



P.A. - S.p.A. - EQUIPAGGIAMENTI TECNICI DEL LAVAGGIO

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VB 280-VB350 - Unloader Valve (discharging)

Technical manual: **E 237**

Pressure regulating unloader valve.
 At gun shut off, the water flow is bypassed at reduced pressure.

DN 10



- **60.1600.00** VB 280 G 3/8 MF **CE**
- **60.1700.00** VB 350 G 3/8 MF

- Assembly equipped with a high pressure proof compensation.
- Compact dimensions.
- Sturdy steel and brass construction.
- Adjustable locknut to control max pressure.
- Possibility to fit a venturi injector, on delivery, for chemicals.
- Nylon knob
- By-pass G1/2 F.
- Easy maintenance.

Technical specifications

Part Number	Rated pressure	Permissible pressure	Minimum adjustable pressure	(2)Trapped pressure at circuit closure	(3)Pressure drop to reset bypass	Inlet Outlet bypass	Weight
	bar - MPa	bar - MPa	bar - MPa	%	%		
60.1600.00	280 - 28	310 - 31	28 - 2.8	12	44	G3/8 MF	850
60.1700.00	350 - 35	390 - 39	35 - 3.5	12	44	G3/8 MF	880

(1) The valve has been designed for a continuous use at a water temperature of 60°C. It can resist for short periods at a maximum temperature of 90°C.

(2) This is the maximum pressure increase implemented in the circuit for the intervention of the valve and to bring all the fluid in bypass (percentage figures of the pressure set up)

(3) This is the pressure reduction necessary in comparison to the set up, in order that the valve brings back pressure in the circuit. (percentage figures of the pressure set up)

Instruction manual, maintenance, installation, spare parts.	n. 12.9237.00
For a correct utilization, follow the directions of this manual <u>Re-print them on the Use and Maintenance booklet of the machine.</u>	

PROBLEM HANDLING: CAUSES AND SOLUTIONS

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
Frequent unloader recycles	Damaged check valve O-Ring Leaking connections Restricted bypass	Replace Check and renew Clean or adapt
Unloader does not reach pressure	Unloader not properly sized Piston O rings worn out Material matter between seat and shutter Worn out nozzle	Change spring or type of valve Replace Clean the seat Replace
Pressure peaks	Less than 5% of total flow in bypass Excessive flow in bypass Spring totally compressed	Reset Change type of valve or adjust passages Loosen knob and change nozzle
Unloader does not bypass at low pressure	Jammed check valve Check valve O ring worn out Material matter on check valve	Clean or replace Replace Clean
Unloader causes oscillations to the hydraulic system	Bypass system unfit Bypass tube not properly sized Bypass obstructed or throttled	Stick to the installation scheme represented at the bottom of this page, with bypass directed into the pump Enlarge diameter Clean or reset

REGULATIONS : *see provisional manual*

The accessory hereby described bears the CE mark in compliance with provisions and regulations indicated on the **Declaration of conformity**.

For a correct utilization, follow the directions described in this manual and re-print them on the Use and maintenance manual of the machine.

Make sure that you are given the **Original Declaration of Conformity** for the accessory chosen. The present manual is valid for all unloader valves type **VB 280** and **VB 350**.

MAINTENANCE

Maintenance has to be carried out by **Specialized Technicians**.

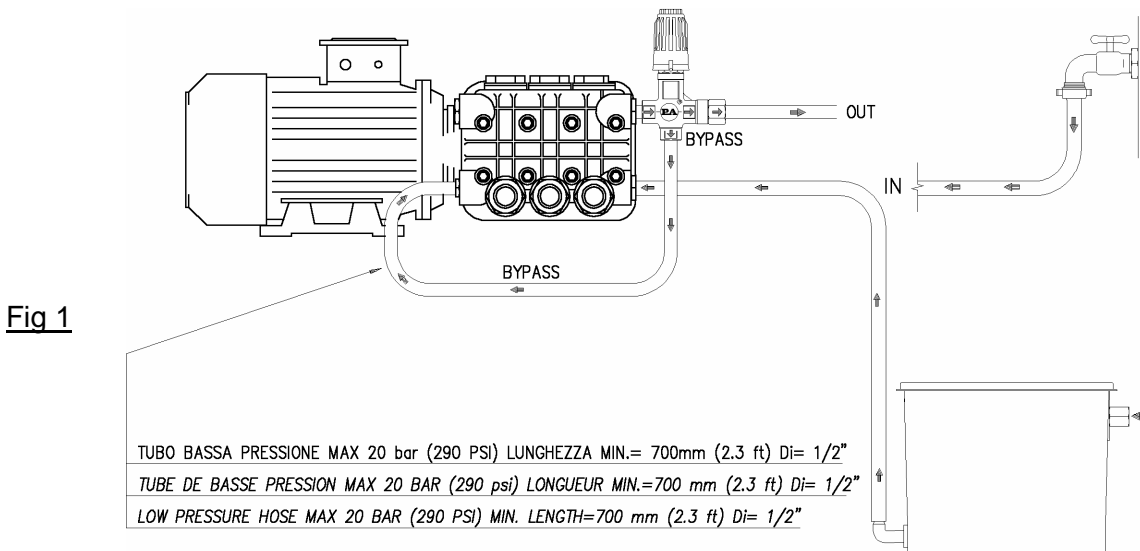
STANDARD: every 400 working hours (circa 10,000 cycles), control and lubricate the seals with water resistant grease.

