow provokes the complete aperture of the bypass which allows to discharge the flow at low pressure. At gun closure, the special mechanism of zero setting, which does not include a check valve, keeps in connection the delivery line and the bypass line, in that way permitting to lower the pressure all around the system and not only in the source line of the valve.

INSTALLATION

This valve, on a system that produces hot water, must be fitted upstream from the source of heat. On a system that generates hot water, it is advisable to use accessories that limit the accidental increase of fluid temperature. **Always install a safety valve.** We recommend the use of a nozzle with flow rate which allows a regular discharge from the valve bypass of at least 5% of the flow supplied by the pump. In order to achieve a constant pressure and easy adjustment. If the nozzle wears out, the pressure decreases. To reset pressure back to working level, it is necessary to replace the worn nozzle. When a new nozzle is fitted, resetting of the system to its original working pressure is required.

DISCHARGE SYSTEM AND WATER ADDUCTION

The bypass discharge can be sent back to the pump intake or returned into a tank; in such cases it is advisable that the tank be fitted with baffles to reduce eventual turbulence and air bubbles which could be harmful to the pump.

PRESSURE ADJUSTMENT/CALIBRATION

The desired working pressure must be adjusted with the system running and the gun opened. Adjust the pressure by screwing or unscrewing the adjustment knob. The operation is easier if the correct nozzle has been chosen (see above). When screwing the adjustment nut a consequent pressure increase must be matched. If, before reaching the desired pressure, there is no pressure increase, DO NOT FORCE. Rather, check the correct ratio of nozzle/flow rate - pressure and, if necessary, replace with a smaller size nozzle.

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MAINTENANCE

STANDARD: every 400 working hours, check and lubricate the seals with water resistant grease.

SPECIAL: every 800 working hours, check the wear of the seals and internal parts and, if necessary, replace with original GP parts taking care, during installation, to lubricate with water resistant grease.

The manufacturer is not to be considered responsible for damage as a result from incorrect fitting and maintenance.

TROUBLESHOOTING

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
Frequent valve recycles	• Damaged check valve O-ring • Leaking connections • Restricted bypass or too small diameter of the bypass hose	• Replace • Check or renew • Clean or adapt passage diameter
Valve does not reach pressure	• Piston O-rings worn out • Debris between seat and shutter • Seat worn out • Nozzle worn out • Incorrect choice of nozzle	• Replace • Clean the seat • Replace • Replace • Fit with smaller nozzle
High pressure peaks at gun closure	• There is not a minimum of 5% of total flow discharged in bypass • Excessive flow in bypass • Adjustment with spring totally compressed	• Reset Correctly • Change type of valve or adjust passages • Loosen adjustment screw and eventually fit with smaller nozzle
Valve does not discharge at low pressure at gun closure	• Jammed check valve • Debris on check valve	• Clean or replace • Clean

WARNING: High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices properly could result in personal injury or damage to pump or property. GP does not assume any liability or responsibility for the operation of the user's high pressure system.

WARNING: This product can expose you to chemicals including lead, which is know to the state of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

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Ref 310163 Rev. F
06-24

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