

GEO-FLO

Engineered Solutions
Making Geothermal & Hydronics Easier

2018 Product Catalog

www.geo-flo.com

Residential Flow Centers



Commercial Flow Centers Insulated Pumps, & Accessories



Accessories/Pipe/Fittings



Tools/Replacement Pumps



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Geo-Flo Products Corporation
905 Williams Park Drive
Bedford, Indiana 47421, U.S.A.



*U.S. made products
supporting American jobs*

Main Number: 812-275-8513
Toll Free: 800-784-8069
Fax: 888-477-8829

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About Geo-Flo



Geo-Flo Products Corporation is the industry-leading manufacturer of flow centers for residential and commercial geothermal applications, as well as a complete supplier of pipe, fittings, and accessories. Founded in 1988 by CEO Tom Miller, Geo-Flo has focused on solutions that create more reliable, easier to install, and more efficient products.

In the late 1980s the geothermal heat pump industry had a multitude of problems with available technology for reliable flushing/service valves. In 1990 Geo-Flo introduced its new three-way valve body with valve ports supporting full one-inch flow. The new valve body was designed for the low fluid temperatures associated with the application, and increased the reliability of flow centers in the marketplace.



1990: Flow Center with 3-way full flow brass valves



2001: Composite 3-way valve

In 2001 Geo-Flo designed a new composite front flush valve as a lighter weight alternative to brass and with additional capabilities. Geo-Flo was the first to utilize a composite material and exclusive Flo-Link double O-ring adaptors in a flow center. This revolutionary design is still in use today, and is also available as a brass

In 2005 Geo-Flo introduced a rustproof, high-impact polystyrene cabinet using Flo-Link front flush valves. This specially tooled molded cabinet with rounded corners and a sleek design raised the bar once again for flow center design. A similar version (re-designed in 2007) is used today on the majority of residential and light commercial geothermal applications because of the decreased weight, superior reliability, and aesthetics of the cabinet design.



2005: Flo-Link double O-Ring flow center with high-impact polystyrene cabinet

Improving upon the three-way valve design, Geo-Flo introduced a new die cast valve (winner of the North American Die Casting Association competition) in 2006, providing more consistency in quality, as well as a lighter weight flow center. *The ability to remove the entire valve spool to replace the seals* makes this design the most flexible

About Geo-Flo

flush valve on the market (all Geo-Flo valves have this capability). No other valve type can compare to the reliability and durability of the Geo-Flo spool valve design. There are more Geo-Flo valves installed in the geothermal heat pump industry than all other flush valves combined.



VersaFlo commercial flow center



SuperBrute XL

Continuing with Geo-Flo's focus on solutions, the Pressure Battery, the industry's first polyethylene expansion tank was also introduced in 2008. This new product solved an age-old problem of pressure fluctuations in the ground loop system, potentially causing call-backs to re-pressurize the loop.

The VersaFlo flow center, introduced in 2009 is the most versatile commercial flow center available. One or two pumps with 2" full flow 3-way flushing and service valves are installed in a foam-insulated powder-coated steel cabinet, providing up to 100 U.S. GPM flow rates in a compact arrangement. Grundfos UPS32-160, UPS40-160, and UPS40-240 3-speed pumps allow for a complete range of applications. The Flo-Link XL 2" double O-ring valve and XL fitting selection provides union connections and flexibility with numerous transition fittings.

An additional commercial product line, the SuperBrute XL series was added in 2010 to provide customers with a light commercial or large residential (multi-unit) product offering. Building upon the success of the 3-way valves in residential flow centers, the SuperBrute XL uses 2" full flow 3-way flushing and service valves, integrated into a foam-insulated powder-coated steel cabinet. Three-speed Grundfos UPS60-150 pumps allow application of 12 to 15 ton systems with one flow center. The original GPM series (steel cabinet) was updated in 2010 to the new foam insulated ABS cabinet, and the 3-pump and 4-pump flow centers were upgraded to a steel cabinet with foam insulation.

Also in 2010 Geo-Flo added a non-pressurized (hybrid) option to its flow center product line, the Geo-Prime tank. Geo-Prime may be installed in a new installation, or can be retrofitted on a system with loop pressurization concerns. *Geo-Flo recommends either a Geo-Prime tank or Pressure Battery expansion tank on every residential pressurized installation to alleviate loop pressure concerns.* Labor-saving foam insulated boots were added to many of the hose kits in 2010 to create a nicer-looking installation and avoid some issues with condensation from uninsulated or poorly insulated elbows.

The Geo Booster, introduced in 2011, is an active loop pressurization system that eliminates issues with low loop pressure in closed-loop geothermal ground loop or hydronic applications. It is a great solution for older geothermal installations that might have a small, hard to find leak; or in multi-unit installations with large ground loops and multiple circulation pumps. Adding again to Geo-Flo's commercial product offering, the Wilo Stratus commercial flow centers became available, providing variable speed pumping and external control capabilities. Also in 2011, Geo-Flo added a flush cart to its service tools catalog. The flush cart, coupled with a 1-1/2 HP Munro pump, operates on 115V. The flush cart can typically flush 10 to 12 circuits (3/4" PE), connected in parallel.



Pressure Battery PE expansion tank



Geo-Prime tank shown connected to flow center

About Geo-Flo

In 2012 Geo-Flo became the first to use the Grundfos GEO Magna variable speed pump with a dedicated controller. The controller has a program specifically designed for Geo-Flo, allowing selection of flow rate (including two-stage heat pumps) or delta T mode. The GEO Magna can be controlled directly from the user interface without any external input, and works with virtually any geothermal heat pump. The savings in operating costs can be substantial over traditional circulators.



Flo-Link double O-ring flow center with Grundfos Magna GEO variable speed pump

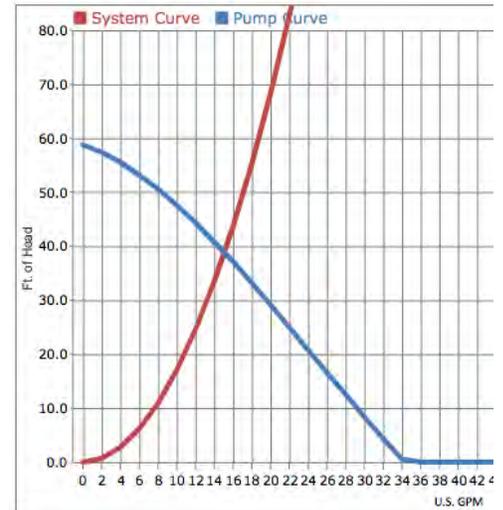
Also in 2012 Geo-Flo introduced a new product for pond loops, spaced 300 ft. 3/4" PE coils. Pre-installed spacers allow flow through the coils, and save a considerable amount of labor at the time of installation.



NP SERIES
Non-pressurized
Flow Center

In 2013, Geo-Flo introduced a number of new products. The company moved into new markets with products like the NP series flow center. The NP series is a non-pressurized column-type flow center with Geo-Flo's exclusive 3-way valves and Flo-Link double O-ring fittings. This product provides another method of installation for geothermal heat pump applications. Pressurized (flow center and Pressure Battery), hybrid (flow center and Geo-Prime), or the NP series non-pressurized flow center are solutions that reduce installation time, decrease call-backs, and increase long-term reliability.

Another product introduced in 2013 was actually a service. A complete suite of web calculators is available at www.geo-flo.com to assist in the design/selection of ground loops and pumps. Other 2013 products included new insulated pumps with isolation valves, controls for multi-unit applications, and a number of new fittings and accessories.



Geo-Flo Calculators example

In 2014 Geo-Flo once again broadened its product offering with new commercial products like the GHS series hydraulic separator and Grundfos Magna3 insulated pumps.



Hydro-Connect™

2015 was a year dedicated to more commercial solutions, hydronic applications, as well as residential/light commercial "turn-key" products like the NP Dual variable speed and NP Multi. Both of the new NP series flow centers focused on making it easier for contractors with integrated flushing/purging valves and factory assembled components. Geo-Flo entered the hydronic market with a new integrated buffer tank in 2015, Hydro-Connect.

2016 included an exciting update to the NP Series with the introduction of the NP Plus. New products for 2017 included many more commercial options for Magna3, as well as additional commercial accessories included in this version of the catalog. 2018 promises more engineered solutions for making geothermal and hydronics easier!



Magna3 Insulated Pump

Flo-Link & GPM series Pressurized Flow Centers

Geo-Flo's most popular flow centers are available in a wide variety of combinations. Flo-Link double O-ring style flow centers are unsurpassed in ease of installation. Flo-Link double O-ring fittings provide leak-free union connections at the flow center, installed without tools (no need for pipe wrenches). Virtually any type of transition (fusion, thread, barb, PVC glue, etc.) is available for Flo-Link fittings. Geo-Flo's full port 3-way flushing and isolation valves are designed for the wide range of temperatures experienced in ground loop applications. Flo-Link flow centers are available through heat pump manufacturers and their distributors.



Flo-Link series foamed flow center with high impact polystyrene cabinet (shown with variable speed Grundfos Magna GEO pump): Flo-Link flow centers are available in one pump and two pump configuration with variable speed (UPS32-140) and constant speed (UP26-99, UPS26-99, or UP26-116) pump(s).



Flo-Link double O-ring fitting sets for union/transition to flow center: See Accessories / Pipe / Fittings section for complete assortment of Flo-Link fittings.

Flo-Link flow centers include volutes specially designed for Geo-Flo, which allow the entire power head to be external to cabinet. This provides additional flexibility for installers and service technicians when a pump head needs to be rotated, or when a single pump flow center needs to be upgraded to a two pump flow center.



GPM series foamed flow center with ABS plastic cabinet (shown as GPM-1, single pump--also available as GPM-2)

GPM series foamed flow center with steel, powder-coated cabinet (shown as GPM-3, three pump--also available as GPM-4)

Field upgradable to two pump flow center



GPM series continues on next page

Flo-Link & GPM series Pressurized Flow Centers

The GPM series flow centers utilize reliable 3-way valves with the same features and benefits as the Flo-Link valves, but have threaded FPT connections. GPM flow centers are available in one to four pump configurations, and may be ordered with or without the foamed cabinet. The cabinet is designed to allow pump heads to be rotated, or for upgrading/downgrading (i.e. adding/removing a pump). In addition, GPM flow centers are available with isolation valves for applications where the flushing valves are located underground or remotely (see Accessories section).



GPM series bracket style flow center: (Left is GPM-3; right is GPM-1 (also available as GPM-2, and GPM-4). Designed for Southern applications, where ground loop temperatures do not cause condensation.



Pressure Battery: The industry's first polyethylene fusion expansion tank maintains system pressure via a custom-molded internal rubber bladder. The completely sealed tank never needs maintenance, and may be installed in the mechanical room, or even buried outside with the ground loop. Designed for up to 6 tons (approx. 3/4 gallon).



View of Geo-Booster with cover removed

Geo-Booster: An active loop pressurization system that eliminates issues with low loop pressures in closed-loop geothermal ground loop or hydronic systems. The Geo-Booster will maintain a minimum loop pressure of 35 psig on the system. The Geo-Booster includes a pump with a built-in pressure switch factory set at 35 psig, and a check valve to prevent back-flow into the one-gallon tank. The sealing cap ensures a closed system, prevents loop fluid evaporation, and provides vacuum relief allowing the fluid to be pumped from the reservoir.

Geo-Prime Series Hybrid Flow Centers



The Geo-Prime series is a hybrid system with a tank that may be added to a standard pressurized flow center or pump to create a non-pressurized system. In addition to its applicability in a non-pressurized system, the tank can be used as an add-on to traditional pressurized systems. In either case, the Geo-Prime ensures that the pumps receive only air-free loop fluid and provides enough additional make-up fluid to prevent call-backs associated with loop expansion during seasonal temperature changes.

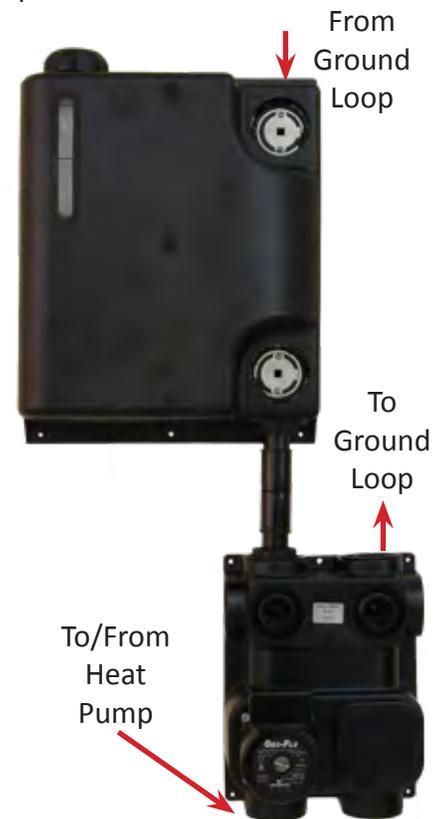
The Geo-Prime Tank consists of a fluid reservoir, two bypass valves and an air-eliminating dip tube inside of a foam-insulated cabinet. The tank includes a sealing cap with integrated pressure and vacuum relief to prevent the reservoir from being over-pressurized or collapsing. The tank is mounted above the suction flange of the pump to ensure a flooded volute and to provide the necessary suction head pressure for the pump.

Benefits Include:

- HDPE construction with fused joints
- Single pass internal air separation
- Integrated pressure/vacuum relief in sealing cap
- Integrated bypass valves to allow ground loop system to be flushed with industry standard flush cart
- Utilizes Flo-Link double O-ring connections for easy installation
- Integrated "sight glass" for fluid level monitoring without removing cap
- Approx. 2.5 gallon fluid capacity
- Foam insulated high impact polystyrene cabinet
- Modular system: may be used with pressurized flow center or insulated pump.



Geo-Flo insulated pumps with Flo-Link double O-ring fittings may easily be connected to the Geo-Prime tank with the valve coupling adapter fitting supplied with the Geo-Prime tank.



Typical Application: Geo-Prime is installed above flow center. An insulated pump may also be used instead of a flow center when 3-way flushing valves are not needed (see picture to the left).

Residential Flow Centers

Variable Speed Flow Centers

Variable speed flow centers have a significant impact on geothermal system efficiencies, especially for two-stage or variable speed heat pumps. Although the pump is controlled in a similar matter for most applications, there are a number of heat pump interfaces that must be considered in order to match up the correct flow center and control package to the heat pump controls. The table below may be used as a cross reference when selecting a variable speed flow center.



Heat Pump Controls*	Pump Type**	Flow Center/Controls Part Number(s)		
		Pressurized	Non-Pressurized Single Circuit	Non-Pressurized Dual Circuit
AXB	Standard Profile	1298 or 1299 (page 10) + 3699 (this page)	1342, 1343, 1275, or 1276 (pages 14,15) + 3699 (this page)	1334, 1335, or 1336 (page 18) + 3699 (this page)***
DXM2	Inverted Profile	1298N or 1299N (page 10)‡	1342N, 1343N, 1275N, or 1276N (pages 14,15)‡	1334N, 1335N, or 1336N (page 18)‡
24VAC	Standard Profile	1300, 1301, 1302, or 1303 (page 9)	1344 or 1345 (page 14)	1334, 1335, or 1336 (page 18) + controller (this page)‡‡

* Check heat pump controls. The heat pump must have an AXB or a DXM2 control to connect directly to the pump PWM cable. If the heat pump does not have either of these controls, use the 24VAC control requirements.

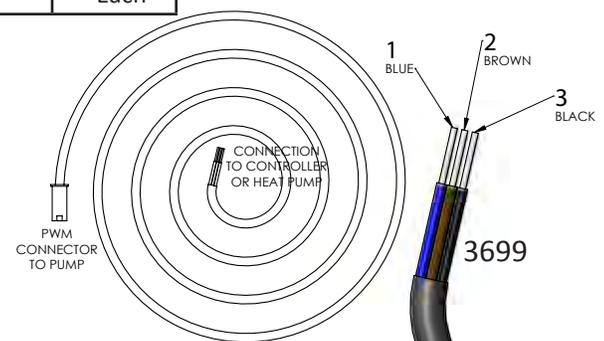
** The Grundfos Magna GEO variable speed pumps is produced with two control specifications for geothermal systems, standard and inverted profile PWM interface. The standard profile is used with the controllers listed below or with the AXB board; the inverted profile is used with the DXM2 board. These two profiles are not interchangeable.

*** 1334N requires one 3699 cable; 1335N and 1336N require two 3699 cables.

‡ Includes PWM cable(s).

‡‡ 1334 requires one controller (see table below); 1335 and 1336 require two controllers.

Part Number	Description	U.O.M.
	Controllers for Variable Speed Flow Centers	
3697	Grundfos Magna GEO Controller -- Temperature Control (1/4" MPT immersion thermistors included)	Kit
3698	Grundfos Magna GEO Controller -- Temperature and Flow Control for hose kit connections (thermistors and flow sensor included)	Kit
3766	Grundfos Magna GEO Controller -- Temperature and Flow Control for PVC connections (thermistors and flow sensor included)	Kit
PWM Cable for Magna GEO variable speed pump		
3699	PWM cable -- see chart above for usage	Each



Residential Flow Centers

Panel Mount Variable Speed Flow Centers

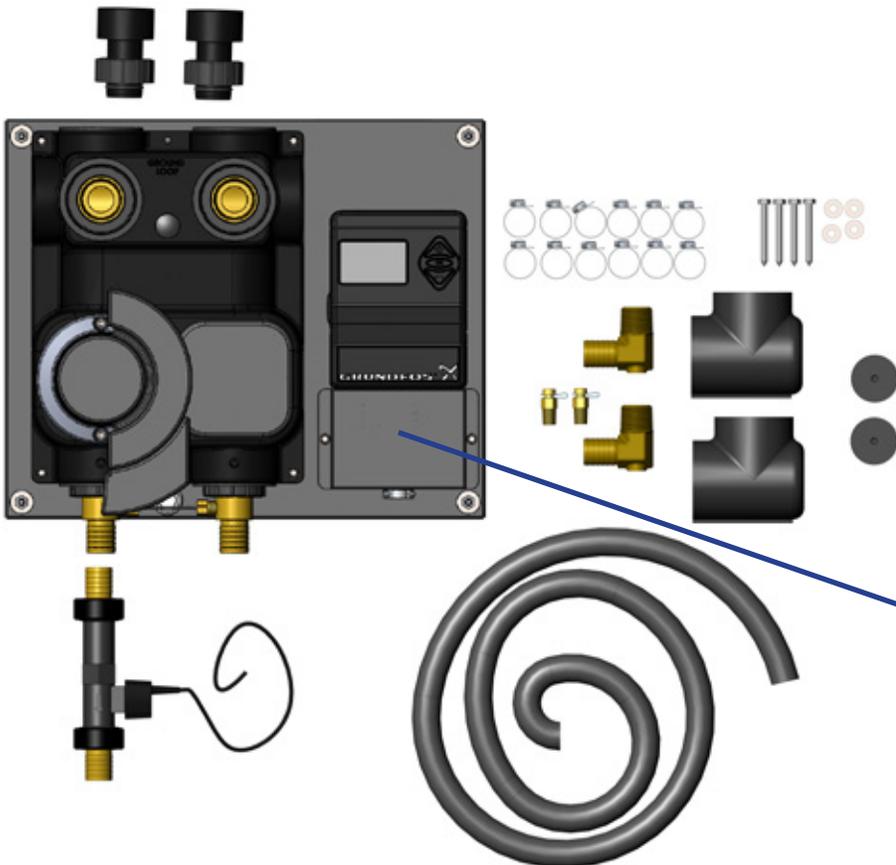
In Geo-Flo's ongoing efforts to create products that are easier to install and time-saving, there are several new packages for variable speed pumping options that completely eliminate the need for wiring the controller. The packages listed below include panel-mounted controls with a terminal strip for simply wiring the panel to the heat pump thermostat connections. Note that this option is for heat pumps with 24VAC thermostats.