SPECIAL: every 800 working hours (circa 20,000 cycles), control the wear of the seals and internal parts and if necessary, replace with original PA parts taking care during installation and to lubricate with water resistant grease.

ATTENTION: reassemble the valve in the correct manner paying special attention to the Nut (pos 19) which must always be in place.

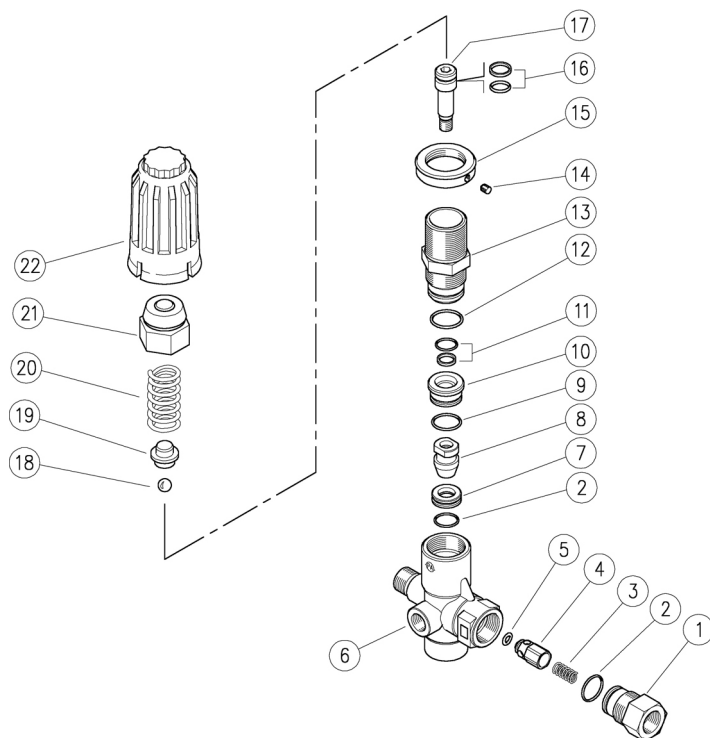
The manufacturer is not to be considered responsible for damage as a result from incorrect fitting and maintenance-

Technical data, descriptions and illustrations are indicative and liable to modification without notice



60.1600.00 VB280 unload. 3/8MF Bsp byp:1/2F+knob
 60.1700.00 VB350 unload. 3/8MF Bsp byp:1/2F+knob

60.1700.50 VB350 unload. 3/8MF Npt byp:1/2F+knob



Pos.	P/N	Description	Q.ty	K1	K2	K3	K4	
1	60.1811.31	Shutter coupl., 3/8F Bsp brass	1					3
1	60.1817.31	3/8Npt F nipple (1)	1					3
2	10.3066.01	O-ring, 1,78x15,6 mm Ni 85	2	•				10
3	60.0053.51	Spring, 0,7x9x20 mm Sst.	1					10
4	60.9052.93	Shutter pin, Sst.+or 3x6 mm N90	1					10
5	10.3213.08	O-ring, 3x6 mm Ni 90	1	•				10
6	60.1725.35	Hous.-V280-350/4,3/8M c/snk+1/4F Bsp brs	1					3
6	60.1717.35	Hous.-V280-350/4,3/8M Npt +1/4FNpt brs (1)	1					3
7	60.1809.51	Seat, 11,6x19x6 mm Sst.	1	•				5
8	60.1808.51	Shutter pin, M8 Sst.	1	•				3
9	10.3068.01	O-ring, 1,78x17,17 mm Ni 85	1	•				10
10	60.1810.31	Spacer ring, 10,3x23,4x12,5 mm brass	1					5
11	60.0979.24	Stem seal, 10x14,9x2,2 mm+O-ring	1	•				5
12	10.3072.01	O-ring, 1,78x20,35 mm Ni 85	1	•				10

Pos.	P/N	Description	Q.ty	K1	K2	K3	K4	
13	60.0973.31	Piston holder, brass (2)	1					3
13	60.1805.31	Piston holder, brass (3,1)	1					3
14	16.2100.00	Set screw, DIN914 M4x4 mm	1					10
15	60.1728.31	Ring nut, M27x1 brass	1					3
16	60.0978.24	Piston seal, 9x14x2,2 mm+O-ring	1	•				5
17	60.1806.51	Piston, M8 Sst.	1					3
18	14.7443.10	Ball, 11/32" Sst.	1	•				10
19	60.1813.31	Spring rest pin, brass	1					5
20	60.0975.61	Spring, 4,2x19,7x42 mm z.pl. (2)	1					10
20	60.1812.61	Spring, 4,5x15,8x47mm (3,1)	1					3
21	60.1727.31	Valve regulating insert, brass	1					5
22	60.1726.84	Valve regulating knob, PA black (2)	1					10
22	60.1729.84	Valve regulating knob, PA red (3,1)	1					10

Kit	P/N	Description	
K1	60.1615.24	Spares kit -VB280-350/4 11x1pcs.	1

(1) 60.1700.50 (2) 60.1600.00 (3) 60.1700.00