



#### INSTALLATION AND INSTRUCTIONS FOR USE

**THIS DOCUMENT PROVIDES THE INSTRUCTIONS FOR THE INSTALLATION, USE AND MAINTENANCE OF THE VALVE, THEREFORE IT IS AN INTEGRAL PART OF THE VALVE ITSELF AND MUST BE READ CAREFULLY BEFORE ANY USE AND KEPT WITH CARE.**

**STRICTLY COMPLY WITH THE INSTRUCTIONS CONTAINED IN THIS DOCUMENT IN VIEW OF A SAFE AND EFFECTIVE USE OF THE VALVE.**

**FAILURE TO COMPLY WITH THESE INSTRUCTIONS MIGHT CAUSE EARLY FAULTS AND RESULT IN SITUATIONS OF DANGER, IN ADDITION TO VOIDING ANY WARRANTY.**

#### 1- GENERAL INFORMATION

1.1- The R1503 pressure regulator is a manually-adjustable, pressure-operated device which, according to its setting, limits the pump/system pressure by conveying the excess of water to the by-pass. Moreover, when the outlet flow is blocked, this device totally releases the flow, thus keeping the pump/system at the adjusted pressure.

1.2- Since the R1503 valve is used in connection with a high pressure water pump/system, which shall be called hereafter only "system", installation and use must be suited to the type of system used and comply with the safety Regulations in force in the Country where the valve is used.

1.3- Before using the valve, make sure that the system the valve is used with is certified to comply with the relevant Directives and/or Regulations.

1.4- Before installing and using the valve for the first time, we suggest you check that it is undamaged and make sure that the rated features correspond to the required ones. If this is not the case, do not use the valve and contact the GP's Customer Service Department.

1.5- In order to install the valve correctly, follow the instructions for the water inlet, outlet and by-pass connections, as stated in this instruction manual and/or on the valve itself.

#### 2- PACKAGE

2.1- Packages must be handled in compliance with the instructions stated on the packages themselves and/or provided by the manufacturer.

2.2- In case the valve is not used immediately, it must be stored in its integral package and placed in areas which are not exposed to the weather and protected from excessive humidity and from direct sunlight. Moreover, it is advisable to place wooden pallets or other types of pallets between the package and the floor, in order to prevent the direct contact with the ground.

2.3- The package components must be disposed of in compliance with the relevant laws your area.

#### 3- INSTRUCTIONS FOR INSTALLATION AND PRESSURE SETTING:

The positions mentioned in the following instructions refer to those shown in the Parts List and Exploded View.

##### 3.1- Installation

3.1.1- Fit the O-Ring pos. 28 into the seat of the valve body pos. 12.

3.1.2- Set the valve on the pump head taking care that the O-Ring pos. 28 stays in place correctly.

3.1.3- Slightly lubricate the threads of the four screws pos. 36 with Lithium grease and tighten with a torque wrench (torque wrench setting as stated in the exploded view).

3.2- In order to obtain a correct adjustment and consequently a proper functioning of the valve, always make sure that, when working at the maximum pressure, the valve by-pass keeps releasing a quantity of water equal to 5% of the total flow-rate. In case the flow-rate at the by-pass is close to zero or exceeds 15% of the maximum flow-rate, this could cause faults, early wear and result in situations of danger.

##### 3.3- Pressure setting

3.3.1- loosen the adjustment screw pos. 4 in order to completely release the springs.

3.3.2- Open the gun or the water control device and start the system. Make sure that the air contained in it is fully ejected.

3.3.3- Keeping the gun or the water control device open, start adjusting the pressure by screwing down the screw pos.24. Alternate the adjusting operations with a few openings and closings of the gun or of the control device. When the desired pressure has been reached, open and close the gun/control device a few times again in order to stabilize the various components (seals, springs etc.). Check the pressure value again and correct if necessary.

3.3.4- Screw down the nut pos. 30 up to contact with the body, in order to lock the screw pos. 4.

3.3.5- In order to obtain working pressures lower than the maximum set pressure, unscrew the screw pos. 4.

**In case of doubts, do not hesitate to contact GP's Customer Service Department. IMPORTANT: During use, never exceed the maximum values of pressure, flow-rate and temperature as stated in this document and/or indicated on the valve.**



#### 4- WARNINGS

4.1- The installation and the setting of the maximum pressure must be made by qualified staff only, who must have the required skills to handle high pressure systems and be informed of the operating and safety instructions contained in this document.

4.2- The installer must provide the ultimate consumer with the proper instructions for the correct use of the system the valve is used in connection with.

4.3- Use soft and filtered water only. In case of salt water and/or of water containing solid particles of a size exceeding 20µm, the internal components of the valve will be subject to quick wear; furthermore, this might compromise the correct functioning of the valve. Addition agents can be used in the water, provided that they are delicate, biodegradable and always complying with the Regulations in force in the Country where the valve is used.