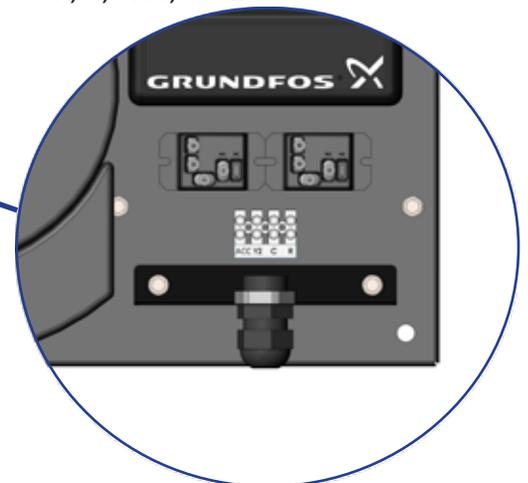
Part Number	Description			U.O.M.
	Variable Speed Pre-wired Packages (Panel Mounted)			
	Flow Center	Control	Connections	
1300	1298 - Single pump	3697 - Delta T	Hose kit / PE fusion**	Kit
1301	1298 - Single pump	3698 - Flow & Temperature	Hose kit / PE fusion**	Kit
1302	1299 - Two pump	3697 - Delta T	Hose kit / PE fusion**	Kit
1303	1299 - Two pump	3698 - Flow & Temperature	Hose kit / PE fusion**	Kit

NOTE: See next page for flow center description by part number (1298, 1299). See previous page for compatibility with heat pump controls.

**Kit includes all of the fittings necessary for connecting to the ground loop (1-1/4" PE fusion) and to the heat pump (1" MPT). For heat pumps with double O-ring water connections, add P/N 3326 1" FPT x Flo-Link double O-ring fitting set.



Terminal strip for connection to heat pump includes terminals R, C, ACC, & Y2.



Residential Flow Centers

Part Number	Description	U.O.M.
	Flo-Link with Foamed Cabinet (Double O-ring Connections -- Brass Valves)	
1294	FL1-99 UPS26-99, 3-speed 230V Grundfos, cast iron, foamed, black cabinet	Each
1296	FL1-116 UP26-116, 230V Grundfos, cast iron, foamed, black cabinet	Each
1298*	FLV1, UPS32-140 (var. spd. std. profile), 230V Grundfos, cast iron, foamed, black cabinet -- see page 8 for control compatibility	Each
1298N*	FLV1, UPS32-140 (var. spd. inv. profile), 230V Grundfos, cast iron, foamed, black cabinet -- see page 8 for control compatibility	Each
1295	FL2-99 UPS26-99, 3-spd 230V Grundfos, cast iron, foamed, Qty 2, blk cabinet	Each
1297	FL2-116 UP26-116, 230V Grundfos, cast iron, foamed, Qty 2, black cabinet	Each
1299*	FLV2, one UPS32-140 (var. spd., std. profile), & one UPS26-99 3-speed, 230V Grundfos, cast iron, foamed, black cabinet--see page 8 for control compatibility	Each
1299N*	FLV2, one UPS32-140 (var. spd., inv. profile), & one UPS26-99 3-speed, 230V Grundfos, cast iron, foamed, black cabinet--see page 8 for control compatibility	Each
Each unit contains: Mounting hardware and set of 1-1/4" PE fusion x Flo-Link (for loop side).		
*NOTE: Variable speed flow centers require a controller package (see page 8).		
GPM-1 with Foamed Cabinet (FPT Connections)		
1027	GPM-1 UPS26-99, 3-speed, 230V, Grundfos, cast iron, Foamed	Each
1055	GPM-1 UP26-116 230V Grundfos, cast iron, Foamed	Each
1077	GPM-1 UP26-116SF 230V Grundfos, stainless, Foamed	Each
1033	GPM-1 UPS26-99, 3-speed 115V Grundfos, cast iron, Foamed	Each
Each unit contains: Mounting hardware.		
GPM-2 with Foamed Cabinet (FPT Connections)		
1028	GPM-2 UPS26-99, 3-speed, 230V, Grundfos, cast iron, Foamed	Each
1056	GPM-2 UP26-116 230V Grundfos, cast iron, Foamed	Each
1076	GPM-2 UP26-116SF 230v Grundfos, stainless, Foamed	Each
1031	GPM-2 UPS26-99, 3-speed, 115v Grundfos, cast iron, Foamed	Each
Each unit contains: Mounting hardware.		
GPM-3 with Foamed Cabinet (FPT Connections)		
1229	GPM-3 UPS26-99 3-speed, 230V Grundfos, cast iron, Foamed	Each
1231	GPM-3 UP26-116 230V Grundfos, cast iron, Foamed	Each
1235	GPM-3 UP26-116SF 230V Grundfos, stainless, Foamed	Each
1233	GPM-3 UPS26-99, 3-speed, 115V Grundfos, cast iron, Foamed	Each
Each unit contains: Mounting hardware.		
GPM-4 with Foamed Cabinet (FPT Connections)		
1230	GPM-4 UPS26-99 3-speed, 230V Grundfos, cast iron, Foamed	Each
1232	GPM-4 UP26-116 230V Grundfos, cast iron, Foamed	Each
1236	GPM-4 UP26-116SF 230V Grundfos, stainless, Foamed	Each
1234	GPM-4 UPS26-99. 3-speed, 115V Grundfos, cast iron, Foamed	Each
Each unit contains: Mounting hardware.		



Flo-Link Flow Center
(variable speed one-pump shown)

NOTE: See page 8 for variable speed flow center compatibility with heat pump controls.



GPM-1 & 2 Series
(GPM-2 shown)



GPM-3 & 4 Series
(GPM-3 shown).

Residential Flow Centers

Part Number	Description	U.O.M.
	GPM-1 On Bracket (FPT Connections)	
1000	GPM-1 UPS26-99 3-speed, 230V Grundfos, cast iron, On Bracket	Each
1049	GPM-1 UP26-116 230V Grundfos, cast iron, On Bracket	Each
1085	GPM-1 UP26-116SF 230V Grundfos, stainless, On Bracket	Each
1004	GPM-1 UPS26-99 3-speed 115V Grundfos, cast iron, On Bracket	Each
Each unit contains: Mounting hardware.		
GPM-2 On Bracket (FPT Connections)		
1001	GPM-2 UPS26-99 3-speed, 230V Grundfos, cast iron, On Bracket	Each
1050	GPM-2 UP26-116 230V Grundfos, cast iron, On Bracket	Each
1082	GPM-2 UP26-116SF 230V Grundfos, stainless, On Bracket	Each
1005	GPM-2 UPS26-99 3-speed 115V Grundfos, cast iron, On Bracket	Each
Each unit contains: Mounting hardware.		
GPM-3 On Bracket (FPT Connections)		
1023	GPM-3 UPS26-99 3-speed, 230V Grundfos, cast iron, On Bracket	Each
1053	GPM-3 UP26-116 230V Grundfos, cast iron, On Bracket	Each
call	GPM-3 UP26-116SF 230V Grundfos, stainless, On Bracket	Each
1025	GPM-3 UPS26-99 3-speed 115V Grundfos, cast iron, On Bracket	Each
Each unit contains: Mounting hardware.		
GPM-4 On Bracket (FPT Connections)		
call	GPM-4 UP26-99 230V Grundfos, cast iron, On Bracket	Each
1054	GPM-4 UP26-116 230V Grundfos, cast iron, On Bracket	Each
call	GPM-4 UP26-116SF 230V Grundfos, stainless, On Bracket	Each
call	GPM-4 UPS26-99 3-speed 115V Grundfos, cast iron, On Bracket	Each
Each unit contains: Mounting hardware.		
Loop Pressurization		
3230	Pressure Battery (polyethylene expansion tank) -- up to 6 tons	Each
3551	Geo-Booster (loop pressurization system -- 35 psig)	Each
Geo-Prime Hybrid*		
1245	Geo-Prime Tank*	Each
1252	Insulated pump, UPS26-99 3-speed, 230V Grundfos, cast iron	Each
1253	Insulated pump, UP26-116, 230V Grundfos, cast iron	Each
1269	Insulated pump, UPS26-99 3-speed, 115V Grundfos, cast iron	Each
Each unit contains: Mounting hardware. NOTE: See Flo-Link adapters for fittings.		

*Use with Flo-Link flow centers or insulated pumps. May also be used with GPM flow centers with Flo-Link female x 1" MPT adapter (see Accessories section).



Insulated Pump

Geo-Prime Tank



GPM-1 & 2 Series
(GPM-1 shown)



GPM-3 & 4 Series
(GPM-3 shown).



Pressure Battery



Geo-Booster

NP SERIES

Non-Pressurized
Flow Centers

It's as easy as 1,2,3 ...

1



NP and NP Plus (variable speed pump version shown)

When introduced in 2013, Geo-Flo's NP Series™ non-pressurized flow center raised the bar for non-pressurized systems with factory-installed 3-way flushing/purging valves, pressure/vacuum relief, and Flo-Link™ double O-ring connections. Today's NP series product line is available for a wide range of applications ...

1. **NP Series:** Single unit non-pressurized flow center with variable speed, 3-speed, or single speed pumps. The **NP Plus™** (next page) provides even more options!
2. **NP Dual Circuit:** By far, the easiest piping arrangement available for systems with two geothermal heat pumps.
3. **NP Multi:** For three, four, or five heat pumps (also available in a two-circuit version), the NP Multi greatly reduces labor and installation time with a factory assembled header and flushing/purging valves.

2



NP Dual (variable speed pump version shown)

3

(or 4 or 5)



NP Multi (variable speed pump version shown)

NP PLUS™ Non-Pressurized Flow Center

The first generation NP Series™ flow centers changed the industry with built-in 3-way flush valves, pressure/vacuum relief cap, Flo-Link double O-ring connections, and variable speed options. The NP PLUS provides even more features ...

- 56% larger cap
- Additional 3-way flushing valve (allows isolation between ground loop and heat pump)
- Includes ground loop fittings
- Simplified connections (designated heat pump and ground loop fittings)
- Lower installation cost (less cost than the NP series plus the added items)
- Less labor / faster installation



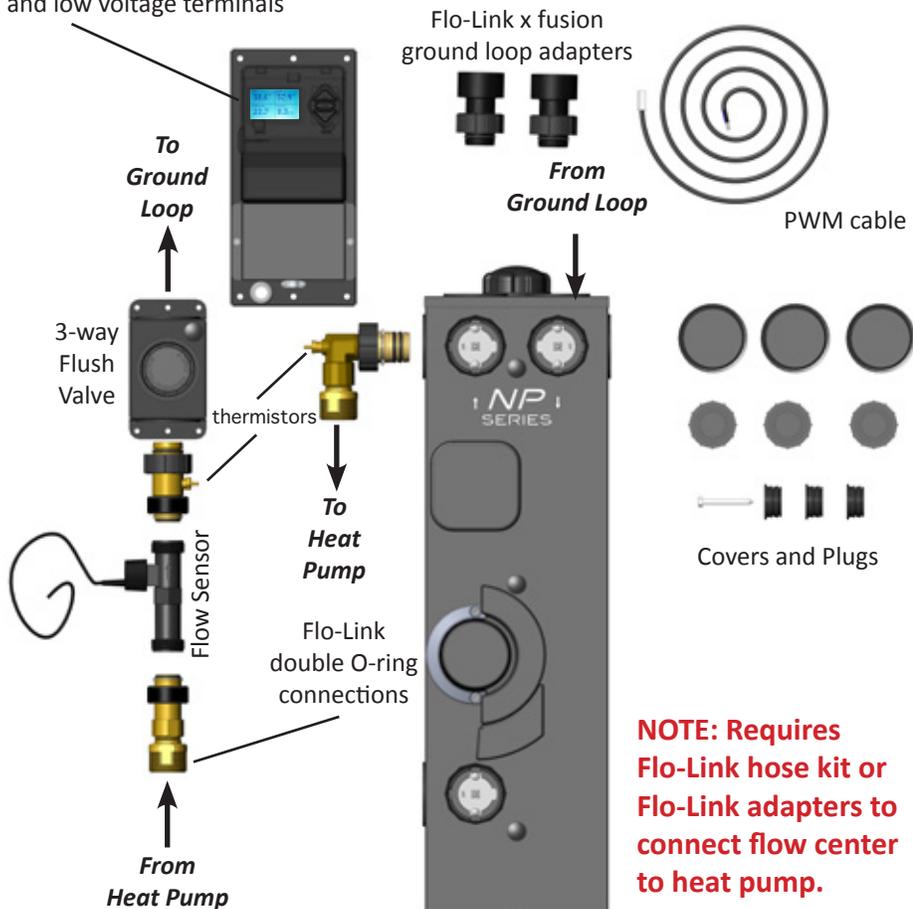
NP PLUS

Non-Pressurized Flow Center

The next generation of non-pressurized flow centers!

NEW!

Panel Mount Controller with factory wired flow sensor, thermistors, isolation relays, and low voltage terminals



NPV PLUS™ Variable Speed Kit

The NPV PLUS variable speed kit includes everything needed for heat pumps with 24 VAC controls. Simply select a hose kit or adapters (next page) for connection to the heat pump.

The NPV PLUS provides increased system efficiency with the Magna GEO variable speed ECM circulator. When the heat pump is running at part load, the flow rate is decreased, significantly reducing pressure drop, allowing the ECM motor to ramp down, and lower pump Watts. Since two-stage heat pumps typically operate at part load 80% of the time, pumping costs may be reduced by 50% or more.

In addition to savings, the UPC GEO controller displays flow rate, EWT, LWT, HE/HR, and pump Watts on the screen. Flow rate control or Delta-T control is field-selectable.

NOTE: Requires Flo-Link hose kit or Flo-Link adapters to connect flow center to heat pump.

Residential Flow Centers

Part Number	Description	U.O.M.
	NP PLUS*, NP ^V PLUS*, & NP ^{V2} PLUS* (Flo-Link Dbl O-Ring Connections) -->See page 8 for variable spd. pump compatibility w/ heat pump controls<--	
1338	NP ¹ PLUS* UPS26-99 (3-speed) 230V Grundfos, cast iron, Foamed	Each
1340	NP ¹ PLUS* UP26-116 230V Grundfos, cast iron, Foamed	Each
1342	NP ^V PLUS* with Magna GEO (variable speed) 230V Grundfos, cast iron, Foamed	Each
1342N	NP ^V PLUS* w/Magna GEO (INV profile-DXM2) 230V Grundfos, cast, Foamed	Each
1339	NP ² PLUS* UPS26-99 (3-speed) 230V Grundfos, cast, Foamed, Qty 2	Each
1341	NP ² PLUS* UP26-116 230V Grundfos, cast iron, Foamed, Qty 2	Each
1343	NP ^{V2} PLUS* w/Magna GEO (variable speed) & 1 UPS26-99, 230V, cast, Foamed	Each
1343N	NP ^{V2} PLUS* w/Magna GEO (INV prof-DXM2) & 1 UPS26-99, 230V, cast, Foamed	Each
*PLUS Includes: Ground loop fittings (PE fusion x Flo-Link) and additional insulated 3-way valve Requires: Heat pump connections (see NP PLUS hose kit, below, or Flo-Link adapters)		
NP^V & NP^{V2} PLUS Kit** (Flo-Link Dbl O-Ring Connections)		
1344	NP ^V PLUS Kit** with Magna GEO (variable speed) 230V Grundfos, cast iron, Foamed	Kit
1345	NP ^{V2} PLUS Kit** with one Magna GEO (variable speed) and one UPS26-99 (constant speed), 230V Grundfos, cast iron, Foamed	Kit
**NPV PLUS Kit Includes: Ground loop fittings (PE fusion x Flo-Link), additional insulated 3-way valve, and panel mounted/factory pre-wired UPC GEO controller (flow and temperature) Kit requires: Heat pump connections (see hose kit for NPV PLUS kit, below, or Flo-Link adapters)		
Hose Kit for NP PLUS, NP^V PLUS, & NP^{V2} PLUS*** (part #s 1338 through 1343N)		
1347	NP PLUS hose kit for heat pumps with 1" FPT fittings (1" MPT fittings for connection to heat pump; double O-ring at flow center)	Each
Hose Kit for NPV PLUS Kit*** (part #s 1344 & 1345)		
1181	Flo-Link hose kit for heat pumps with 1" FPT fittings (1" MPT fittings for connection to heat pump; double O-ring at flow center)	Each
***NP PLUS flow centers have Flo-Link double O-ring female fittings for connection to the heat pump. One of the hose kits above may be used, or Flo-Link adapters may be used if hard piping. For example, Flo-Link x 1-1/4" PVC glue adapters (part # 3425) are available for PVC schedule 80 piping to the heat pump. See hose kit section and Flo-Link fitting section for other options.		

NP PLUS Non-Pressurized Flow Center

*The next generation
of non-pressurized
flow centers!*

See page 8 for
compatibility with
heat pump controls.

Flo-Link Adapters for Hard Piping Installation



Flo-Link x 1-1/4"
HDPE fusion



Flo-Link x 1" FPT
(typical for PEX)



Flo-Link x 1-1/4"
PVC Glue

NP PLUS, NP^V PLUS, & NP^{V2} PLUS



1347

NPV Plus Kit



1181

APPLICATION NOTES:

Use NP Plus flow centers for ground loop installations with outside headers. Use NP flow centers (next page) for applications with inside headers.

Residential Flow Centers

NP SERIES Non-Pressurized Flow Center

Part Number	Description	U.O.M.
	NP ¹ and NP ² with Foamed Cabinet (Flo-Link Double O-Ring Connections)	
1271	NP ¹ UPS26-99 (3-speed) 230V, 60Hz, Grundfos, cast iron, Foamed	Each
1273	NP ¹ UP26-116 230V, 60Hz, Grundfos, cast iron, Foamed	Each
1272	NP ² UPS26-99 (3-speed) 230V, 60Hz, Grundfos, cast iron, Foamed, Qty 2	Each
1274	NP ² UP26-116 230V, 60Hz, Grundfos, cast iron, Foamed, Qty 2	Each
Requires: Flo-Link adapter set (Use P/N 3425 for PVC, P/N 2911 for PE fusion).		
NP ^v & NP ^{v2} w/ Foamed Cabinet (Flo-Link Dbl O-Ring Connections)		
1275*	NP ^v Magna GEO (variable speed std. profile) 230V, 50/60Hz, Grundfos, cast iron, Foamed -- see page 8 for control compatibility	Each
1275N*	NP ^v Magna GEO (variable speed inv. profile) 230V, 50/60Hz, Grundfos, cast iron, Foamed -- see page 8 for control compatibility	Each
1276*	NP ^{v2} one Magna GEO (variable speed) and one UPS26-99 (constant speed), 230V, 60Hz, Grundfos, cast iron, Foamed -- see page 8 for control compatibility	Each
1276N*	NP ^{v2} one Magna GEO (var spd. inv. prof.) and one UPS26-99 (constant speed), 230V, 60Hz, Grundfos, cast iron, Foamed -- see page 8 for control compatibility	Each
Requires: Flo-Link adapter set (Use P/N 3425 for PVC, P/N 2911 for PE fusion).		
*NOTE: Variable speed flow centers require a controller package (see page 8).		

Adapter sets for NP series flow centers: Order Flo-Link double O-ring adapter sets for PVC connections or HDPE fusion connections.



