

Shut-off valve Type ALZ

for automatic pump circulation circuits

Supplement to D 6170

1. General

The indirectly controlled valve switches the delivery flow of a pump to non-pressurized circulation when the set pressure value is reached. The consumer side (connection A) is separated by a check valve from the circulation position $P \rightarrow R$ here. If the pressure on the consumer side drops below the set pressure value by approx. $13\% \pm 2\%$, the circulation position is again interrupted.

The ALZ valve operates with an automatically controlled jump switcher facility in the pilot control valve. This means that the switching reliability is no longer dependent on the switchover pulses from the pressurized oil flow which are otherwise necessary in the case of such units which operate on a purely hydraulic basis (pump pulsation, pressure surges when directional control valves are switched etc.). This means that the unit can also be used as an accumulator charging valve. The ALZ valve should be installed as near as possible to the pump which you want to switch to circulation.

2. Function

The pilot control valve (2) relieves the spring chamber (6) of the valve piston (1) in the main valve (pressure compensator) when in the operating position. This causes the valve piston (1) to open like a check valve and release the circulation $P \rightarrow R$.

The switchover jump of the pilot control pressure valve is achieved by way of the design of the switching element (2) as a step piston (differential piston). The system pressure is initially applied to the piston surface (4) and the annular surface (5). The resulting forces act against each other, the spring force (3) (pressure setting value) being added to the annular surface force with both balancing out the piston force as the switching point is approached and reached. The annular surface (5) is relieved at the switching point, the result being that the sudden force surplus against the spring (3) causes the step piston (2) and therefore the valve piston (1) in the main valve to switch over abruptly. The check valve (7) separates the consumer side A from the circulation piston $P \rightarrow R$. The consumer pressure continues to load the piston surface (4) and maintains the circulation position. If the consumer pressure falls below the spring's (1) set value by 13%, there is an abrupt return to the original position. The switching difference of 13% comes from the ratio of the surfaces (4) and (5) in the pilot control valve (2) selected in the design.

3. Types available, type code, main data

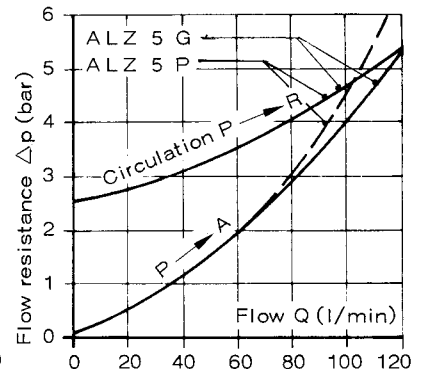
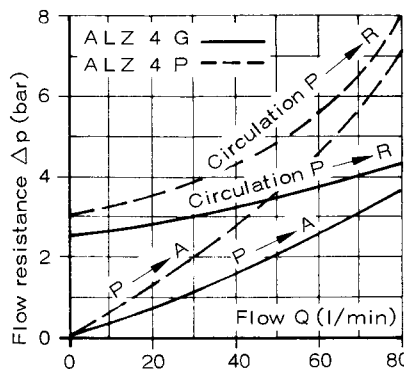
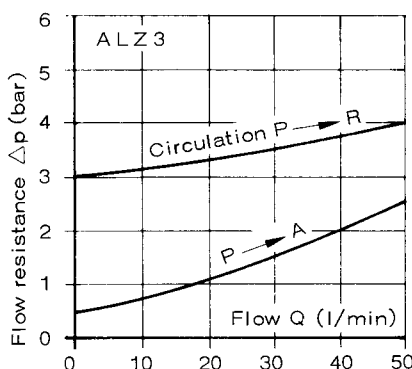
Coding example: **ALZ 3 GC ... - 250**

ALZ 3 GC ... - 250

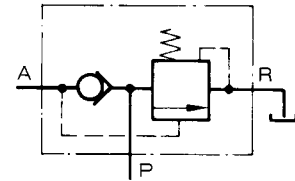
Desired pressure (bar) set at HAWE

Basic type and size	Flow Q_{max} (l/min) recomm. value	Type of connection		Plate mounting	Pressure range			Adjustability during operation
		Pipeline installation			C	D	E	
ALZ 3	50	G 1/2	DIN		240...350	130...250	60...140	R
ALZ 4	80	G 3/4	ISO 228/1	NG 16	Permiss. operating pressure			Additional code letter when adjust. manually, e.g. ALZ 4 GDR...
ALZ 5	120	G 1		NG 20	$p_{max} = 350 \text{ bar for P and A}$ $\leq 3 \text{ bar for R}$			

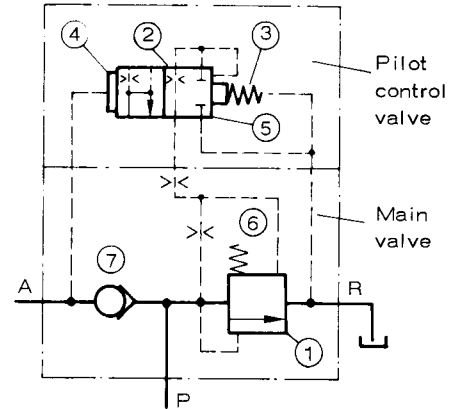
$\Delta p - Q$ characteristics, oil viscosity during the measurement approx. $63 \text{ mm}^2/\text{s}$