4.4- In the systems for hot water production, the temperature of the liquid that comes into contact with the valve must always be lower than the value stated in this instruction manual and/or indicated on the valve itself. **Avoid the formation of steam or overheated water.**



# R1503

## Industrial Relief Valve

### INSTRUCTIONS FOR USE (CONT.)

4.5- After use and/or before performing any operation on the system or on the valve, release the pressure by using the adjustment knob/screw and opening the gun or the control device for a few seconds. The jet created by the residual pressure must be directed downwards in order to avoid damages or dangers.

4.6- For safety reasons, it is advisable to equip the high pressure feeding line of the system also with a relief or safety valve duly adjusted.

4.7- To connect the valve to the system it is preferable to use flexible hoses fitted in a way that they do not form 90° elbows, throttlings or siphons which could include harmful air bubbles. The inside diameters of the hoses and fittings must be equal to the correspondent inside diameters of the inlet, by-pass and outlet threads of the valve. Moreover, it is necessary to correctly choose the type of hose depending on the rated pressure and flow-rate; the hoses must always be used within their operation limits as stated by the manufacturer and indicated on the hoses themselves.

4.8- Tighten the fittings for the valve connections as follows:

#### Outlet fitting:

Thread	G1/2"	G1/4"	G3/8"	M14x1.5	M20x1.5	M22x1.5	M24x1.5
Ft.Lbs.	66.4	25.8	51.6	33.2	70	92.2	118
Nm	90	35	70	45	95	125	160

#### By-pass fitting:

Thread	G3/4"
Ft. Lbs.	133
Nm	180

4.9- In order to ensure the seal, fit a metal washer with a rubber ring between the fittings, or use a proper sealant on the thread.

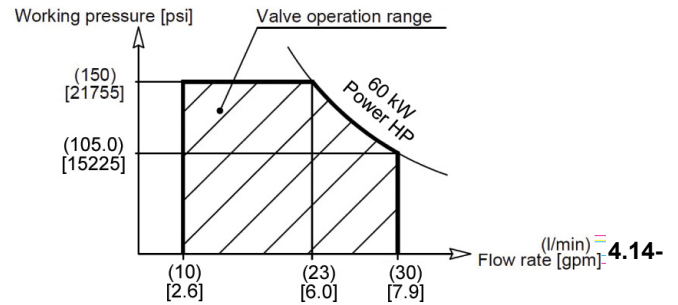
**WARNING:** Use parallel threads only (not tapered threads). The threads must comply with the working pressures and the rated torque wrench settings with reference to their material and shape.

4.10- In order to obtain the sealing between the nipple pos. 44 or the cap pos. 45 and the valve body, use the conical seal pos. 2 (please contact GP's Customer Service Department in case of doubts).

4.11- Always connect the valve by-pass fitting to a hose, in order to avoid the excessive noise caused by the water outflow through the by-pass without hose.

4.12- Before operating the system, it is advisable to start it for a preliminary test run in order to check that the system is properly installed.

4.13- In order to optimize the pump-valve coupling, it is necessary to keep the valve operation range, as a function of the pump pressure and flow rate, within a maximum power of 201 HP (150 kW). As shown in the chart, this means using pumps producing a flow rate of approx. 51.5 l/min. for maximum working pressures of 21755 PSI (150 MPa - 1500 bar), and generating a pressure of approx. 11240 PSI ( 77.5 MPa - 775 bar) for maximum flow rates of 100 l/min.



**Warning:** if the valve is used at a low temperature involving the risk of frost, make sure that there is no ice formation inside and/or that the valve is not blocked before using it.

### 5- MAINTENANCE

5.1- Maintenance and repair must be carried out by qualified and authorized staff only. Before any operation, make sure that the valve and the system are shut down and made unusable.

5.2- A correct maintenance helps extend the working life and grants a better performance of the valve.

5.3- From time to time, it is necessary to check that the valve is clean outside, and that there is no sign of leakage and/or malfunctioning. If necessary, replace the involved parts. In case of doubts, contact GP's Customer Service Department.



**IMPORTANT:** After maintenance, make sure that the valve is re-assembled correctly and that the initial conditions are restored. Comply with the torque wrench setting values and set the pressure again as described above.

5.5- The valve is entirely made of non-toxic and safe materials; however, in case of disposal, we suggest you do not disperse it in the environment but take it to an authorized disposal center or contact GP's Customer Service Department.



**The valve shall not be tampered with for any reason and/or used for any purpose other than the use it has been designed for. In case of tampering, the manufacturer disclaims all responsibility as to the valve functioning and safety.**

### 6- WARRANTY CONDITIONS

6.1- The period and conditions of warranty are specified in the purchase contract.