Flo-Link (double O-ring)
x PVC 1-1/4" glue



Flo-Link (double O-ring) x
1-1/4" HDPE socket fusion

APPLICATION NOTES:

Use NP flow centers for ground loop installations with inside headers. Use NP Plus flow centers (previous page) for applications with outside headers.

Tools for NP and NP Plus Flow Centers

Part Number	Description	
	GEO-METER Flow Meter Tool	
3762	Mechanical (variable area) flow meter tool	Each
3767	Adapter kit for B & D flow meter tool (allows B & D tool to be used with NP series flow centers)	Each
Flow meter tool 3762 contains: Tool with fittings, 90° cam x Dbl O-ring adapter, straight cam x Dbl O-ring adapter, B & D adapter, and carrying case.		



GEO-METER flow meter tool,
adapters, and case



Adapter kit for
B & D flow meter tool

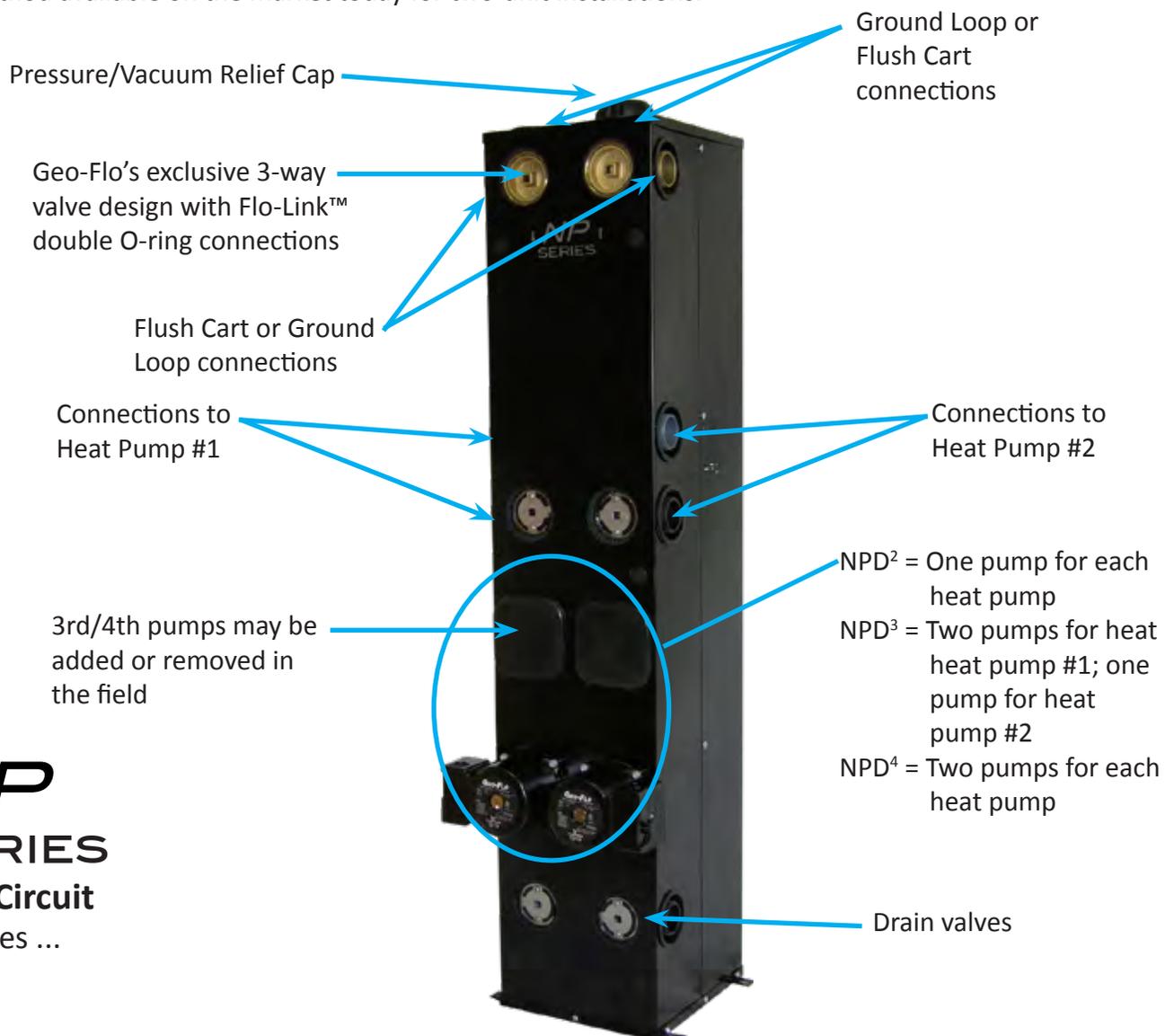


Flow meter tool
shown in use

NP SERIES Dual Circuit Non-Pressurized Flow Center

The NP series **Dual Circuit** non-pressurized flow center is the next evolution in Geo-Flo's NP series. By incorporating flushing valves into the flow center, the ground loop may be flushed without adding external flush ports, saving installation time and additional cost. Plus, piping becomes much simpler. Flo-Link™ double O-ring transition fittings are available for most any application (PE fusion, PVC, threaded, etc.). Top or side connections to the ground loop add even more flexibility.

The NP series **Dual Circuit** flow center is specifically designed for applications with two geothermal heat pumps by eliminating the need for T's, additional piping, check valves, and pump sharing relays. Simply connect the ground loop to the 3-way valves at the top of the flow center (side or top connections) and the heat pumps to the side connections. The pump(s) on each side is powered only when that heat pump is running. There is no easier method available on the market today for two-unit installations.



NP
SERIES
Dual Circuit
Features ...

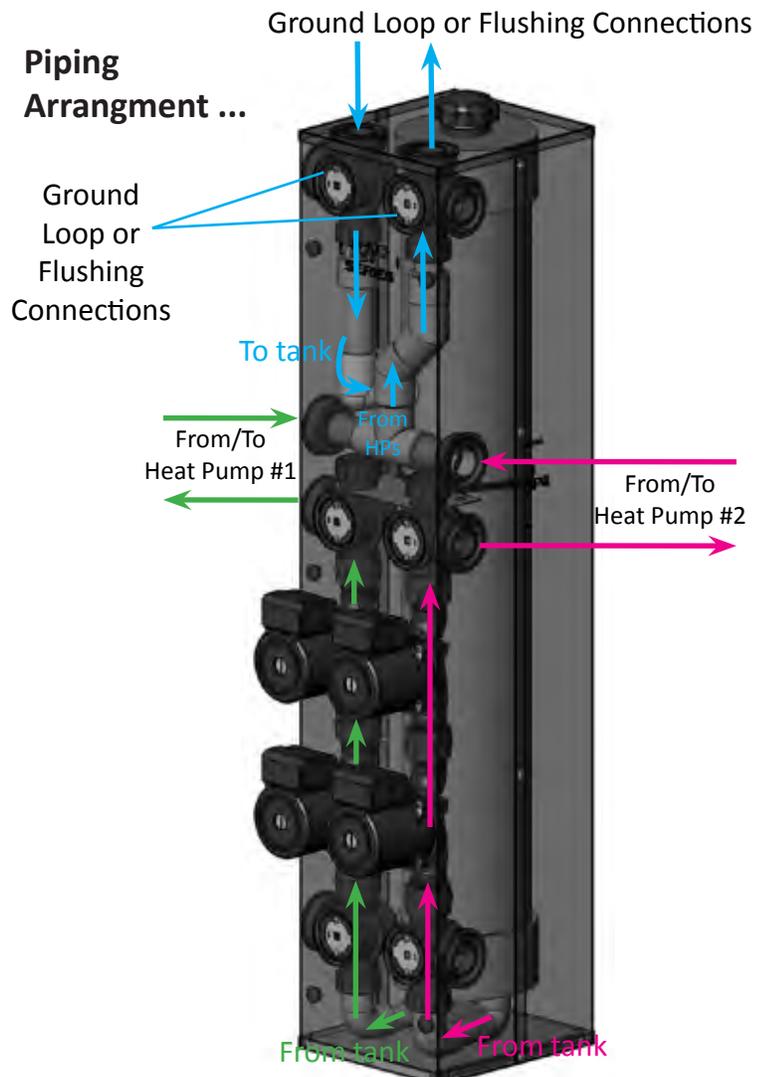
NP SERIES Dual Circuit Non-Pressurized Flow Center

Part Number	Description	U.O.M.
	NPD² with Foamed Cabinet (Flo-Link Double O-Ring Connections)	
1304	NPD ² UPS26-99 (3-speed) 230V, 60Hz, Grundfos, cast iron, Foamed, Qty 2	Each
1307	NPD ² UP26-116 230V, 60Hz, Grundfos, cast iron, Foamed, Qty 2	Each
	NPD³ with Foamed Cabinet (Flo-Link Double O-Ring Connections)	
1305	NPD ³ UPS26-99 (3-speed) 230V, 60Hz, Grundfos, cast iron, Foamed, Qty 3	Each
1308	NPD ³ UP26-116 230V, 60Hz, Grundfos, cast iron, Foamed, Qty 3	Each
	NPD⁴ with Foamed Cabinet (Flo-Link Double O-Ring Connections)	
1306	NPD ⁴ UPS26-99 (3-speed) 230V, 60Hz, Grundfos, cast iron, Foamed, Qty 4	Each
1309	NPD ⁴ UP26-116 230V, 60Hz, Grundfos, cast iron, Foamed, Qty 4	Each
	GEO-METER Flow Meter Tool	
3762	Mechanical (variable area) flow meter tool	Kit
3767	Adapter kit for B & D flow meter tool (allows B & D tool to be used with NP series flow centers)	Kit

Flow meter tool 3762 contains: Tool with fittings, 90° cam x Dbl O-ring adapter, straight cam x Dbl O-ring adapter, B & D adapter, and carrying case.

Features:

- Specifically designed for two unit applications
- Non-pressurized operation
- Built-in 3-way valves allow flushing/purging air directly at the flow center
- Heavy gauge powder-coated steel cabinet
- Completely foam insulated cabinet helps prevent condensation at low temperatures
- Pressure/vacuum relief cap never lets the tank go into a vacuum or above 13 psig.
- Internal check valves prevent short cycling
- Selection of one or two pumps for each side
- Selection of Grundfos UPS26-99 3-speed or UP26-116 single speed pumps
- Flo-Link™ double O-ring connections provide union connections at the flow center
- Compatible with standard hose kits
- Saves energy by only energizing the pump(s) needed when only one heat pump is running
- Allows pump replacement without reflushing the ground loop



NP **SERIES** **Dual Circuit** **Variable Speed** **Non-Pressurized** **Flow Center**

Part Number	Description	U.O.M.
	NPDV² with Foamed Cabinet (Flo-Link Double O-Ring Connections)	
1334*	NPDV ² 230V, 60Hz, cast iron, Foamed -- Left side: Grundfos Magna GEO variable speed, standard profile; Right side: UPS26-99 (3-speed)	Each
1334N**	NPDV ² 230V, 60Hz, cast iron, Foamed -- Left side: Grundfos Magna GEO variable speed, inverted profile (includes PWM cable); Right side: UPS26-99 (3-speed)	Each
1335*	NPDV ² 230V, 60Hz, cast iron, Foamed -- Both sides: Grundfos Magna GEO variable speed, standard profile	Each
1335N**	NPDV ² 230V, 60Hz, cast iron, Foamed -- Both sides: Grundfos Magna GEO variable speed, inverted profile (includes PWM cables, one for each heat pump)	Each
NPDV³ with Foamed Cabinet (Flo-Link Double O-Ring Connections)		
1336*	NPDV ³ 230V, 60Hz, cast iron, Foamed -- Left side: Grundfos Magna GEO variable speed, standard profile + UPS26-99 (3-speed); Right side: Grundfos Magna GEO variable speed, standard profile	Each
1336N**	NPDV ³ 230V, 60Hz, cast iron, Foamed -- Left side: Grundfos Magna GEO variable speed, inverted profile (includes PWM cable) + UPS26-99 (3-speed); Right side: Grundfos Magna GEO variable speed, inverted profile (includes PWM cable)	Each
GEO-METER Flow Meter Tool		
3762	Mechanical (variable area) flow meter tool	Kit
3767	Adapter kit for B & D flow meter tool (allows B & D tool to be used with NP series flow centers)	Kit

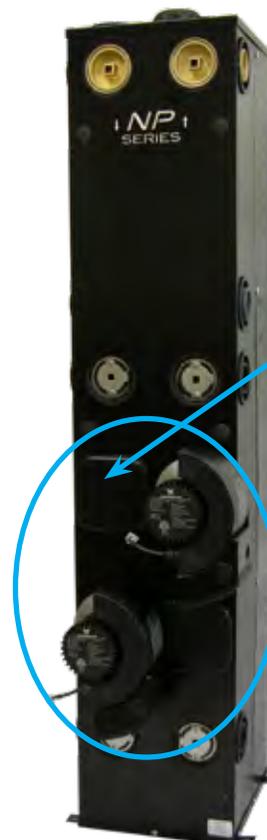
Flow meter tool GF-3762 contains: Tool with fittings, 90° cam x Dbl O-ring adapter, straight cam x Dbl O-ring adapter, B & D adapter, and carrying case.

* Requires cable(s) or controller(s). See page 8 for compatibility.

** Includes PWM cable(s). See page 8 for compatibility.

Features:

- Grundfos Magna GEO variable speed pumps
- Specifically designed for two unit applications
- Non-pressurized operation
- Built-in 3-way valves allow flushing/purging air directly at the flow center
- Heavy gauge powder-coated steel cabinet
- Completely foam insulated cabinet helps prevent condensation at low temperatures
- Pressure/vacuum relief cap never lets the tank go into a vacuum or above 13 psig.
- Internal check valves prevent short cycling
- Selection of one or two pumps for each side
- Flo-Link™ double O-ring connections provide union connections at the flow center
- Compatible with standard hose kits
- Saves energy by only energizing the pump(s) needed when only one heat pump is running
- Allows pump replacement without reflushing the ground loop



3rd pump may be added or removed in the field

NPDV² = One var. spd. pump for each heat pump

OR: Var. spd. pump for heat pump #1 and constant spd pump for heat pump #2

NPDV³ = Two pumps for heat pump #1 (one var. spd./one const. spd); one var. spd. pump for HP #2

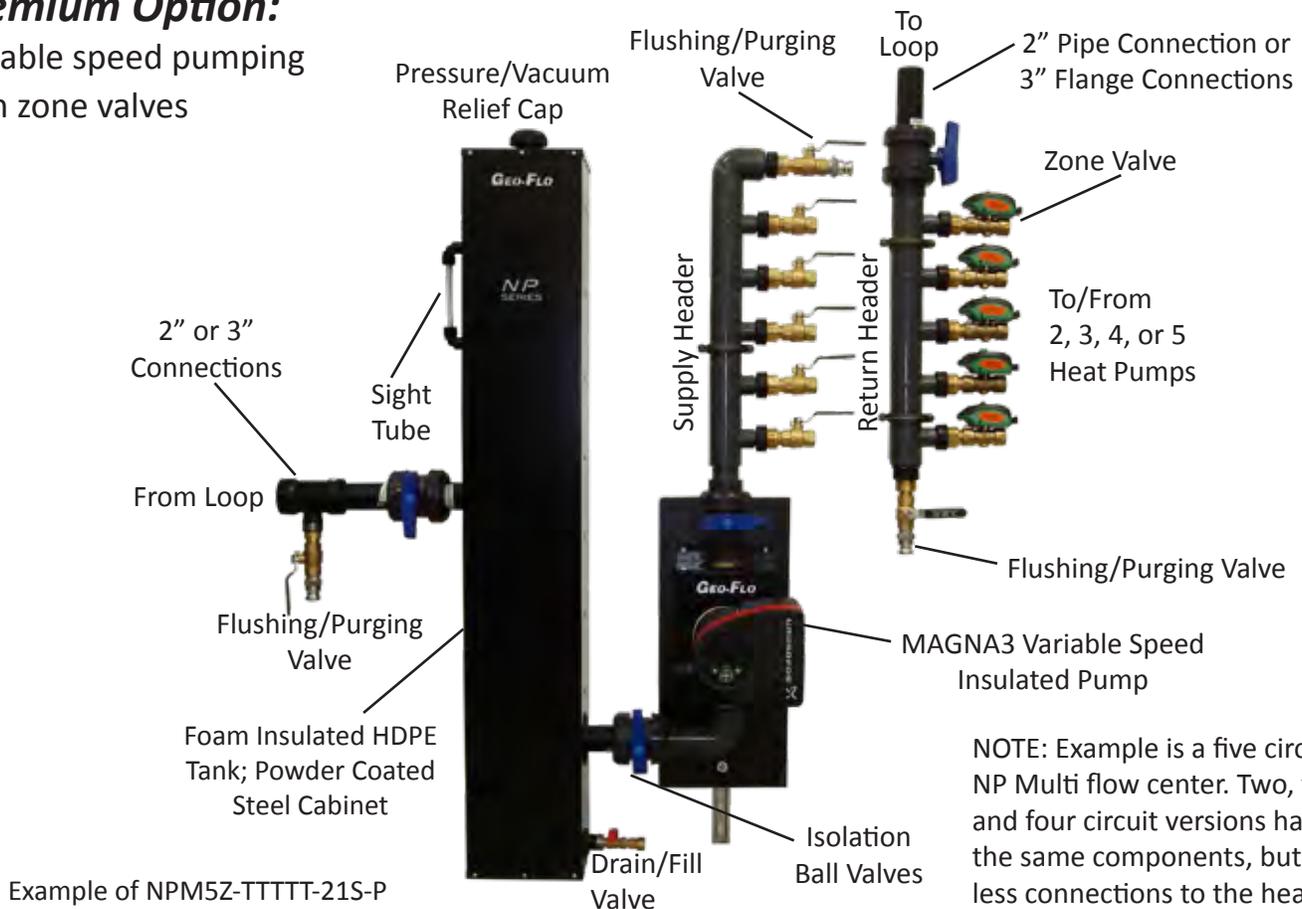
NP SERIES Multi Circuit Non-Pressurized Flow Center

Geo-Flo's NP Multi™ is an engineered solution designed to simplify your geothermal applications for multiple heat pumps by providing virtually all of the piping, flushing/purging valves, and pumps/zone valves for three to five heat pumps as part of a factory assembled package. There is no easier method available on the market today for multi-unit installations up to 30 tons of equipment.

Each NP Multi (NPM) flow center consists of a HDPE fluid reservoir (tank) housed in a closed-cell foam-insulated, powder coated steel cabinet. The tank provides a water column to deliver the necessary suction head for the circulator pumps and to ensure a flooded pump volute to prevent the pumps from becoming air-locked. In addition, the reservoir's body is sized to create a low fluid velocity region allowing both air and sediment to separate from the fluid. The sealing cap ensures a closed system while providing integrated pressure and vacuum relief to prevent the reservoir from being over-pressurized or dropping below atmospheric pressure. Union ball valves are included on the tank's supply and return connections for ease of installation and tank isolation during start-up and/or servicing. A fill and drain ball valve at the base of the tank comes standard for initial filling as well as refilling, draining, and sediment removal. The flexible sight tube is useful for quickly determining the fluid level.

