

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

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VB 40/1000 Zero - Flow sensitive unloader valve

PATENTED

Pressure regulating valve unloader type with zero setting on delivery line: at gun closure the water flow is bypassed at low pressure maintaining also the delivery line in low pressure.

Technical manual: MPA0004EN

DN 10



- **60.2900.XX** VB 40/1000 Zero G 3/8" FF
 - Near total zero setting of the pressure in the delivery line at gun closure.
 Advantages:
 - Increased safety for the operator.
 - Delivery hose easy to control when gun is closed.
 - Less force needed to reopen the gun.
 - At gun reopening, work pressure is reached gradually.
 Advantages:
 - Operators work less heavy.
 - Easy starting if thermal engine is used.
 - Reduced pressure loss and hardly dependent on flow rate.
 - Great reliability.
 - Easy maintenance.
 - Three versions with different working pressure but one sole range of flow rate from 9 up to 40 l/min.

TECHNICAL SPECIFICATIONS

Construction material: Sst.

PART NUMBER	MINIMUM FLOW		MAXIMUM FLOW		WORK PRESSURE		ADJUSTABLE MINIMUM PRESSURE		MAX TEMPERATURE (1)		WEIGHT		IN OUT	BYPASS
	l/min	USG	l/min	USG	bar	MPa	bar	MPa	°C	°F	g	oz.		
60.2900.00	9	2.4	40	10.5	1000	100	500	50	95	203	4650	164	G 3/8" F	G 3/8" F
60.2900.12	9	2.4	15	4.0	1000	100	500	50	95	203	4650	164	G 3/8" F	G 3/8" M
60.2900.20	9	2.4	25	6.5	1000	100	500	50	95	203	4650	164	G 3/8" F	G 3/8" M
60.2900.30	9	2.4	35	9.2	1000	100	500	50	95	203	4650	164	G 3/8" F	G 3/8" M

1) The valve has been designed for a continuous use at a water temperature of **60°C (140°F)**. It can work for short periods at a maximum temperature of **95°C (203°F)**.



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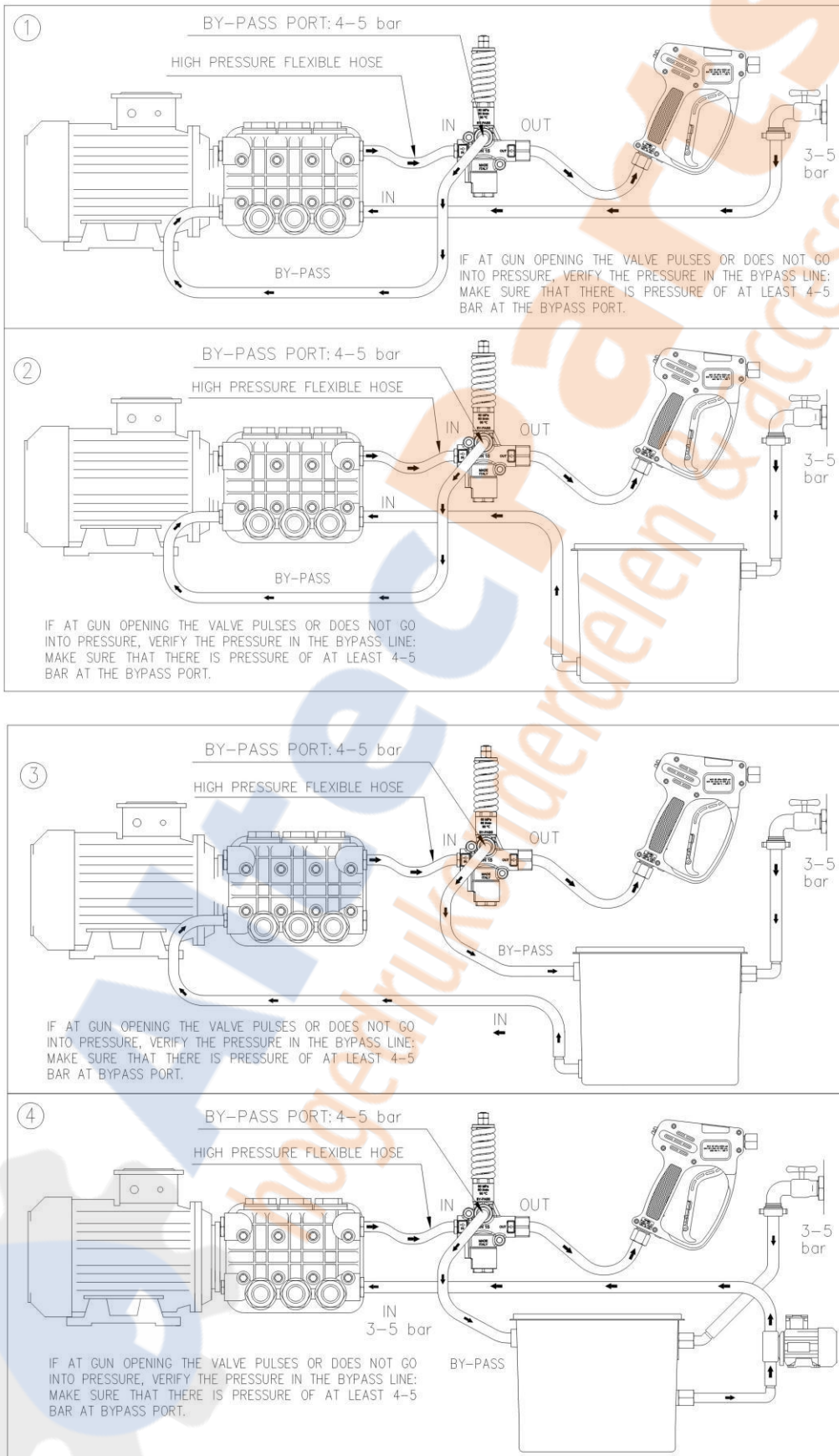
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EXAMPLES OF INSTALLATION



