



Variable Speed Drive **MAK** for 1 or 2 Pumps

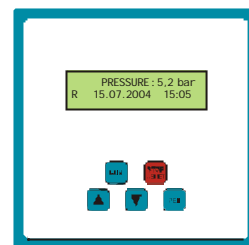
The MAK pump control system is used for the regulation/control of pumps and motors. A frequency inverter system with PI controller is used to achieve exact and extremely fast adaptation to changing operating conditions. The pressure transducer (0-10V) gives a feedback signal. It can be monitored directly on the **text display**. All parameters can be displayed/set by a menu. The system is parameterized at the factory. Customer-specific special solutions are possible on request at any time.

Quick info:

- 1 or 2 Pumps
- 0,75 ... 2,2 kW 230V~
- 0,75 ... 4,0 kW 400V 3~
- Text display
- Plastic enclosure IP54
- 0..10V transducer

Applications:

- Booster sets
- Rain systems
- Cooling systems
- Filtration
- Water level control



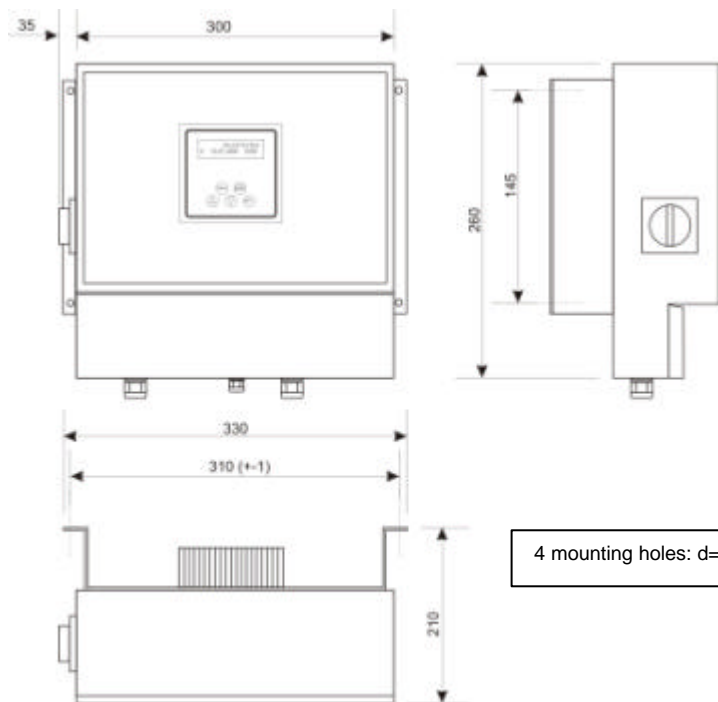
Features of the MAH variable speed drive:

- Capacities: 0,75kW ... 2,2kW/ 230V 50/60Hz / 0,75kW ... 4,0kW/ 400V 50/60Hz
- Variable speed drive for 1 or 2 pump operation; each pump with inverter; (optional for 1 ... 4 pumps)
- Fully programmable frequency inverter system
- Connection for pressure transducer 0..10V
- PI-control for
 - well-balanced regulation
 - minimum pressure fluctuation
 - very fast adjustment to sudden pressure fluctuation
- Water-stagnation-identification
 - switch to stand-by-mode if no water is demanded
 - programmable start pressure to have no pump creeping
- Feedback pressure check
 - adjustable
 - to switch off pump in case of deviation (alarm message)
 - can be used for dry running protection, water overload, over pressure
- Transducer check
 - in case of transducer failure an alarm occurs
 - fix speed running can be started immediately
- Automatic RUN
 - if this function is selected the unit starts operating after power is switched on
- Duty/Assist operation
 - automatic pump switch over depending on working hours
 - switch over in case of failure
- 2 transducers on double pump systems possible (each pump 1 transducer)
- Fix speed operation with programmable frequency
- Ventilation fan is temperature controlled
- External inputs
 - terminal run, terminal reset, target pressure switch over, float switch, PTC, ...
- External outputs
 - volt free contacts (com., n.c., n.o.)
 - programmable for alarm, pump run, ...
- Programmable leakage control
- Programmable 24-h-run
- Programmable start pressure
- Programmable running time control
- Clock
- 10 trip history monitor
- Hours run counter
- Text display for: Pressure, target pressure, motor current, speed, ...
- Plastic enclosure IP54 (white colour)
- Main isolator
- Fuse
- Radio noise filter (for buildings)

MAK

Dimensions for Variable speed drive **MAK**

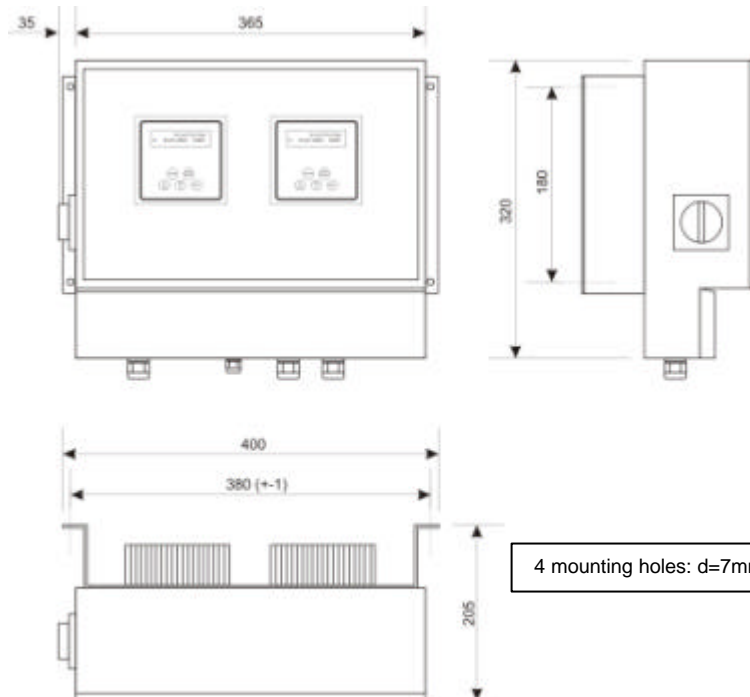
1 pump panel:



4 mounting holes: d=7mm

Type	Capacity	Wight
MAK-0,75E	0,75 kW	6 kg
MAK-1,1E	1,1 kW	6 kg
MAK-1,5E	1,5 kW	7 kg
MAK-2,2E	2,2 kW	7 kg
MAK-0,75D	0,75 kW	6 kg
MAK-1,5D	1,5 kW	7 kg
MAK-2,2D	2,2 kW	7 kg
MAK-3,0D	3,0 kW	7 kg
MAK-4,0D	4,0 kW	8 kg

2 pump panel:



4 mounting holes: d=7mm

Type	Capacity	Wight
MAK-0,75E-2	2 x 0,75 kW	9 kg
MAK-1,1E-2	2 x 1,1 kW	9 kg
MAK-1,5E-2	2 x 1,5 kW	9 kg
MAK-2,2E-2	2 x 2,2 kW	9 kg
MAK-0,75D-2	2 x 0,75 kW	8 kg
MAK-1,5D-2	2 x 1,5 kW	8 kg
MAK-2,2D-2	2 x 2,2 kW	11 kg
MAK-3,0D-2	2 x 3,0 kW	11 kg
MAK-4,0D-2	2 x 4,0 kW	11 kg

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