Premium Option:

Variable speed pumping with zone valves

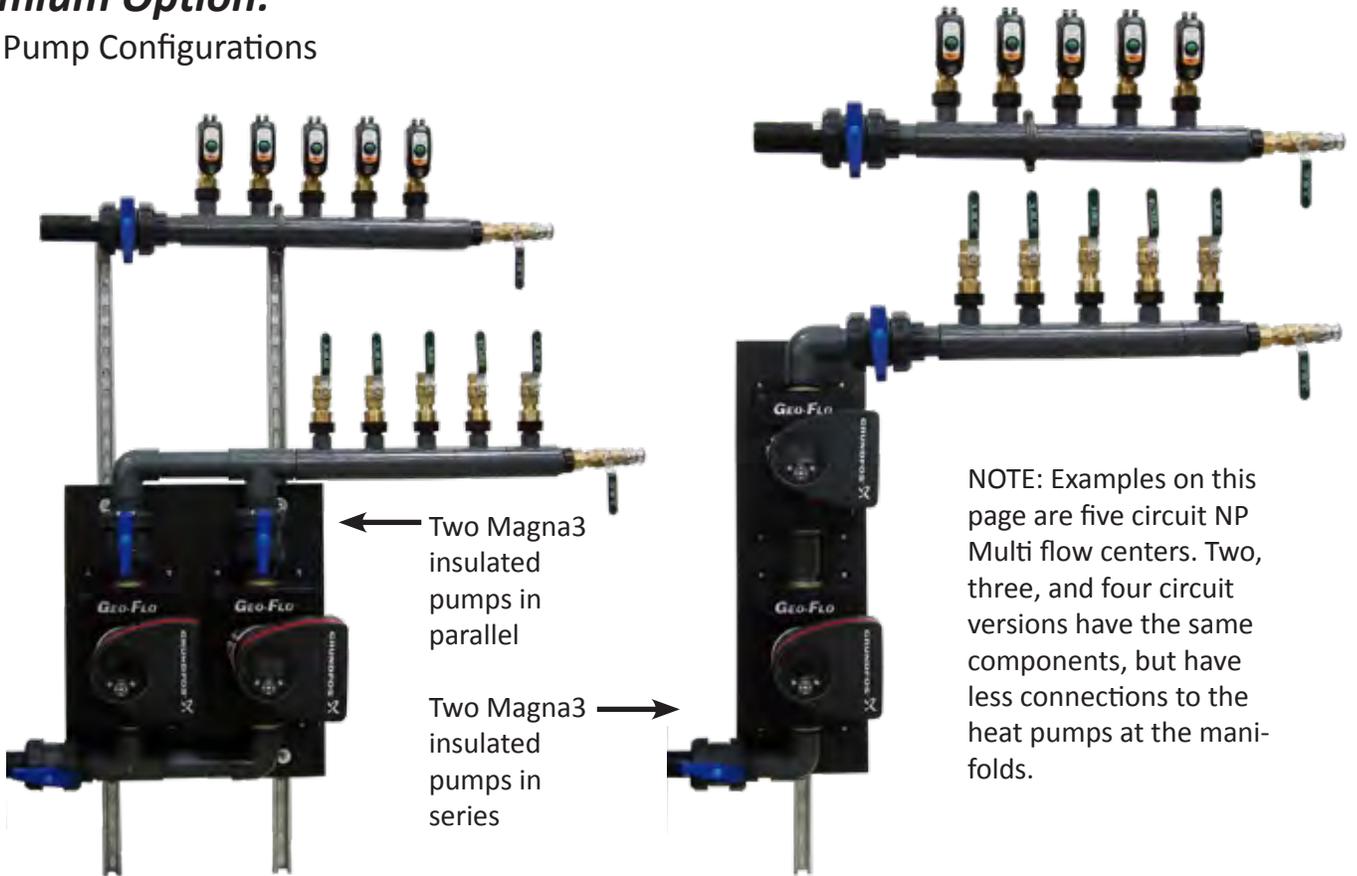


NOTE: Example is a five circuit NP Multi flow center. Two, three, and four circuit versions have the same components, but have less connections to the heat pumps at the manifolds.

Residential Flow Centers

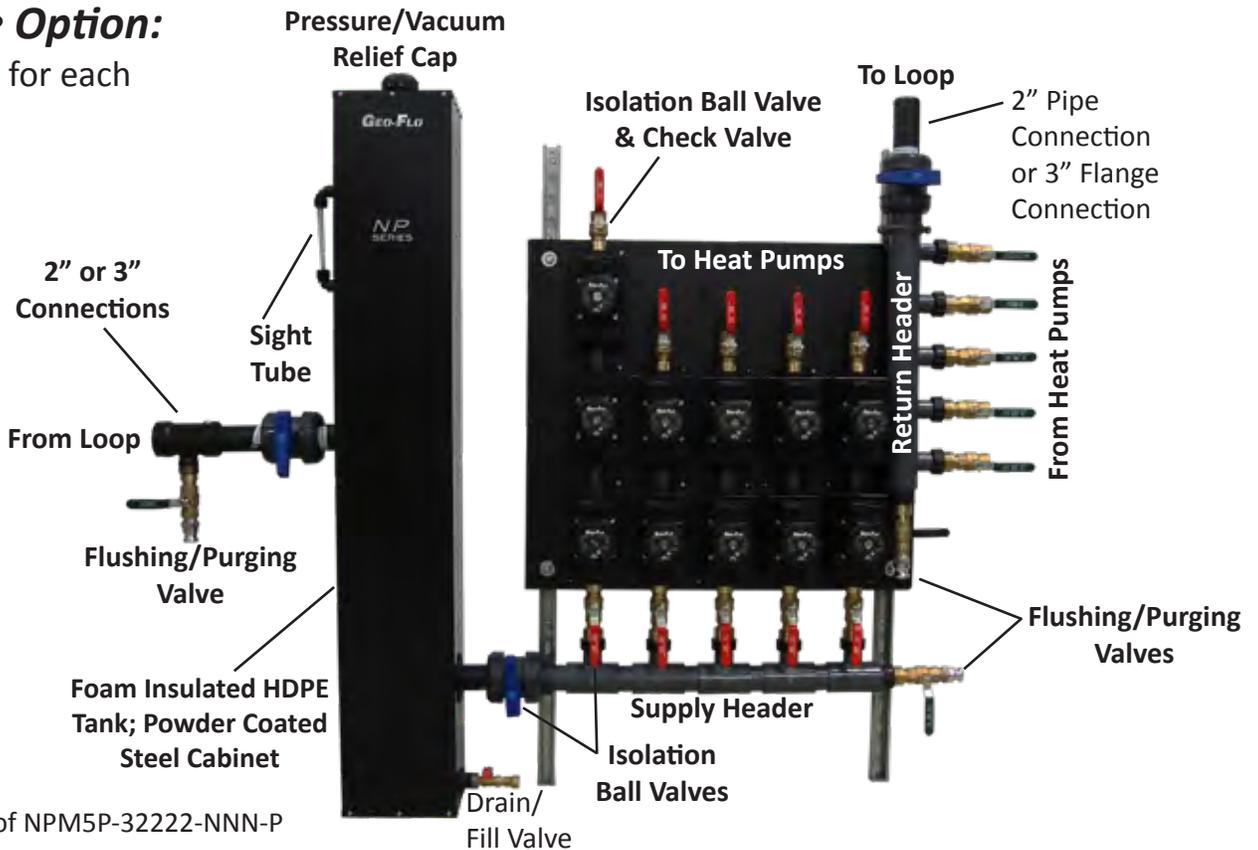
Premium Option:

Two Pump Configurations



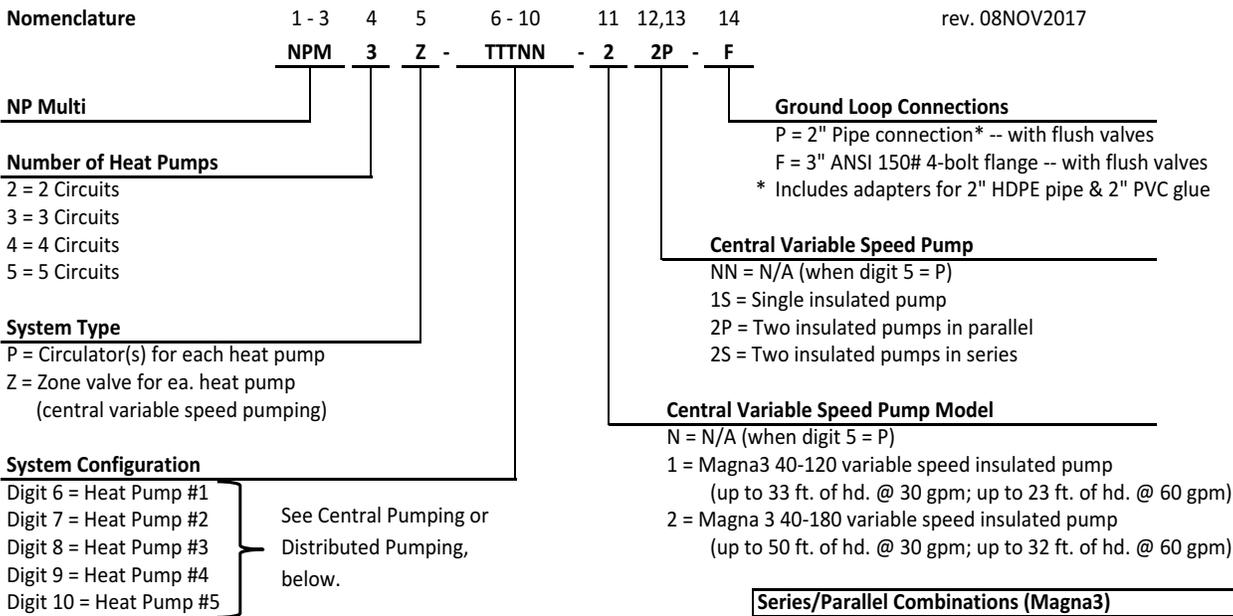
Alternate Option:

Circulator(s) for each heat pump



Example of NPM5P-32222-NNN-P

Model Nomenclature



Central Variable Speed Pumping -- digit 5 = Z

Use one of the following choices for digits 6 to 10:

T = 1" Taco Geo Sentry zone valve (Cv = 8.9)

B = 1" Belimo zone valve (Cv = 30)

R = Remote valve at heat pump (header with isolation valves)

N = This circuit not used (use in digit 8, 9, and/or 10 for NPM2, NPM3, or NPM4)

NOTE: Circuit field connections are 1" FPT.

Distributed Pumping (circulator for heat pump) -- digit 5 = P (Notes 1,3,4)

1 = One UPS26-99

2 = Two UPS26-99

3 = Three UPS26-99 (Note 2)

4 = One UP26-116

5 = Two UP26-116

6 = Three UP26-116 (Note 2)

7 = One Magna GEO (inverse profile)

8 = Magna GEO (INV) + UPS26-99

9 = One Magna GEO (standard profile)

0 = Magna GEO (STD) + UPS26-99

N = This circuit not used (use in digit 8, 9 and/or 10 for NPM2, NPM3, or NPM4)

Series/Parallel Combinations (Magna3)	
2 - 40-120 in parallel	up to 33 ft. of hd. @ 60 gpm
2 - 40-180 in parallel	up to 50 ft. of hd. @ 60 gpm
2 - 40-120 in series	up to 66 ft. of hd. @ 30 gpm
	up to 46 ft. of hd. @ 60 gpm
2 - 40-180 in series	up to 100 ft. of hd. @ 30 gpm
	up to 64 ft. of hd. @ 60 gpm

NOTES:

1. Arrange circuits from the the largest to smallest number of pumps in series. For example, use two pumps in series for circuit one, two pumps in series for circuit two, and one pump on circuit three.
2. If any circuit has 3 pumps in series, all other circuits must have at least two pumps in series.
3. All circuits must have the same pump family (e.g. all 26-99 or all 26-116).
4. Var. spd. pumps (options 7 to 0) include PWM cable.

Flow Center Sizing

When sizing pumps for a NPM multi-circuit flow center, it is critical that a pressure drop calculation be completed for the entire system when all heat pumps are running. Pump selection must be based upon the required system flow rate and pressure drop with all units running. While this is a relatively straightforward process and calculation for projects with one or two heat pumps, it is increasingly complex for systems with three or more heat pumps particularly when zoning with circulators. The details of this calculation are beyond the scope of this document. However, Geo-Flo provides a free online calculator for this product to assist in the design and selection of the proper NPM. Go to www.geo-flo.com, select Design Calculators, Pressure Drop Calculators, and Multi Unit (NPM) flow center.

System Configuration

NP
SERIES
Multi Circuit
 Non-Pressurized
 Flow Center



Step #1: Choose Number of Heat Pumps

Number of Heat Pumps	Digits 1 to 5
2	NPM2Z
3	NPM3Z
4	NPM4Z
5	NPM5Z

NOTE: All connections to heat pumps are 1" FPT (supply & return headers).

Step #2: Choose Zone Valves for Each Circuit

Zone Valves (Digits 6-10) T = 1" Taco Geo Sentry (Cv = 8.9) B = 1" Belimo, Cv = 30 R = Remote valve N = Not used (digit 8, 9 and/or digit 10 for NPM2, NPM3, or NPM4)	Digit 6	Digit 7	Digit 8	Digit 9	Digit 10
	Heat Pump 1	Heat Pump 2	Heat Pump 3	Heat Pump 4	Heat Pump 5
	Choose T, B, or R for heat pump 1 (digit 6)	Choose T, B, or R for heat pump 2 (digit 7)	Choose T, B, R, or N for heat pump 3 (digit 8)	Choose T, B, R, or N for heat pump 4 (digit 9)	Choose T, B, R, or N for heat pump 5 (digit 10)

Example: Digits 6 to 10 would be TTTTT for a NPM5Z with a Taco zone valve for each heat pump.

Step #3: Choose Central Pump Type

Pump Type	Digit 11
1 = Magna3 40-120	Choose
2 = Magna3 40-180	1 or 2

Step #4: Choose Pump Configuration

Pump Configuration	Digits 12 & 13
1S = Single Insulated Pump w/Isolation Valves	Choose 1S, 2P, or 2S
2P = 2 Insul. Pmps (Parallel) w/Isol. Valves & Check Vlv	
2S = 2 Insul. Pumps (Series) w/Isolation Valves	

Step #5: Choose Ground Loop Connections

Ground Loop Connections	
2"	3"
Digit 14 = P	Digit 14 = F

NOTE: 2" ground loop connections are HDPE fusion or PVC glue;
 3" ground loop connections are ANSI 4-bolt flange type.

Step #6: Create Model number

From steps 1 through 5, model number may be completed (see model nomenclature for added dashes after digits 5, 10, and 13).

System Configuration

Constant Speed (Zoning with Circulators)

NP
SERIES
Multi Circuit
Non-Pressurized
Flow Center

Step #1: Choose number of heat pumps.

Number of Heat Pumps	Digits 1 to 5
2	NPM2P
3	NPM3P
4	NPM4P
5	NPM5P

NOTE: All connections to heat pumps are 1" FPT (supply & return headers).

Step #2: Choose pumps for each circuit.

Distributed Pumping (Digits 6-10)	Digit 6	Digit 7	Digit 8	Digit 9	Digit 10	Digits 11, 12, and 13
	Heat Pump 1	Heat Pump 2	Heat Pump 3	Heat Pump 4	Heat Pump 5	
1 = One UPS26-99	Choose 1 to 0 for heat pump 1 (digit 6)	Choose 1 to 0 for heat pump 2 (digit 7)	Choose 1 to 0 for heat pump 3 (digit 8)	Choose 1 to 0 for heat pump 4 (digit 9)	Choose 1 to 0 for heat pump 5 (digit 10)	Always NNN for Zoning with Circulators
2 = Two UPS26-99						
3 = Three UPS26-99						
4 = One UP26-116						
5 = Two UP26-116						
6 = Three UP26-116						
7 = Magna GEO (inv prof)*						
8 = Mag GEO (INV) + 26-99*						
9 = Magna GEO (std prof)*						
0 = Mag GEO (STD) + 26-99*						
N = Not used (digit 8, 9 and/or digit 10 for NPM2, NPM3, or NPM4)						

Example: Digits 6 to 10 would be 22222 for a NPM5P with two UPS26-99 pumps per heat pump.

NOTES:

1. Arrange circuits from the the largest to smallest number of pumps in series. For example, use two pumps in series for circuit one, two pumps in series for circuit two, and one pump on circuit three.
2. If any circuit has 3 pumps in series, all other circuits must have at least two pumps in series.
3. All pumps must be in the same family (e.g. all UPS26-99 or all UP26-116).

Step #3: Choose ground loop connections.

Ground Loop Connections	
2"	3"
Digit 14 = P	Digit 14 = F

NOTE: 2" ground loop connections are HDPE fusion or PVC glue; 3" ground loop connections are ANSI 4-bolt flange type.

Step #4: Create model number.

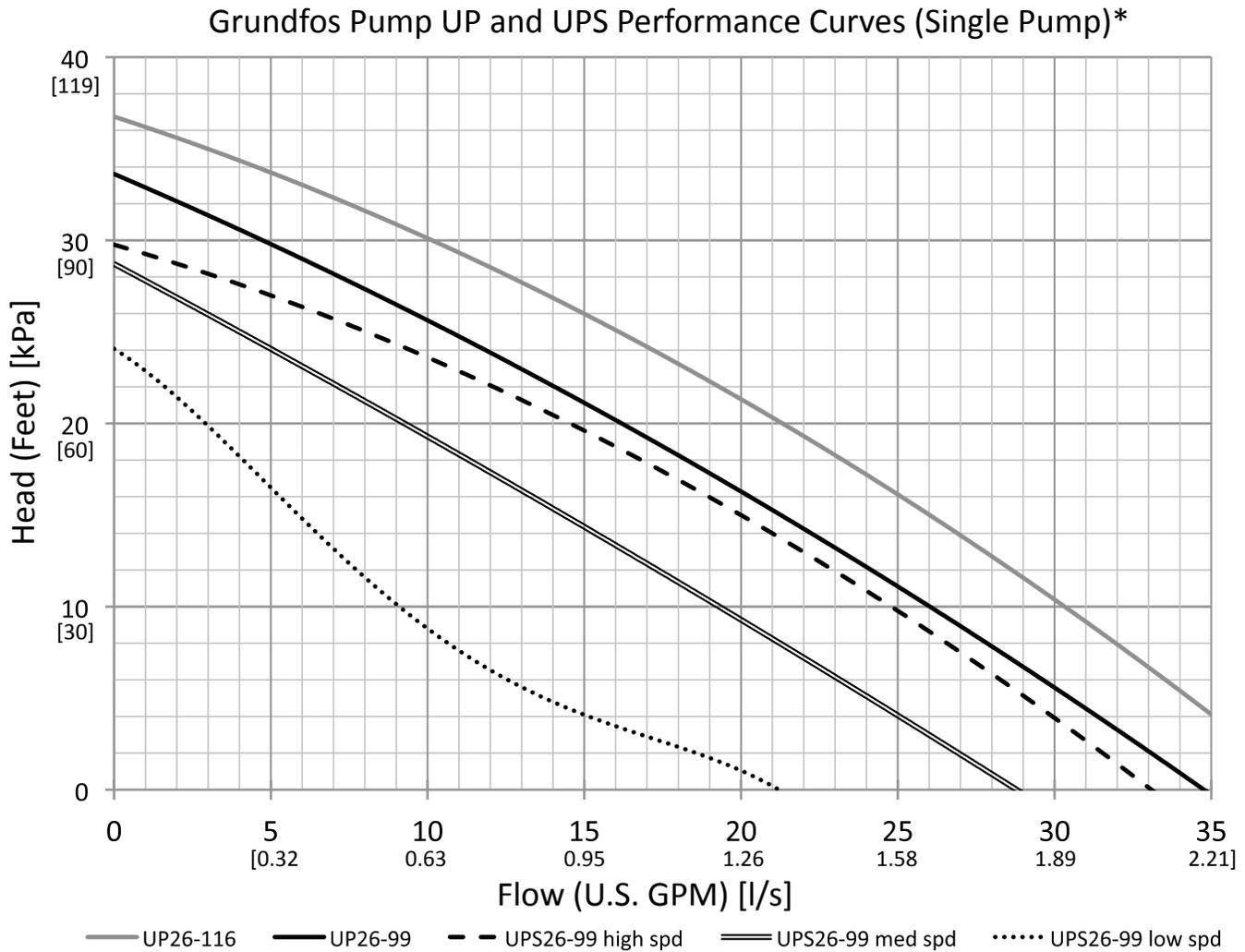
From steps 1 through 3, model number may be completed (see model nomenclature for added dashes after digits 5, 10, and 13).

