



NEW PRODUCT ANNOUNCEMENT

VARIABLE SPEED FLOW CENTERS WITH UPMXL 25-124 PUMPS

Background

In 2018, Grundfos announced that they would cease production of the Magna GEO variable speed pump. In response, Geo-Flo developed a new line of variable speed flow centers to replace the Magna GEO flow centers. In addition, we secured a large quantity of Magna GEO pumps for warranty replacements for the flow centers we have manufactured.

The new line of variable speed flow centers will feature the Grundfos UPMXL 25-124, 208-230V, 50/60 Hz single-phase variable speed pumps, and will be available in pressurized and non-pressurized with both standard and inverted PWM profiles. These new products cover all previous versions of the Magna GEO and will start shipping in the upcoming weeks.

The UPMXL pump is a powerful, efficient pump with a small footprint. The motor uses just 180 Watts maximum versus 195 for the UPS26-99 and 230 Watts for the Magna GEO. Despite this lower energy use, the UPMXL provides better performance than a UPS26-99 and nearly the same as the Magna GEO. In fact, a single UPMXL can replace two UPS26-99s in some applications. See technical details for more information. Like the Magna GEO, the UPMXL is a permanent-magnet, ECM pump that includes condensate drain holes, double-coated wiring, and spacing between the electronics and motor allowing operation in condensing environments. The pump is driven by an external low-voltage PWM signal that controls the pump depending on the system requirements. Since the pump housing/volute is designed for optimum efficiency, the pump motor will not bolt on a UP/UPS or Magna GEO volute.

PRESSURIZED FLOW CENTER



NON-PRESSURIZED FLOW CENTER

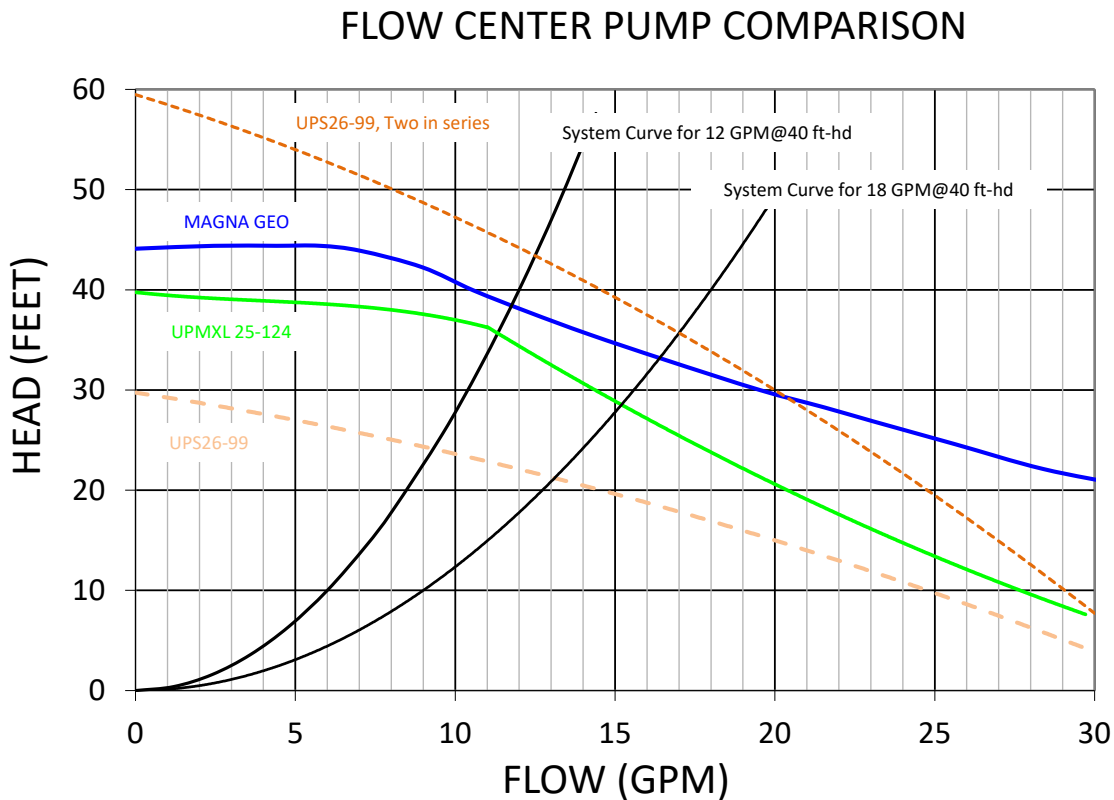


NON-PRESSURIZED
DUAL CIRCUIT FLOW CENTER



Technical Details

Since the UPMXL 25-124 does not have quite the same performance as the Magna GEO, an obvious question is: “How does this change impact my geothermal designs and flow center selections?” The answer is that it will not have a major impact in most situations, particularly smaller systems where a single Magna GEO was previously used. The actual flow rate of any system depends both on the system curve and the pump curve. Where these two curves cross is the actual operating point of the pump and subsequent flow rate of the system. The system curve is a graph of the pressure drop at every flow rate, and is generated from the duty point. The duty point is simply the calculated system pressure drop at the flow rate desired for a particular geothermal heat pump system and depends on the heat pump pressure drop and the earth/ground loop design. (More information on this topic may be found under the Literature-Presentations section of GEO-FLO.com). For example, a typical duty point of a 4 ton geothermal heat pump may be 12 GPM@ 40 ft-hd, or a 6 ton may be 18 GPM @ 40 ft-hd. The following graph shows the system curves for these two duty points, with the pump curves for the UPS26-99, UPMXL 25-124, and Magna GEO.



The resulting maximum flow rates for these examples using each of the pumps are shown in the following tables.

Pump(s)	Flow Rate (GPM)	Power (Watts)
UPS26-99	9.3	169
UPMXL 25-124	11.1	170
Magna GEO	11.7	228
2X UPS26-99	12.5	356

Table 1. 4-ton heat pump (12 GPM@40-ft hd design duty point)

Pump(s)	Flow Rate (GPM)	Power (Watts)
UPS26-99	13.1	178
UPMXL 25-124	15.1	177
Magna GEO	16	230
2X UPS26-99	16.9	374

Table 2. 6-ton heat pump (18 GPM@40-ft hd design duty point)

The decrease in flow between using a UPMXL 25-124 versus a Magna GEO is just 0.6 GPM for the 4-ton, and the flow rate is still higher than the typical minimum requirement for the heat pump to operate normally. The heat pump manufacturer’s literature should be consulted to confirm this. The 6-ton system shows a greater difference between the UPMXL 25-124 and the Magna GEO and shows where issues may arise. Note that neither the Magna GEO nor the UPMXL will provide the nominal 18 GPM flow rate for this 6-ton system design, and most jobs will use a two-pump flow center for this design. If you previously used a single Magna-GEO, a single UPMXL 25-124 may still provide sufficient flow, but the heat pump manufacturer’s literature must be consulted to confirm this. In situations where a single UPMXL 25-124 will not provide sufficient flow, Geo-Flo manufacturers two-pump flow centers combining two UPMXL 25-124 in series, or a UPS26-99 in series with a UPMXL 25-124. Submittal sheets providing further technical information for all flow centers are available.



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