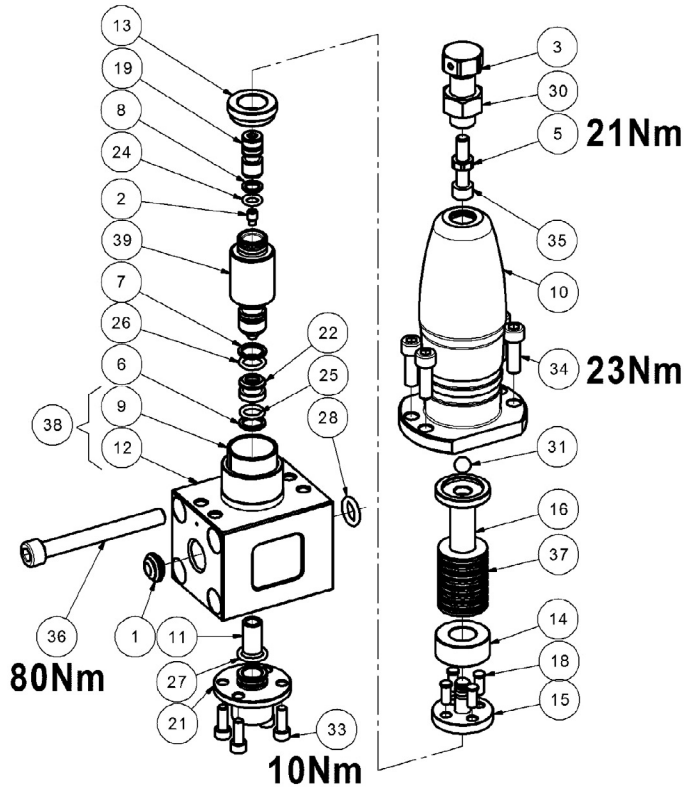
6.2- Warranty is voided in case the valve is used for improper purposes, used at higher performances than the rated ones, repaired with non-original spare parts or if it turns out to be damaged due to the non-compliance with the operating instructions or to unauthorized tampering.

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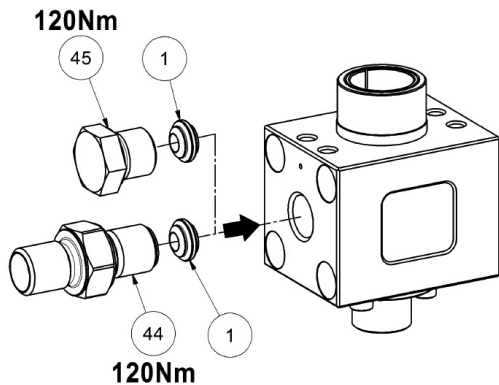
Industrial Relief Valve

**GENERAL PUMP** *A member of the Interpump Group*

## EXPLODED VIEW AND PARTS LIST



No.	PART No.	DESCRIPTION	QTY
1	F93174000	Conical Seal	1
2	F36010500	Damper Nozzle, Ø 0.7	1
3	F36024564	Screw, Regulating, M16x1.5	1
5	F92221600	Nut, M8x5x13	1
6	F90507450	Ring, Anti-extrusion, Ø 12.4x16.5x1.5	1
7	F90507850	Ring, Anti-extrusion, Ø 13.4x17.5x1.5	1
8	F90503650	Ring, Anti-extrusion, Ø 8.9x13x1.5	1
9	F90914000	Bushing, Ø 28x32	1
10	F36017861	Sleeve	1
11	F36016707	Conveyor, Ø 8x21	1
12	F36017966	Valve Body	1
13	F36017466	Spacer	1
14	F36017766	Spacer	1
15	F36017566	Guide, Pins	1
16	F36017666	Guide, Spring	1
18	F36017366	Pin, Ø 6 L=14.5	4
19	F36017166	Piston	1
21	F36017266	Fitting, Drain	1
22	F36017062	Seat, Ø 9	1
24	701109	O-ring, Ø 7.59x62	1
25	701111	O-ring, Ø 10.78x2.62	1
26	F90382700	O-ring, Ø 11.91x2.62	1
27	F90383300	O-ring, Ø 13.95x2.62	1
28	F88101029	O-ring, Ø 12.29x3.53	1
30	F92256500	Nut, M16x1.5	1
31	F97483800	Ball, 13/32	1
32	F99185400	Pin, Ø 5x24	1
33	F99195400	Screw, M6x16	4
34	F99306900	Screw, Hex, M8x25	4
35	F99309800	Screw, M8x35	1
36	F99380300	Screw, M10x90	4
37	F94846000	Spring, 16.3x31.5x2	16
38	F36605801	Valve Body Assembly	1
39	F36605901	Piston Assembly	1



No.	PART No.	DESCRIPTION	KIT	# PCS
1	F083200210	Conical Seal	B, C, D, E, F, G, H	1
44	F084200090	Nipple, M-M G 1/2" - 1/4"	C	1
44	F073200150	Nipple, M-M G 1/2" - 3/8"	D	1
44	F084200580	Nipple, M-M G1/2" - M14x1.5	E	1
44	F084200590	Nipple, M-M G 1/2" - M20x1.5	F	1
44	F084200600	Nipple, M-M G 1/2" - M22x1.5	G	1
44	680154	1/2" G Special - 1/2" NPT-F, under 15K PSI		
44	680136	1/2" G Special - 1/2" NPT-M, under 15K PSI		
44	680125	1/2" G Special - HID LF9, 13/16", 16 TPI, 60° Cone		

# R1503

## Industrial Relief Valve

### INSTALLATION

The valve should be mounted on the pressure line in any position (horizontal or vertical) which will allow easy access to the pressure adjusting screw. For proper operation the by-pass line internal diameter should be at least .50" at the narrowest point, and should not be connected directly to the pump inlet line (see left for correct installation).