*Use inverted profile for heat pumps with DXM2 controls; use standard profile for heat pumps with AXB controls or 24VAC controls. Heat pumps with 24VAC controls required a controller (P/N 3697 or 3698). Variable speed pumps (options 7 to 0) include PWM cable.

Pump Curves -- Flow Centers/Insulated Pumps

Grundfos UPS26-99, UP26-99, and UP26-116

UPS26-99 (3-speed) and UP26-116 (single speed) pumps are used in Geo-Flo flow centers. UP26-99 (single speed) pumps are used in some OEM models. To use Geo-Flo's pump sizing calculator, go to www.geo-flo.com.



*Above pump curves are for a single pump. Geo-Flo flow centers with multiple pumps are piped in series. To determine the pressure drop with multiple pumps, multiply the head shown on the chart by the number of pumps. For example, one UP26-116 pump can produce 24 ft. of head at 15 GPM; two UP26-116 pumps in series can produce 48 ft. of head.

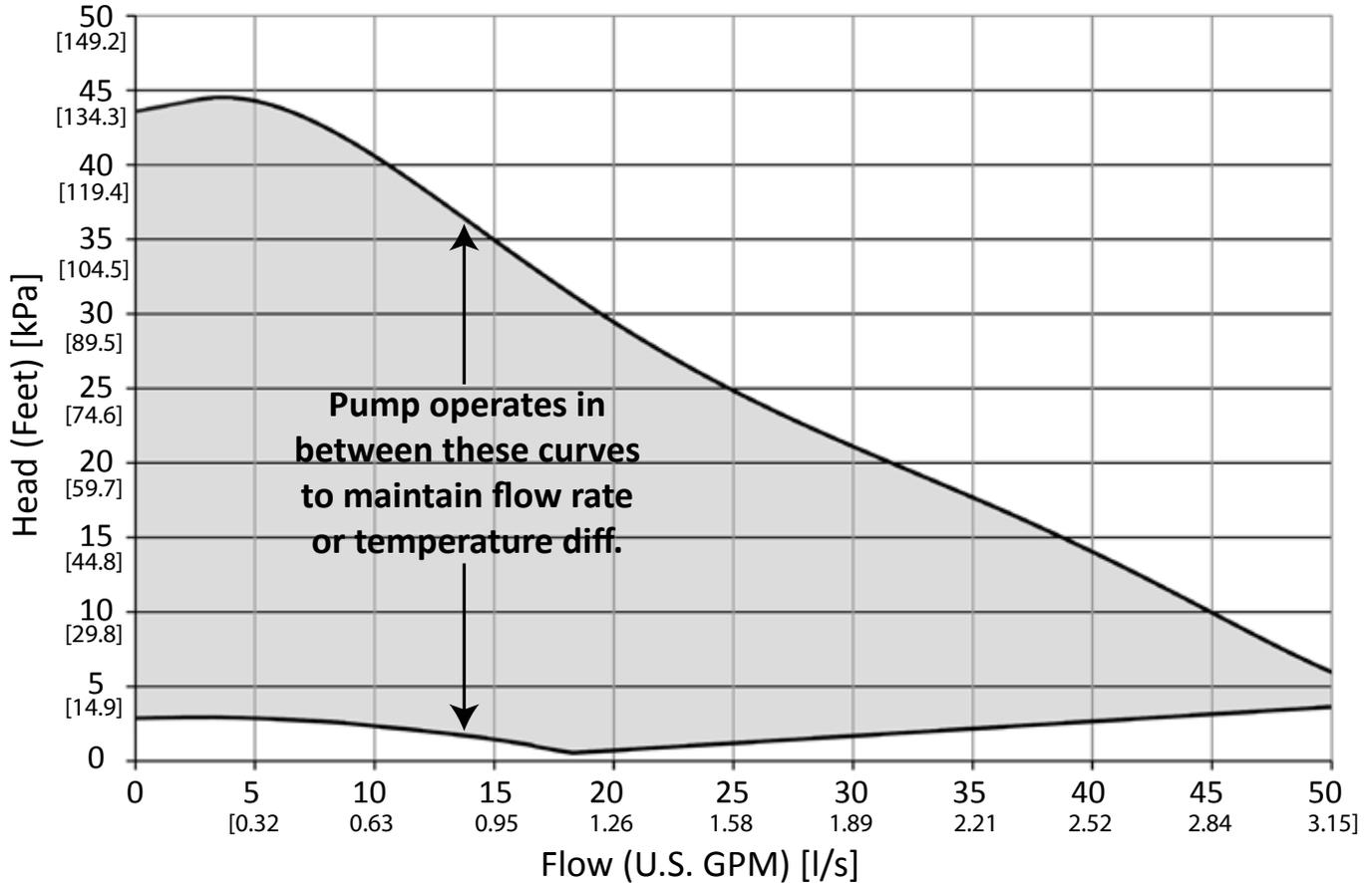
Curves are manufacturer's reported averages using water at 68°F [20°C].

Pump Curves -- Flow Centers/Insulated Pumps

Grundfos Magna GEO Variable Speed

The Magna GEO pump is used on Geo-Flo's Flo-Link (double O-ring) pressurized flow centers and on NP series non-pressurized flow centers. To use Geo-Flo's pump sizing calculator, go to www.geo-flo.com.

Grundfos Magna GEO 32-140 Performance Curves (Single Pump)*

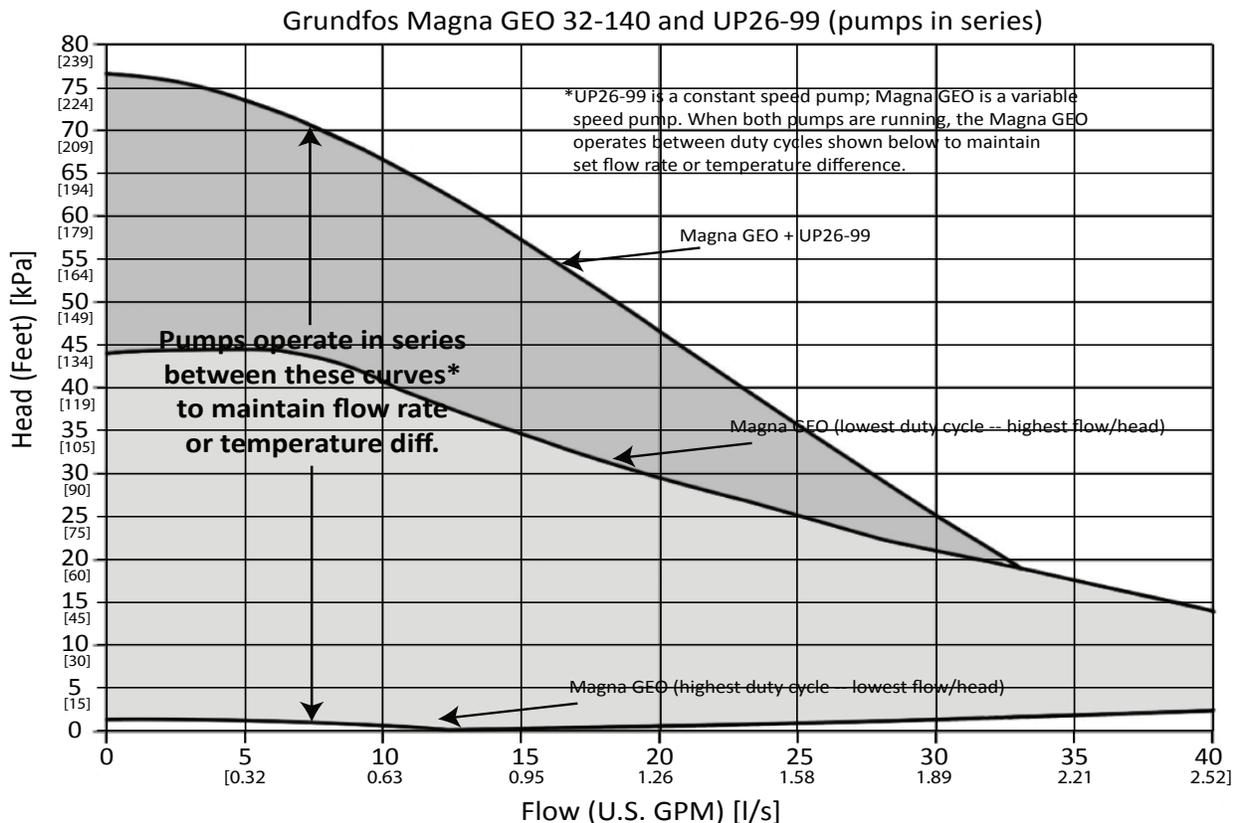
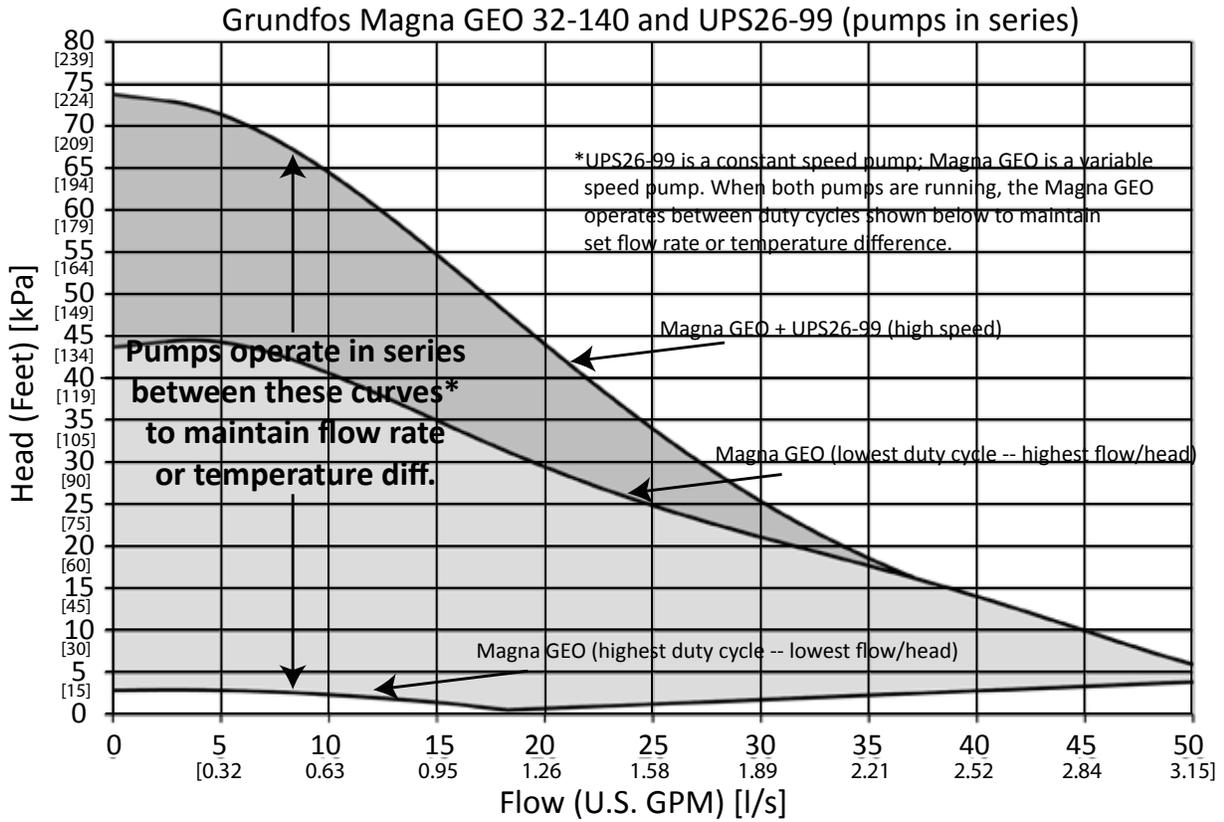


*Above pump curves are for a single pump. When the Magna GEO pump is used with a second pump in series, the second pump is constant speed. The Magna GEO (variable speed) pump adjusts speed (when used with a controller) to maintain flow rate or temperature difference. The controller energizes the constant speed pump (UPS26-99 or UP26-99) when the Magna GEO cannot meet setpoint, and adjusts the Magna GEO pump accordingly. See pump curves on the following pages for two pump variable speed Magna GEO flow centers.

Curves are manufacturer's reported averages using water at 68°F [20°C].

Pump Curves -- Flow Centers/Insulated Pumps

Grundfos Magna GEO Variable Speed with Second Pump in Series (UP & UPS 26-99)

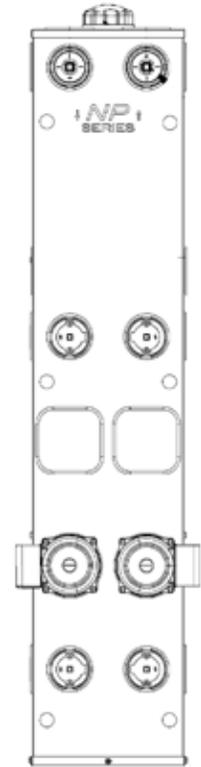
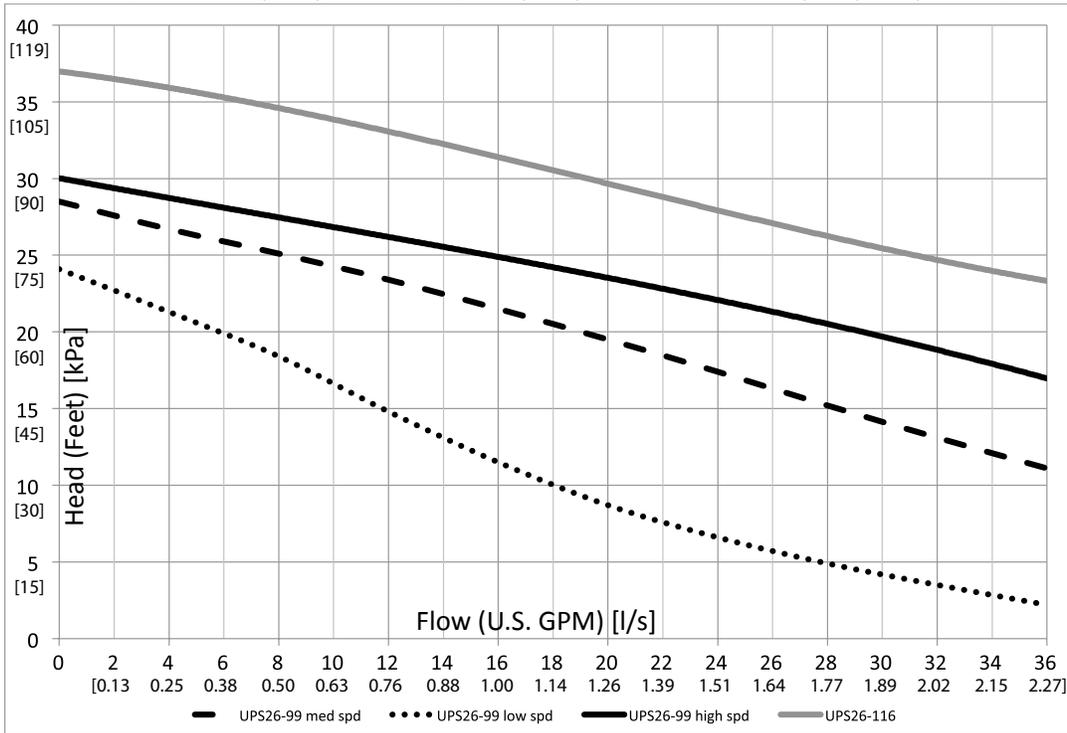


Curves are manufacturer's reported averages using water at 68°F [20°C].

Pump Curves -- Flow Centers/Insulated Pumps

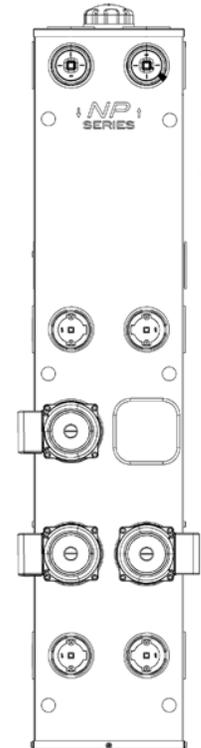
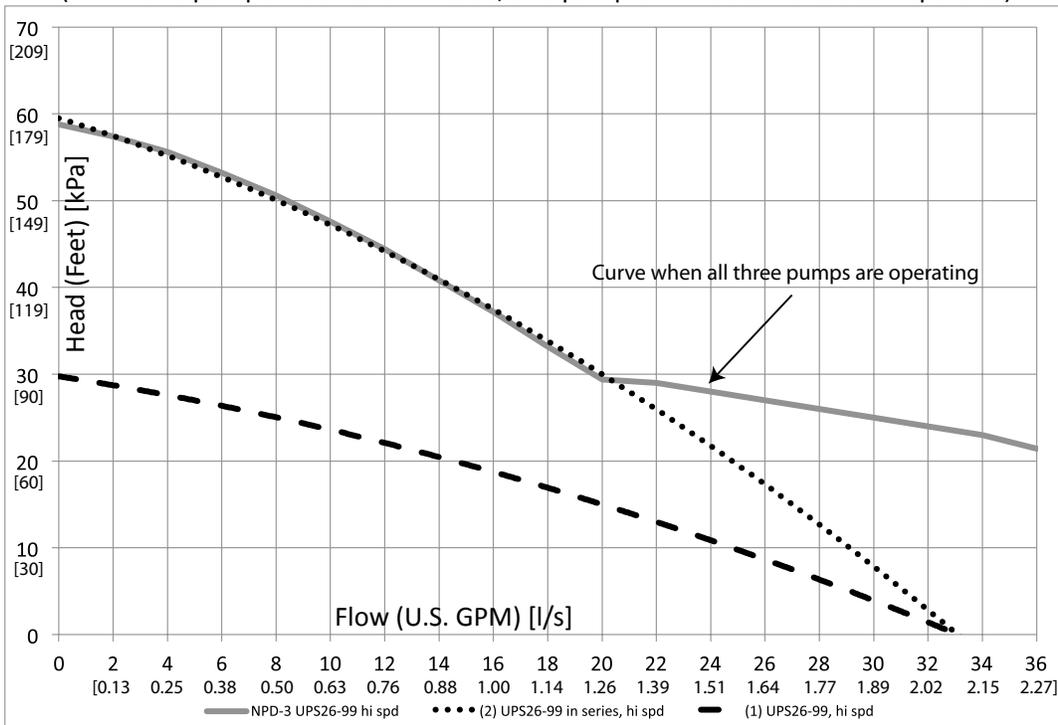
NPD Flow Centers

Grundfos Pump Performance Curves: UPS26-99, UP26-116
(NPD²: one pump on LH side; one pump on RH side -- two pumps in parallel)



NPD²

Grundfos Pump Performance Curves, UPS26-99, high speed
(NPD³: two pumps in series on LH side; one pump on RH side -- two sets in parallel)



NPD³

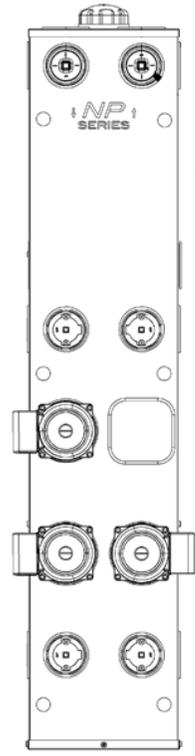
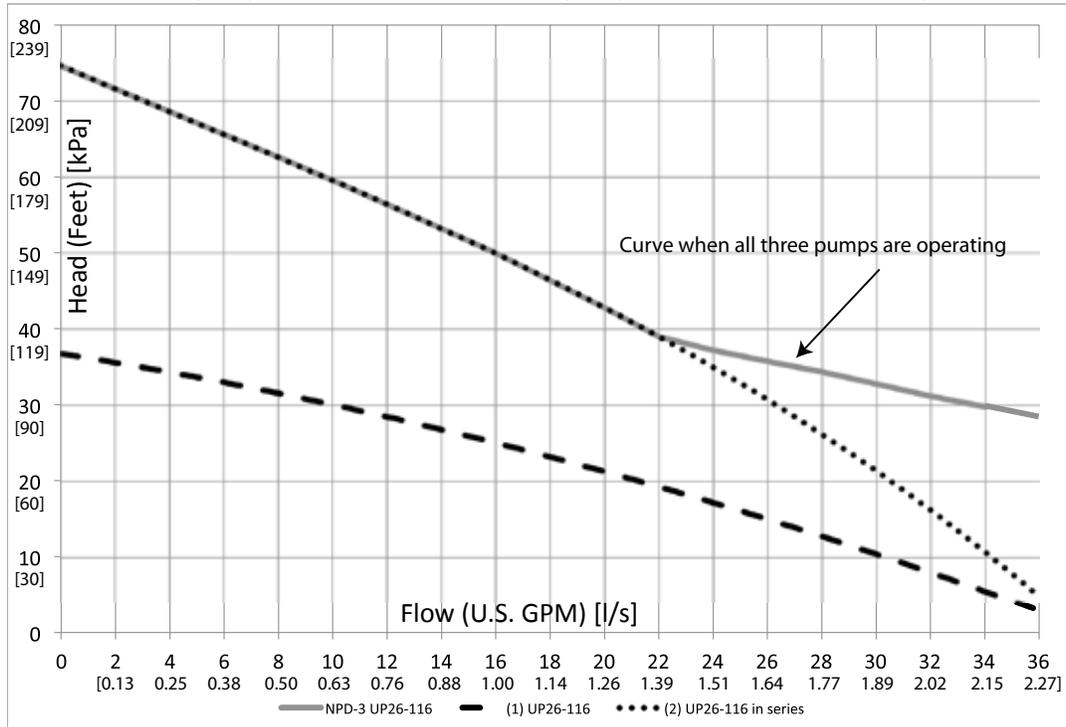
Curves are manufacturer's reported averages using water at 68°F [20°C].