TROUBLE SHOOTING

PROBLEMS	PROBABLE CAUSE	REMEDY
The valve is noisy.	Nozzle with very small flow factor (< 03). Too much water in the bypass unloading.	Size the nozzle according to the flow of the pump in order to decrease the water unloading in the by-pass.
At gun opening much time is required to reach working pressure.	Delivery hose very long or big level difference between valve and gun. Nozzle with very small flow factor (< 03)	Throttle bypass unloading. See section: DISCHARGE SYSTEM AND WATER ADDUCTION
At gun closure the valve pulses (rearm).	Flow rate of the pump pulsating.	Check the pump.
	Delivery hose too short.	Provide a longer hose.
	The pump is sucking air in.	See section: DISCHARGE SYSTEM AND WATER ADDUCTION
At gun closure the valve pulses (rearm)	Big leakage from the gun Leak from delivery line	Eliminate the leakage
At gun opening the valve does not go under pressure and continues to unloading into the bypass.	Delivery hose very long or big level difference between valve and gun. Nozzle with very small flow factor (< 03)	Throttle bypass unloading. See section: DISCHARGE SYSTEM AND WATER ADDUCTION
At gun closure, the valve does not lower the pressure on the delivery line.	Orifice of the shutter blocked (pos.33 on exploded view).	Clean and eliminate obstruction.
Valve does not reach maximum pressure.	Worn nozzle.	Replace
	Presence of matter between seat and shutter	Clean the seat
	Seat damaged or worn	Replace
Valve does not go into pressure.	O-rings of Sst piston (pos. 8-9-10 e 13-14-15 of the exploded view) ruined.	Replace

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 PA parts taking care, during installation, to lubricate with water resistant grease.

The maintenance must be carried out by specialized technicians.

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

REGULATIONS

For a correct utilization, follow the directions as described in this manual and re-print them on the Use and maintenance of the machine. If needed, ask for the original Conformity Declaration for the accessory chosen. The present manual is valid for all unloader valves named **VB 40/1000 Zero**.

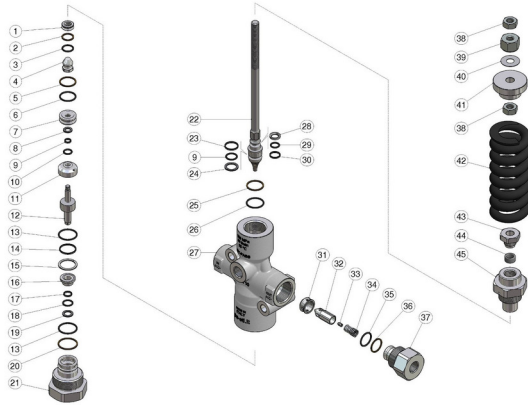
Technical data, descriptions and illustrations are indicative and liable for modification without notice.