Simplified symbol for circuit diagram

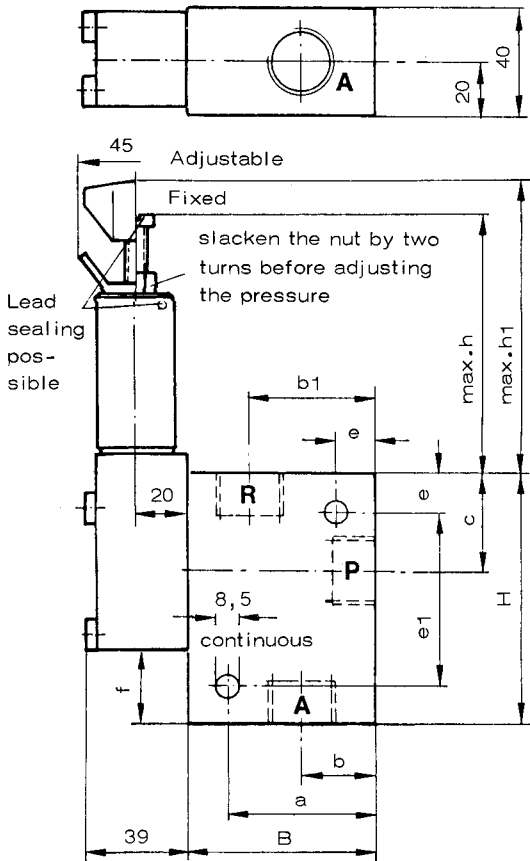


Detailed symbol

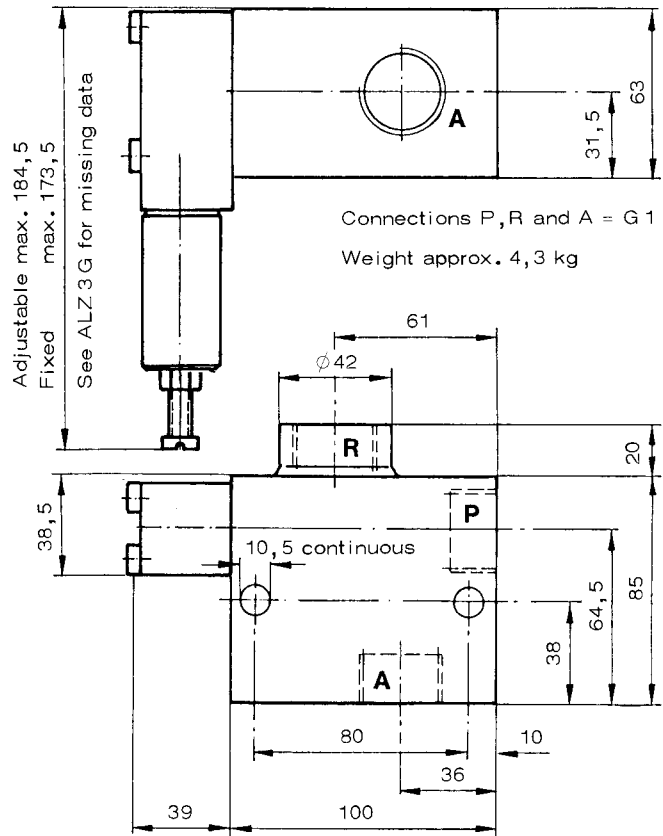


4. Dimensions of units All dimensions are in mm, subject to change without notice !

ALZ 3G... and ALZ 4G...

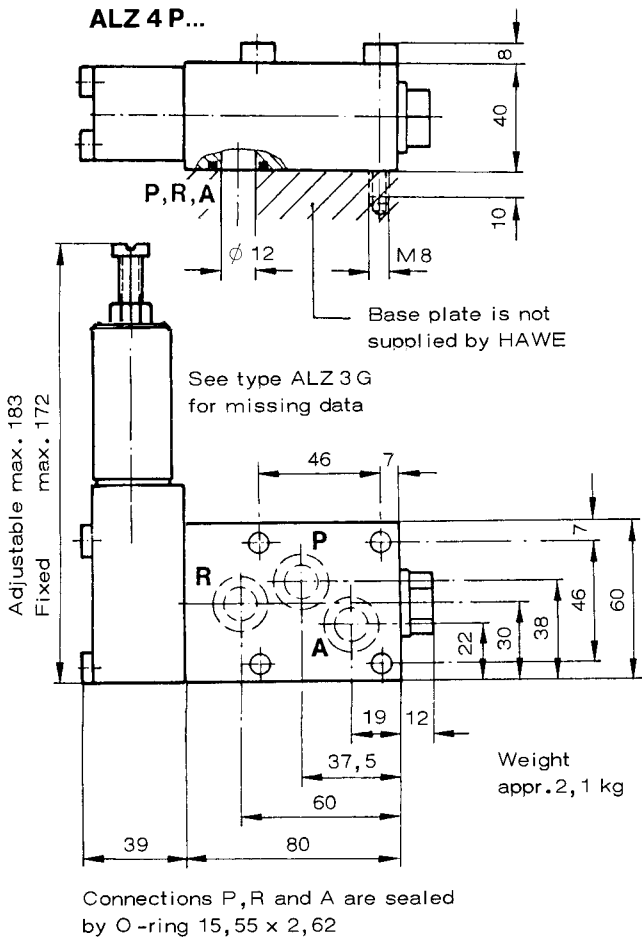


ALZ 5G...



Type	Connections P, R, A	B	H	a	b	b1	c	e	e1	f	h	h1	Weight appr. kg
ALZ 3G	G 1/2	60	80	50	19	40	34	10	60	17	89	100	2,0
ALZ 4G	G 3/4	70	94	55	28	48	37	15	64	28	86	97	2,4

ALZ 4P...



ALZ 5P...