Pump Curves -- Flow Centers/Insulated Pumps

NPD Flow Centers

Grundfos Pump Performance Curves, UP26-116

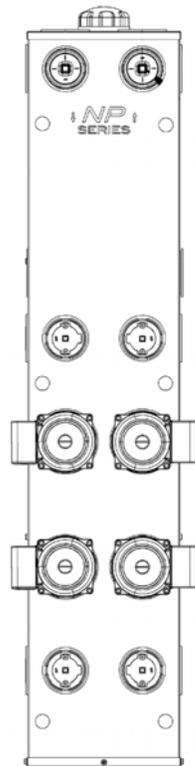
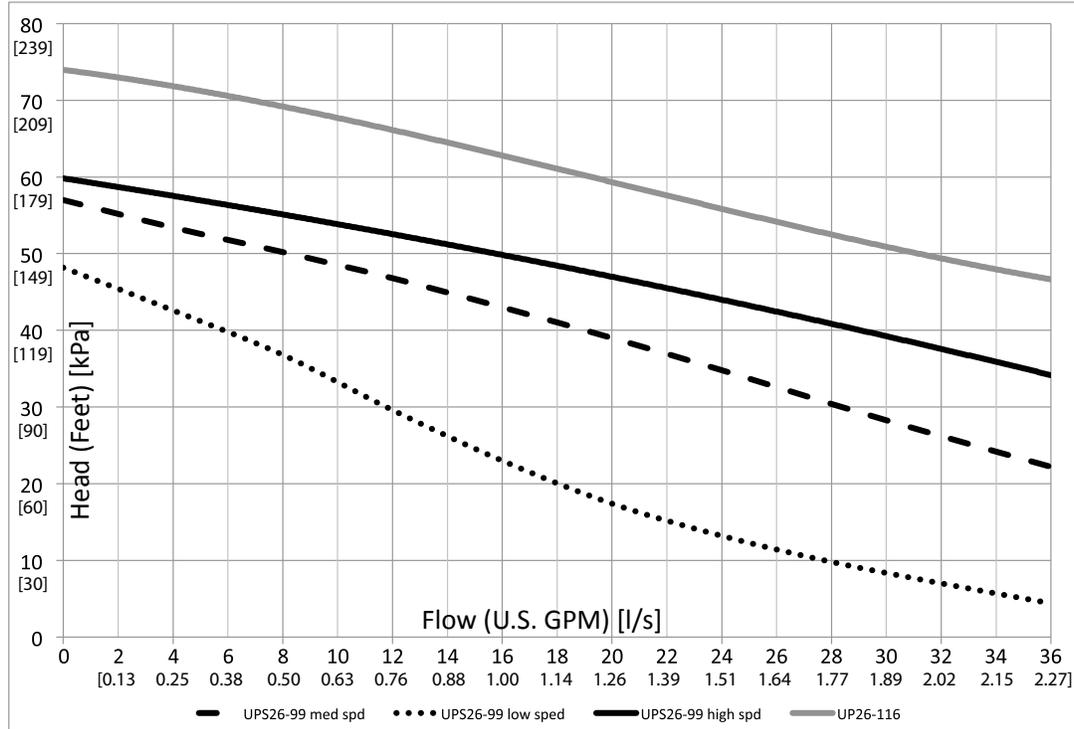
(NPD³: two pumps in series on LH side; one pump on RH side -- two sets in parallel)



NPD³

Grundfos Pump Performance Curves: UPS26-99, UP26-116

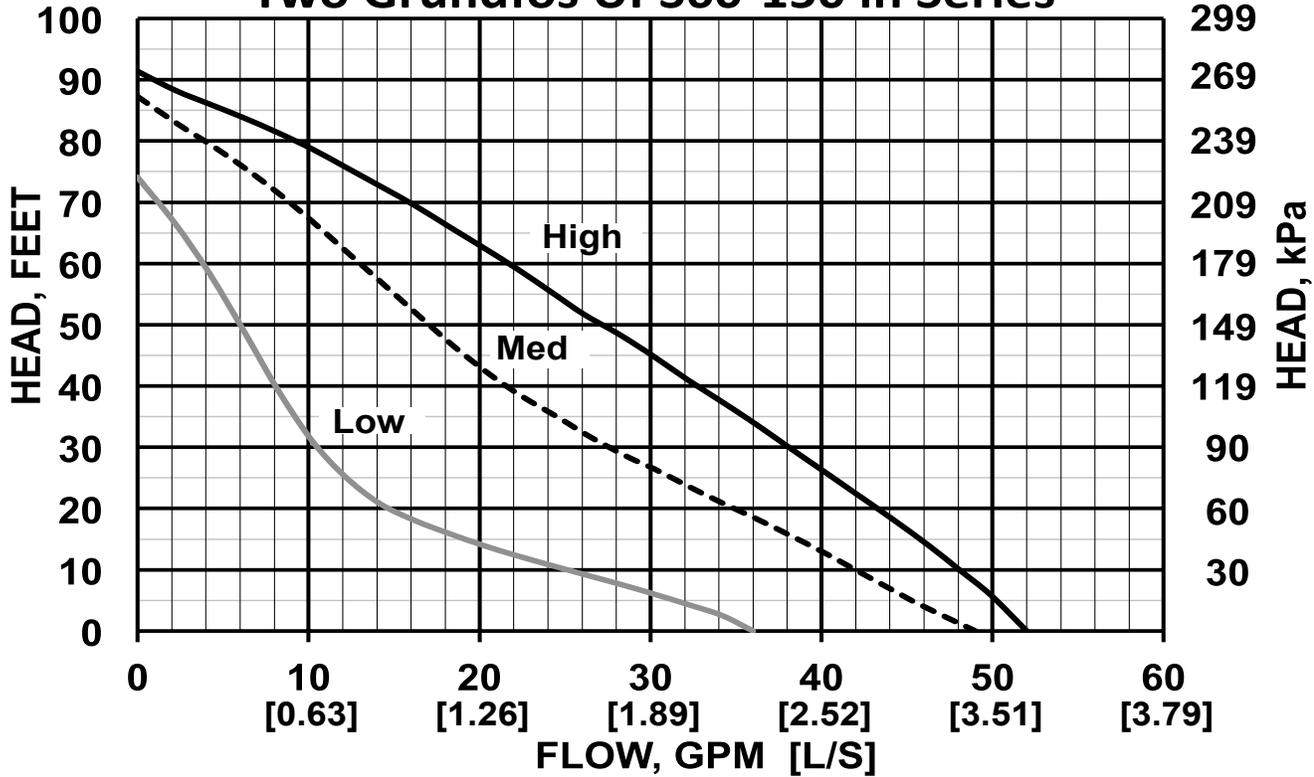
(NPD⁴: two pumps in series on LH side; two pumps in series on RH side -- two sets in parallel)



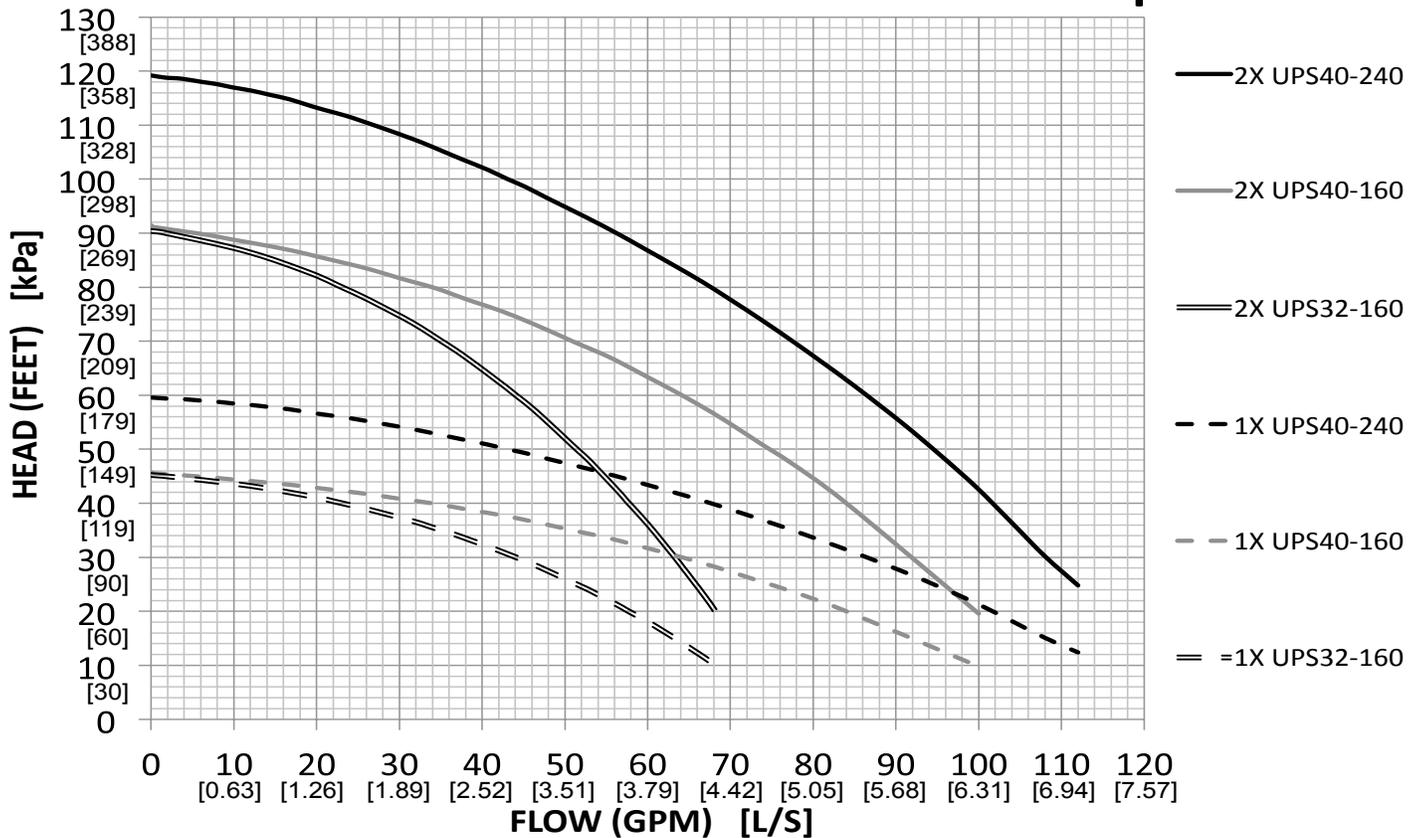
NPD⁴

Pump Curves -- Flow Centers/Insulated Pumps

SuperBrute XL Flow Centers Two Grundfos UPS60-150 in Series



VersaFlo Flow Centers - Grundfos Pumps

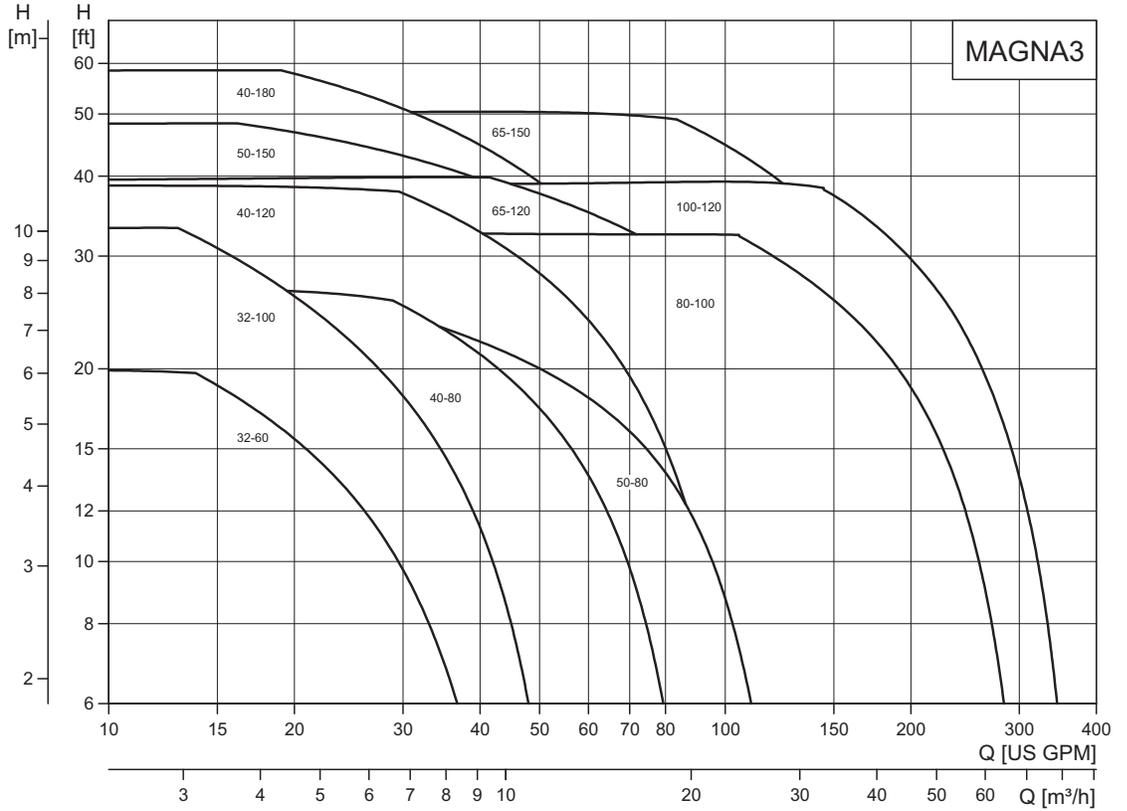


Curves are manufacturer's reported averages using water at 68°F [20°C].

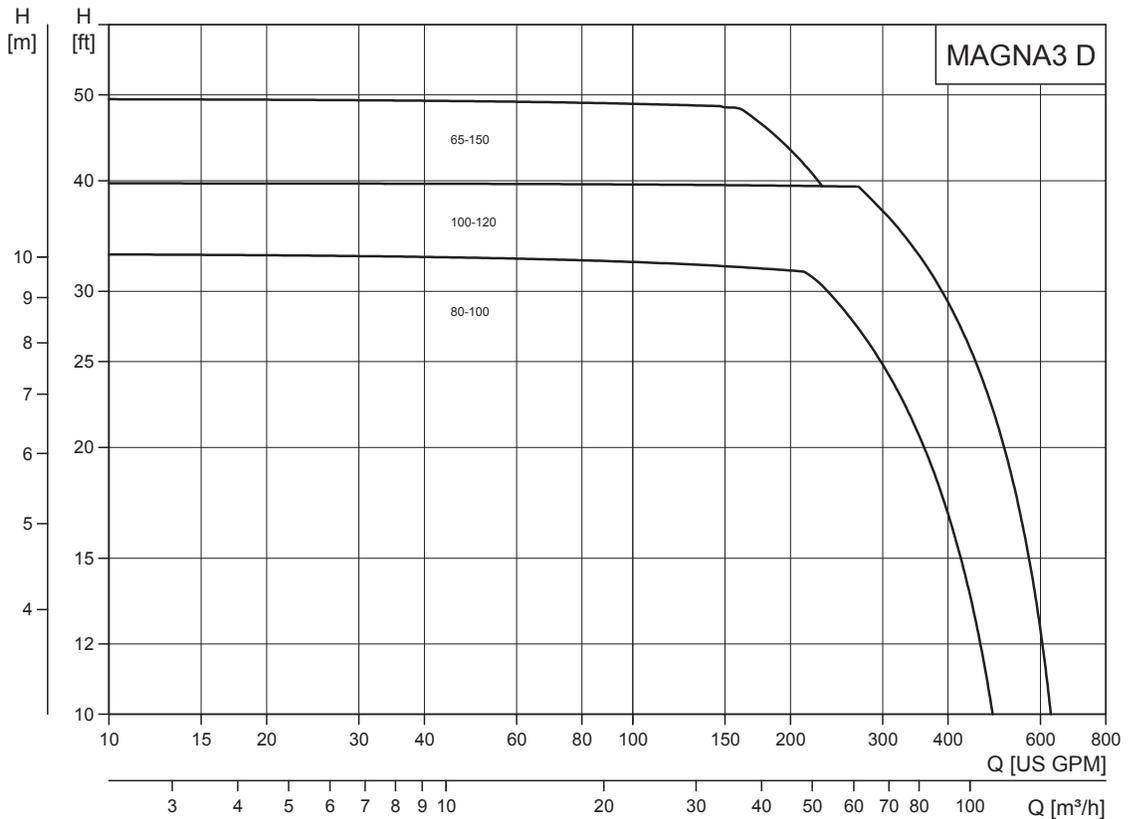
Pump Curves -- Flow Centers/Insulated Pumps

Grundfos Magna3 Variable Speed Insulated Pumps

Single Insulated Pump



Dual Head Insulated Pump

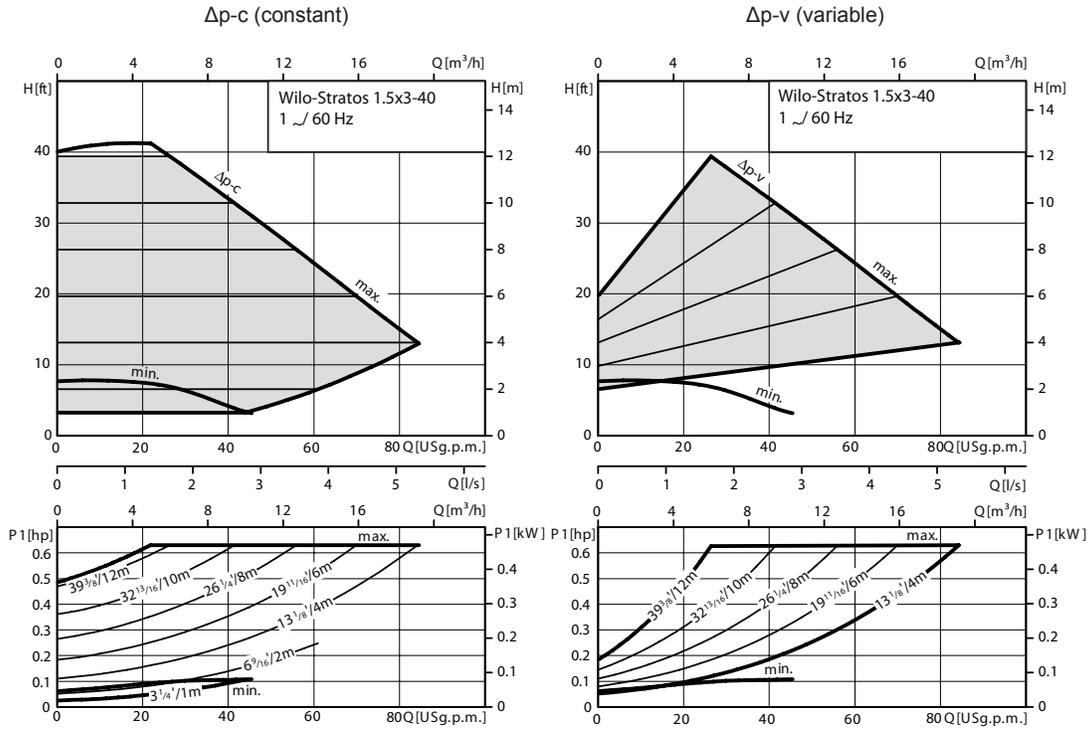


Curves are manufacturer's reported averages using water at 68°F [20°C].