Instruction manual, maintenance, installation, spare parts.

For a correct utilization, follow the directions of this manual and **re-print them on the Use and Maintenance booklet of the machine.**

n. MPA.0004.EN

60.2900.00 VB40/1000 Zero Unload.-flow activated



Pos.	P/N	Description	Q.ty	K1	K2	K3	K4	
1	60.2919.51R	Sst seat, 9,5 mm	1	•				5
2	10.4013.00R	Back-up ring, 16x13,2x1,2 mm	1	•				10
3	10.3060.85R	O-ring, 1,78x12,42 mm HNbr 85	2	•				10
4	60.2925.51R	Sst shutter v.2	1	•				5
5	10.4041.00R	Back-up ring, 19,3x22x1,2 mm PTFE	1	•				10
6	10.3070.85R	O-ring, 1,78x18,77 mm Hnbr 85	1	•				10
7	60.2906.51R	7 mm sst piston ring	1					3
8	10.4007.09R	Back-up ring, 7x11,9x1,2 mm	1	•				10
9	10.4007.92R	Back-up ring, 7x9x2 mm	1	•				10
10	10.3056.85R	O-ring, 1,78x8,74 mm HNbr 85	1	•				10
11	60.2909.51R	7 mm sst piston ring	1					3
12	60.2924.51R	Sst pin v.2	1					5
13	10.3072.85R	O-ring, 1,78x21,95 mm HNbr 85	2	•				10
14	10.4059.00R	Back-up ring, 20x22x2 mm	1	•				10
15	10.4059.09R	Back-up ring, 20x24,9x1,2mm	1	•				10
16	60.2610.51R	9,2 mm sst piston ring	1					3
17	10.4055.00R	Back-up ring, 9,2x11,2x2 mm	1	•				10
18	10.3058.85R	O-ring, 1,78x10,82 mm HNbr 85	1	•				10
19	10.4008.09R	Back-up ring, 9,2x14,1x1,2 mm	1	•				10
20	10.4098.00R	Back-up ring, 23,2x26x1,2mm	1	•				10
21	60.2904.51R	Lower plug, sst	1					3
22	60.2902.21R	Sst. valve piston, VB40/1000 Zero	1					5
23	10.4161.00R	Back-up ring, 18 mm	1	•				3
24	10.4013.09R	Back-up ring, 13,1x18x1,2 mm	1	•				10
25	10.4060.09R	Back-up ring, 20x22,8x1,2 mm	1	•				10
26	10.3072.95R	O-ring, 1,78x20,35 mm Hnbr 85	1	•				10
27	60.2905.55R	Housing -VB40/1000 Zero 3/8 .Bsp F sst	1					3
28	10.4008.93R	Back-up ring, 9,3x14,2 x2,2 mm	1	•				5
29	10.3057.85R	O-ring, 1,78x9,25 mm HNbr 85	1	•				10
30	10.4162.00R	Back-up ring, 14,2 mm	1	•				3
31	60.2911.51R	Sst. seat check valve	1					5
32	60.2910.51R	Sst shutter	1					3
33	60.2916.51R	Sst. nozzle, M4 -0,3 mm	1					5
34	60.2601.51R	Sst spring, 1,3x8,5x28,5 mm	1					5
35	10.3068.85R	O-ring, 1,78x17,17 mm Hnbr 85	1	•				10
36	10.4099.00R	Back-up ring, 17,2x20x1,2mm	1	•				10
37	60.2912.51R	Shutter coupl., 3/8F Bsp sst	1					3
38	11.4629.00R	Hex. nut, M10	2					10
39	60.2917.61R	Hex. nut, M10 zpl.	1					5
40	60.2918.51R	Washer, 10,3x25x0,5 Ai301	1					5
41	60.2914.51R	Spring holding washer, sst	1					5
42	60.2901.61R	Spring, 12x42x128 mm black	1					1
43	60.2915.51R	Sst. M16x1 plug, **	1					5
44	26.1046.84R	Bushing, 10x14x7 mm Plast. **	1	•				10
45	60.2903.51R	Piston holder, sst	1					5

** On request

Kit	P/N	Description	Q.ty
K1	60.2921.24	Spares kit -VB40/1000.Zero, 26x1pcs.	1



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