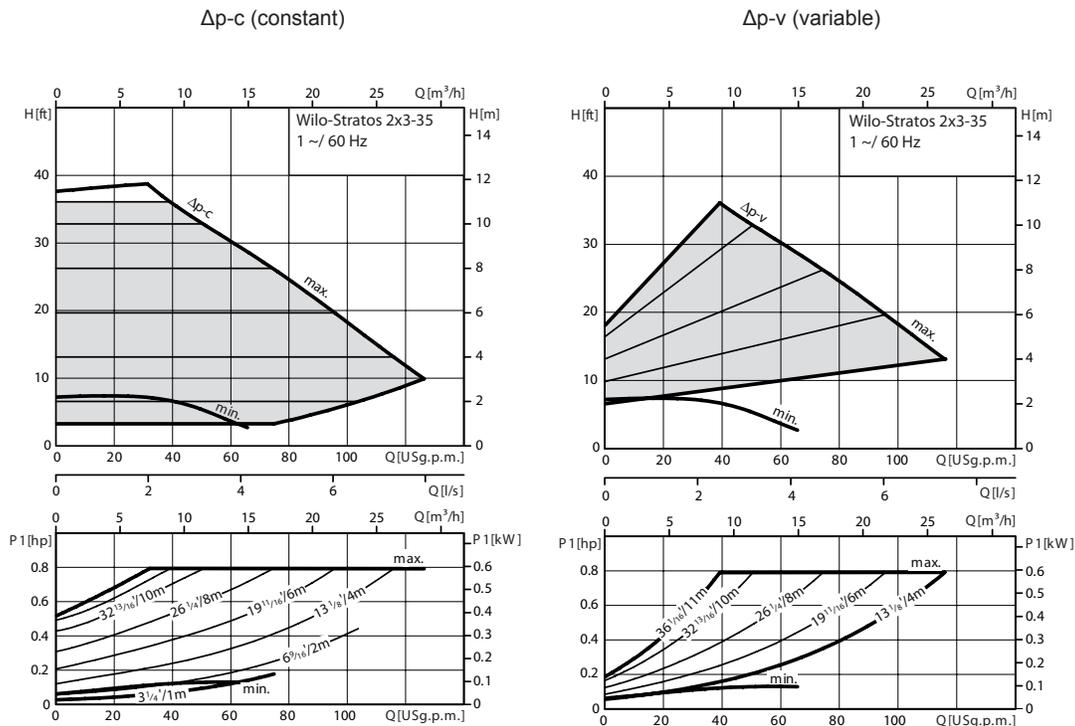
Pump Curves -- Flow Centers/Insulated Pumps

Wilco Pumps used in Commercial Flo-Link XL Flow Centers and Insulated Pumps

Pump Curves Wilo-Stratos 1.5 x 3-40



Pump Curves Wilo-Stratos 2 x 3-35

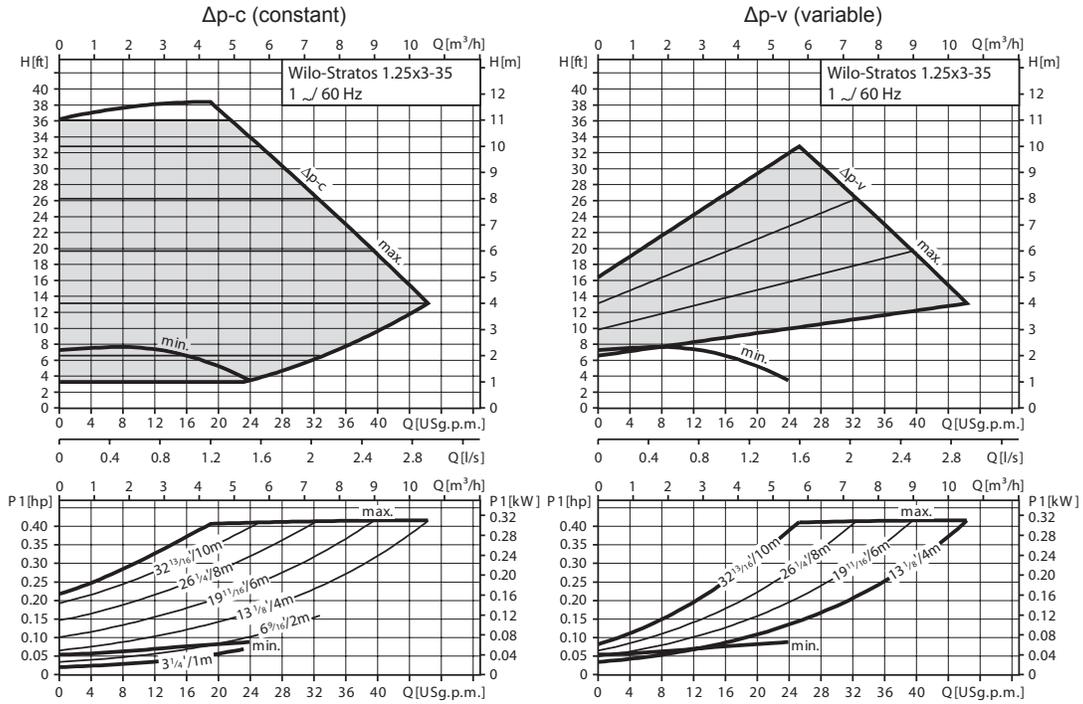


Curves are manufacturer's reported averages using water at 68°F [20°C].

Pump Curves -- Flow Centers/Insulated Pumps

Wilo Pumps used in GPM Flow Centers

Pump Curves Wilo-Stratos 1.25 x 3-35



Curves are manufacturer's reported averages using water at 68°F [20°C].

Commercial Flow Centers, Insulated Pumps & Accessories

Geo-Flo's commercial product line provides turn-key solutions for large residential, light commercial, and large commercial/industrial applications. Insulated cabinets protect against condensation at low operating temperatures. Integrated controls, primary-secondary pumping components, zone valves, hydraulic separators, fittings/adapters, and hoses kits help ensure that all of the various components are matched for optimal performance and efficiency. Terminology used in this section is listed below.

Commercial Product Terminology (Geothermal Systems)

Commercial Flow Center:	A flow center is a package consisting of a pump (or pumps), an insulated cabinet to help prevent condensation at low temperature operation, and flushing valves. A commercial flow center includes larger 2" flushing valves (vs. a residential version with 1" valves).
Insulated Pump:	An insulated pump includes a pump that has been installed in an insulated cabinet to help prevent condensation at low temperature operation. An insulated pump does not include flush valves. They must be added separately or field fabricated. Insulated pumps are typically installed with isolation valves to aid in pump replacement.
Flushing Valve:	A flushing valve provides connections for flushing/purging air from the loop piping system, and also provides isolation between the ground loop and inside piping.
Zone Valve:	A zone valve (typically a motorized ball valve) opens and closes (or modulates), and regulates water flow based upon the heat pump compressor operation. For closed loop variable speed pumping systems, an open (or partially open, if modulating) valve indicates to the pump control that more water flow is needed; a closed valve causes the pump to slow down (lower water flow) when used with differential pressure control.
Pump Enable:	A pump enable control maintains the system pump in the off mode when there are no heat pumps calling for heating/cooling. When at least one heat pump is calling, the pump is enabled. Pump enable is an important control to avoid dead-heading the pump when all heat pump zone valves are in the closed position in a system using differential pressure control.
Central System:	A central system uses one pump (or multiple pumps working together) to provide flow to multiple heat pumps, fan coils, or hydronic zones (see drawing, next section).
Distributed System:	A distributed system uses a flow center or insulated pump at each heat pump, fan coil, or hydronic zone. Since the pumps are in parallel, a check valve is required at each pumping system (see drawing, next section).
Primary-Secondary:	A primary-secondary pumping system utilizes a pump(s) for the ground loop (primary) and a pump(s) for the building loop, allowing the use of smaller pumps. A primary-secondary system may also be a one-pipe system (see drawings in next section).
Hydraulic Separator:	A hydraulic separator creates a low pressure loss zone, where two independent primary and secondary circuits may be connected. The flow in one circuit does not affect the flow in the other circuit. The pressure drop of the ground loop (primary circuit) may be considered separately from the pressure drop of the inside piping and heat pump heat exchangers (secondary circuit). When sizing pumps, this application allows the designer to use smaller pumps, and therefore decrease system Watts (see primary-secondary drawings in next section).
Integrated Control:	An integrated control includes pump controls built into the pump, like the Grundfos Magna3.



Commercial Flow Center



Insulated Pump



2" Flushing Valve



Zone Valves

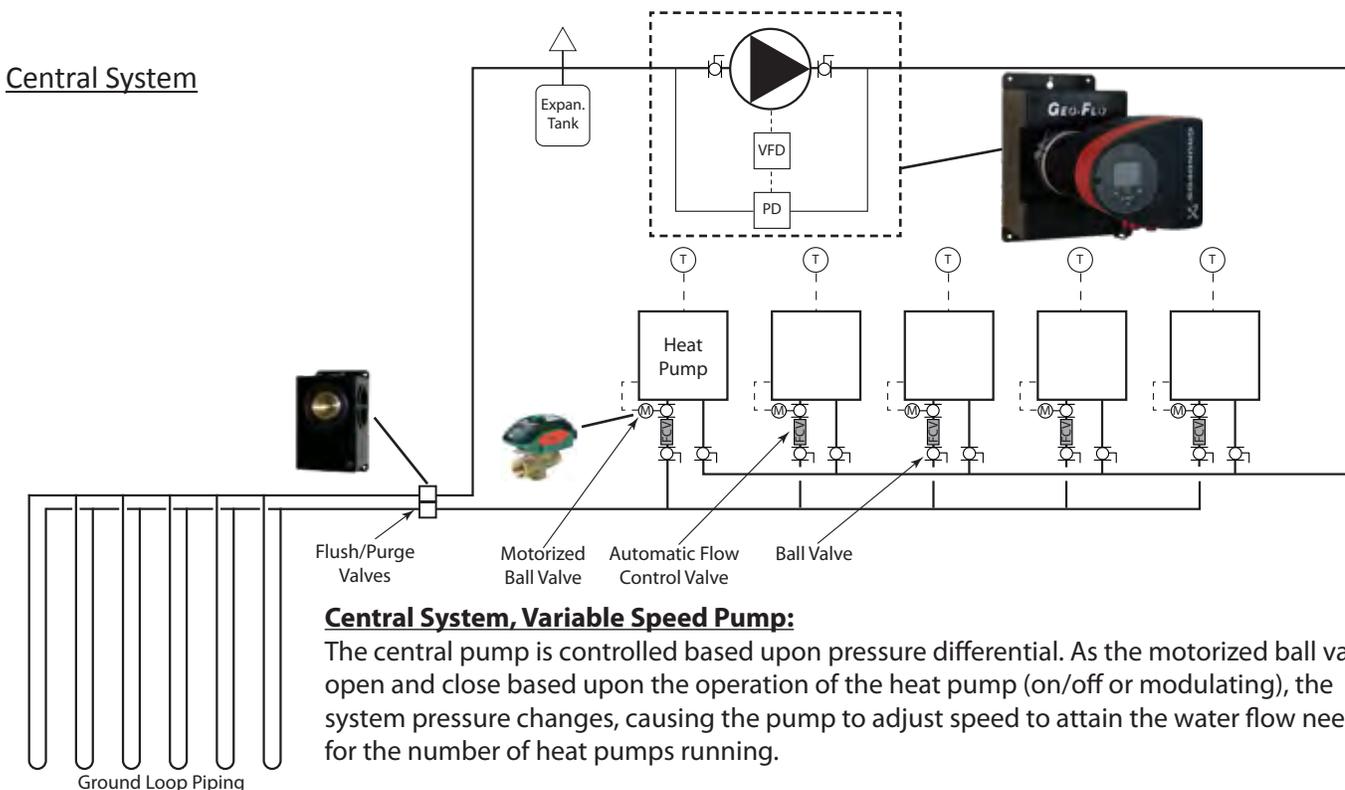
Commercial Flow Centers, Insulated Pumps & Accessories

- VFD:** VFD is Variable Frequency Drive, included as part of the integrated pump controls (Magna3, for example). Some systems have the VFD separate from the pump.
- Differential Pressure Control:** Differential pressure control utilizes a pressure transducer to compare constant pressure set point to current system pressure. At initial startup, the pressure setting is determined based upon maximum water flow rate. Heat pumps, fan coils, or hydronic zones are equipped with zone valves; as the valves open and close, the pump control changes the pump speed based upon system pressure. Differential pressure is typically used for central systems or for the building piping portion of a primary-secondary system.
- Temperature Difference Control:** Temperature difference control utilizes two thermistors to compare temperature difference set point to loop temperature difference. The pump control speeds up or slows down to regulate the actual temperature difference based on the set (desired) temperature differential. Temperature difference control is typically used for the ground loop portion of a primary-secondary system or for one-pipe systems.

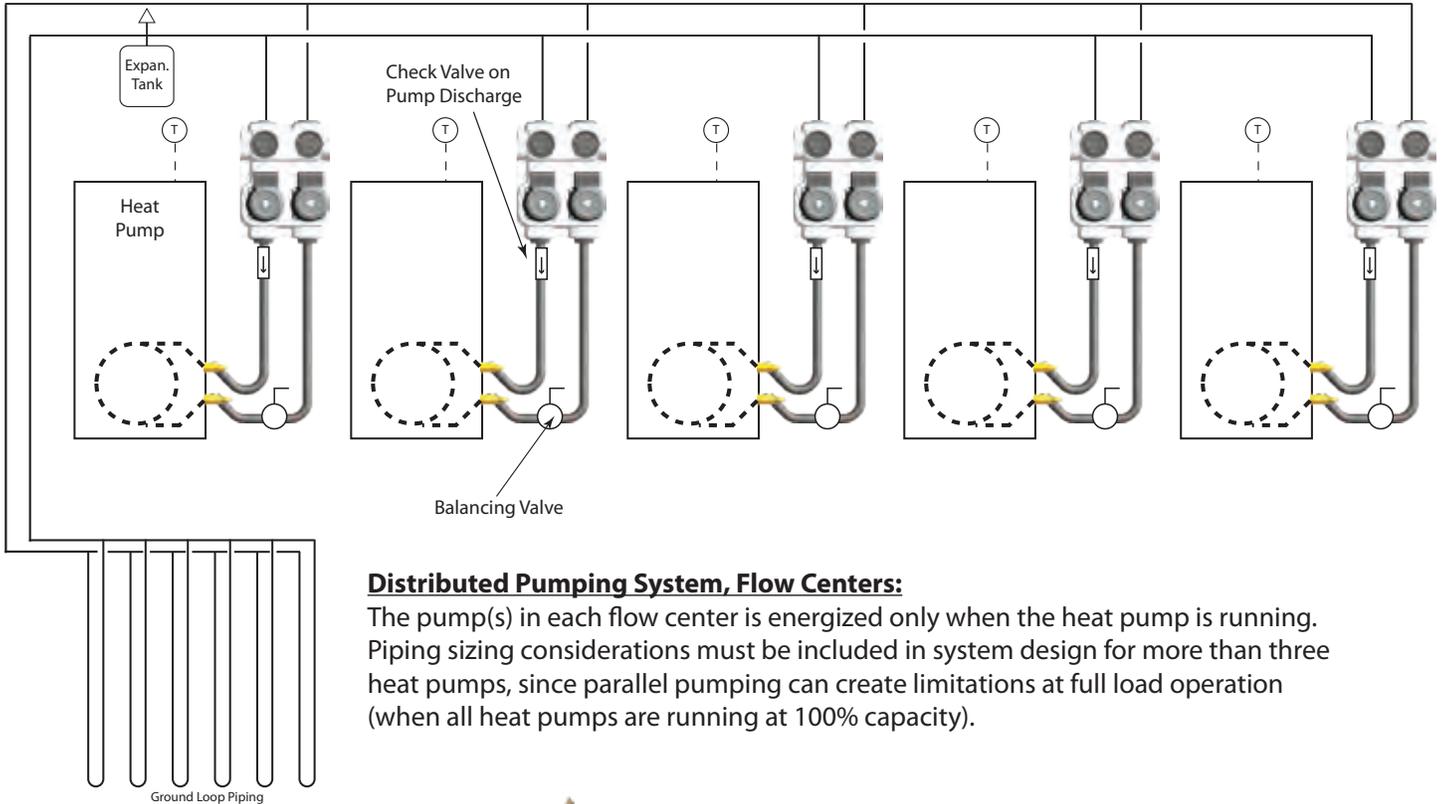
Geothermal Pumping Systems for Multiple Heat Pumps

With the lower cost of variable speed pumping technology compared to even just a few years ago, a variable speed pumping system should be considered when three or more heat pumps are sharing a common ground loop. Although distributed systems (drawing on next page) have been popular for years to help decrease pump Watts when less than 100% of the heat pumps are operating, there are many limitations due to the parallel pumping arrangement. System efficiency can be greatly improved with variable speed pumping, especially when used with two-stage and variable speed heat pumps.

Along with the lower cost of variable speed pumping, there are many more choices for simplifying controls. Integrated controls eliminate the need to install a separate VFD and associated control wiring. Differential pressure control and temperature difference control allow the pump to increase/decrease speed based upon demand from the heat pumps. For larger systems, BMS (Building Management System) integration may be added with an additional plug-in module.



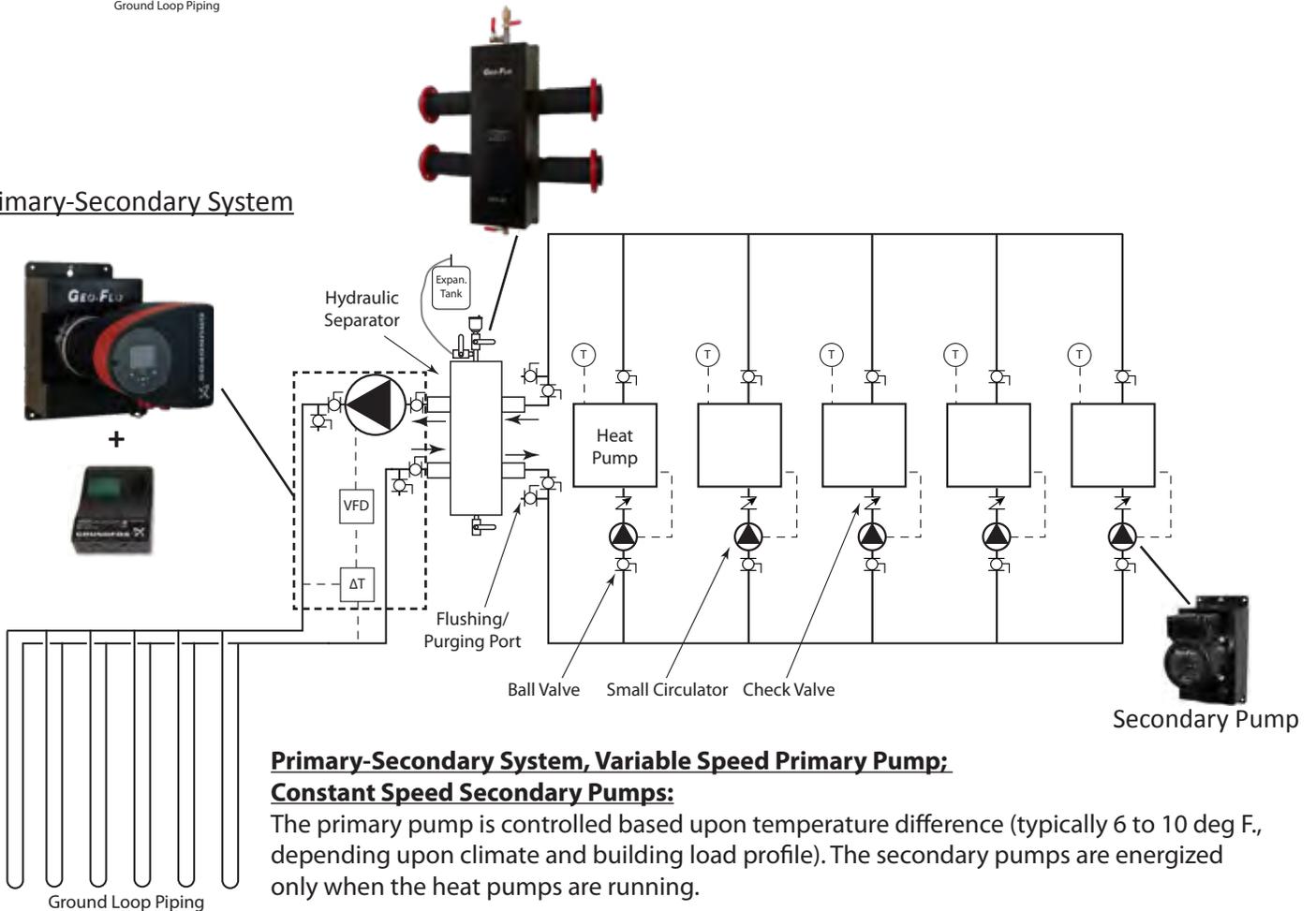
Distributed System



Distributed Pumping System, Flow Centers:

The pump(s) in each flow center is energized only when the heat pump is running. Piping sizing considerations must be included in system design for more than three heat pumps, since parallel pumping can create limitations at full load operation (when all heat pumps are running at 100% capacity).

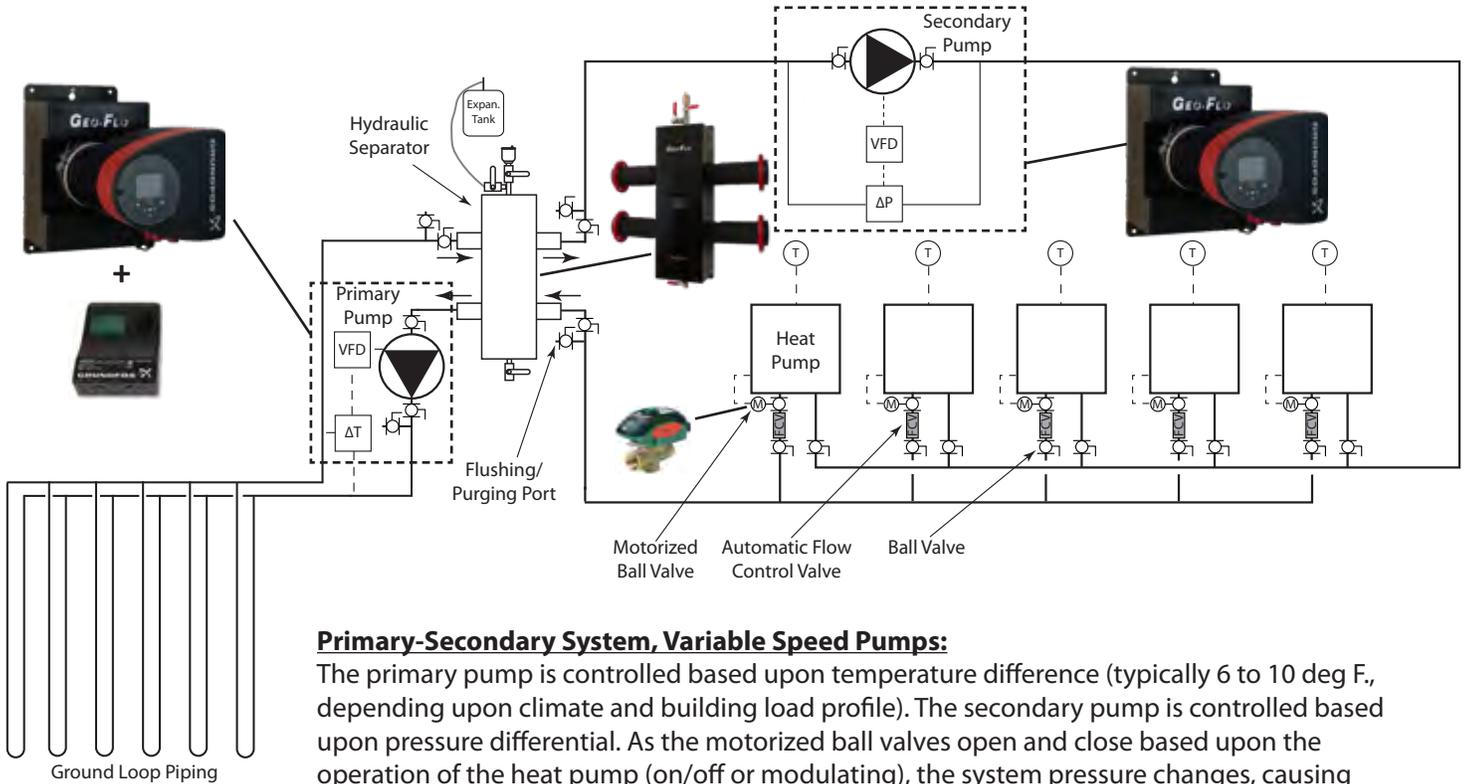
Primary-Secondary System



Primary-Secondary System, Variable Speed Primary Pump; Constant Speed Secondary Pumps:

The primary pump is controlled based upon temperature difference (typically 6 to 10 deg F, depending upon climate and building load profile). The secondary pumps are energized only when the heat pumps are running.

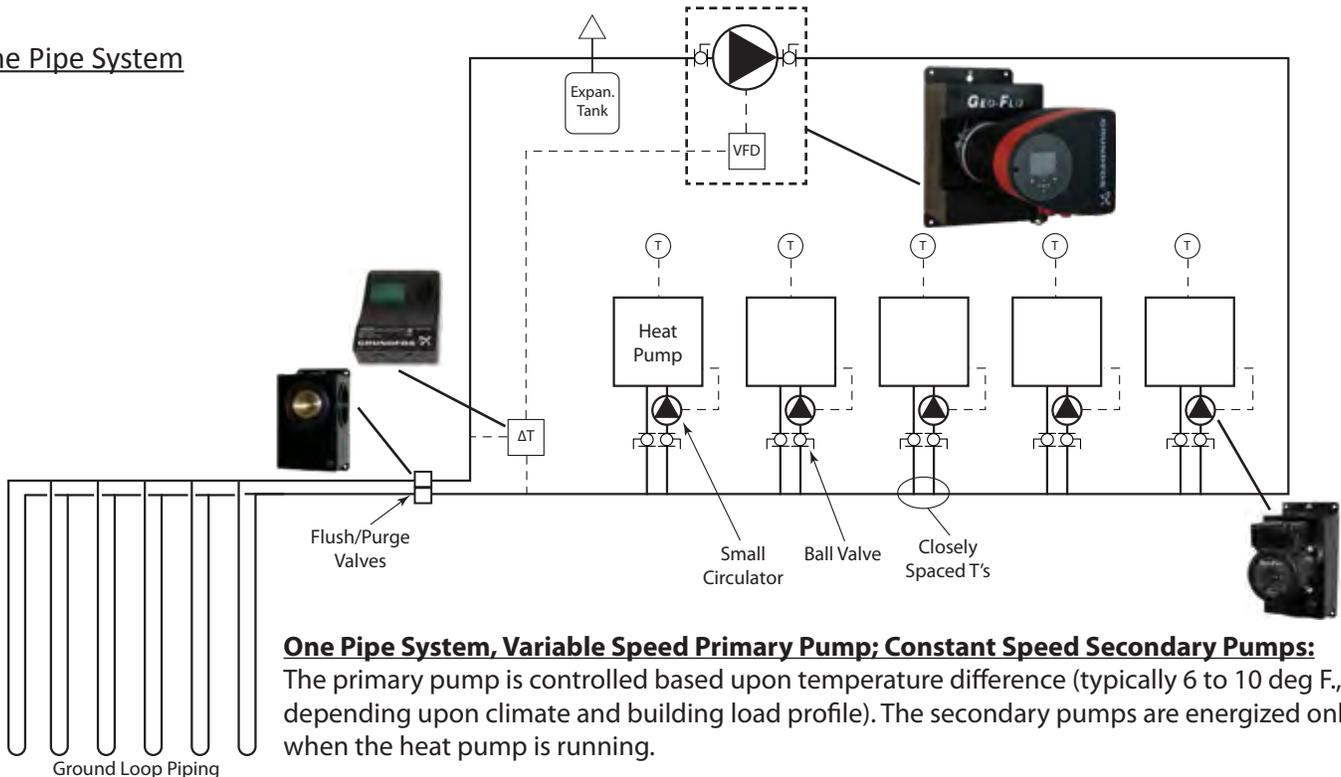
Primary-Secondary System - Variable Speed on Both Sides



Primary-Secondary System, Variable Speed Pumps:

The primary pump is controlled based upon temperature difference (typically 6 to 10 deg F, depending upon climate and building load profile). The secondary pump is controlled based upon pressure differential. As the motorized ball valves open and close based upon the operation of the heat pump (on/off or modulating), the system pressure changes, causing the pump to adjust speed to attain the water flow needed for the number of heat pumps running.

One Pipe System



One Pipe System, Variable Speed Primary Pump; Constant Speed Secondary Pumps:

The primary pump is controlled based upon temperature difference (typically 6 to 10 deg F, depending upon climate and building load profile). The secondary pumps are energized only when the heat pump is running.

Magna3 Insulated Pump Features:

- Variable speed circulator with integrated controls (ECM motor) for larger installations (models up to 300 GPM)
- Wireless communication to backup pump
- Built-in differential pressure control
- Ready for central pump, primary-secondary, or one-pipe systems
- 2", 3", and 4" connections, depending upon model
- Ball or butterfly isolation valves included (optional check valve for two-pump primary/backup installation)
- Dual head models (65, 80 and 100 series)
- Foam insulated cabinet for condensation protection
- Wall mounted for space savings/floor mounting option for larger models
- BMS options (BACnet, LON, Modbus)
- ****NEW**** Factory configurable flow direction (larger models)

Magna3 Insulated Pumps



Magna3 40 series Insulated Pump with 2" isolation ball valves



LEFT: Magna3 65 series Insulated Pump with 2" isolation ball valves

RIGHT: Magna3 Dual Head Insulated Pump with 3" or 4" isolation butterfly valves (65, 80, 100 series)



Nomenclature

1 - 3 4 - 10 11 12 13 14-15
M3D 065-150 B F - HR

Magna3 Insulated Pump Series

M3S = Single insulated pump
 M3C = Single insul. pump w/check valve
 M3D = Dual head insulated pumps
 M3H = High head insul. pumps (two pumps in series)

Available Models*

040-080	065-150
040-120	080-100
040-180	100-120
065-120	*Not all models available in all configurations (see table, next page).

Voltage

A = 115/1/60 (up to 065-120 only)
 B = 208-230/1/60 (all models)

Flow Direction (M3D, M3H only)**

HR = Horz. mounting, flow to the right
 HL = Horz. mounting, flow to the left
 VR = Vert. mounting, push/pull, "from loop" on the right (M3H models)
 VL = Vert. mounting, push/pull, "from loop" on the left (M3H models)
 Blank (M3D) = Vertical flow**
 **See table on next page for available models.

Options

- = Options in digits 14 and 15
 = No options (nothing after digit 12)

Mounting Options

C = Standard product (cast iron volute***), factory-insulated cabinet, wall mounted
 F = Standard product (cast iron volute***), factory-insulated cabinet, floor mounting stand††
 ***Call for stainless steel options.
 ††Models 065 and larger only

Commercial Flow Centers, Insulated Pumps & Accessories

Magna3 Insulated Pump Available Models

Model	Mounting*	M3S	M3C	M3D	M3H	
		Single Insulated Pump	Sngl Insul. Pump w/check valve**	Dual Head*** Insulated Pump	High Head*** Insulated Pump	
40-80	Wall Mounted	M3S040-080AC	M3C040-080AC		M3H040-080AC	
		M3S040-080BC	M3C040-080BC		M3H040-080BC	
	All field connections for M3_040-080 are 2" NPT female.					
40-120	Wall Mounted	M3S040-120AC	M3C040-120AC		M3H040-120AC	
		M3S040-120BC	M3C040-120BC		M3H040-120BC	
	All field connections for M3_040-120 are 2" NPT female.					
40-180	Wall Mounted	M3S040-180AC	M3C040-180AC		M3H040-180AC	
		M3S040-180BC	M3C040-180BC		M3H040-180BC	
	All field connections for M3_040-180 are 2" NPT female.					
65-120	Wall Mounted	M3S065-120AC	M3C065-120AC		M3H065-120AC	
		M3S065-120BC	M3C065-120BC		M3H065-120BC	
	All field connections for wall mounted M3_065-120 are 2" NPT female.					
	Floor Mounted				M3H065-120BF-VL	
					M3H065-120BF-VR	
				M3H065-120BF-HL		
All field connections for floor mounted M3_065-120 are 2" NPT female.						
65-150	Wall Mounted	M3S065-150BC	M3C065-150BC	M3D065-150BC	M3H065-150BC	
	Floor Mounted			M3D065-150BF	M3H065-150BF-VL	
				M3D065-150BF-HL	M3H065-150BF-VR	
		All field connections for M3S, M3C, and M3H065-150 are 2" NPT female. Field connections for M3D065-150 are 3" ANSI flange.				M3H065-150BF-HL
M3H065-150BF-HR						
80-100††	Wall Mounted	M3S080-100BC		M3D080-100BC	M3H080-100BC	
	Floor Mounted	M3S080-100BF		M3D080-100BF	M3H080-100BF-VL	
		All field connections for M3_080-100 are 3" ANSI flange.			M3D080-100BF-HL	M3H080-100BF-VR
					M3D080-100BF-HR	M3H080-100BF-HL
M3H080-100BF-HR						
100-120††	Wall Mounted	M3S100-120BC		M3D100-120BC	M3H100-120BC	
	Floor Mounted	M3S100-120BF		M3D100-120BF	M3H100-120BF-VL	
		All field connections for M3_100-120 are 4" ANSI flange.			M3D100-120BF-HL	M3H100-120BF-VR
					M3D100-120BF-HR	M3H100-120BF-HL
M3H100-120BF-HR						

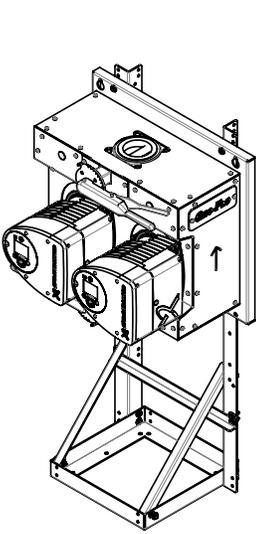
* All insulated pumps with digit 12 = "C" include isolation valves and insulated cabinets, designed for wall-mounting. Larger pumps are available with floor stand.

** Check valve required when piping two pumps in parallel. Dual head pumps include built-in check valve in volute.

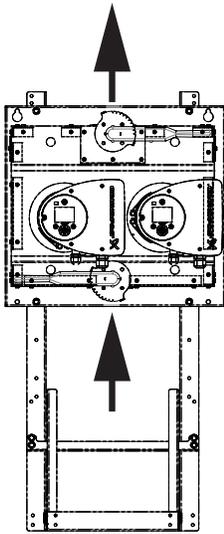
*** M3D and M3H insulated pumps with floor stand option may be mounted vertically or horizontally. Standard configuration for M3D is vertical (no suffix after model # -- e.g. M3D065-150BF). Optional configuration is horizontal (HL, HR) except M3D065-150 (HL only). M3H may be vertical (VL, VR) or horizontal (HL, HR). See flow illustrations on next page.

†† M3S080-100BF and M3S100-120BF (single insulated pump) with floor stand may be mounted vertically (VL, VR) or horizontally (HL, HR). See flow illustrations on next page.

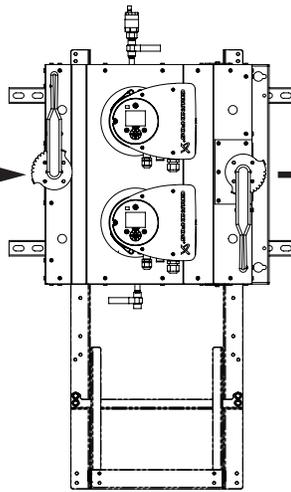
Magna3 Insulated Pump Flow Options



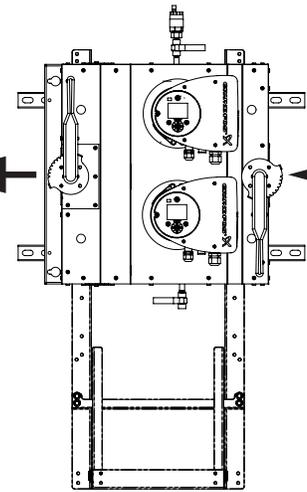
Isometric view of Magna3 insulated pump with floor stand (shown: M3D065-150BF)



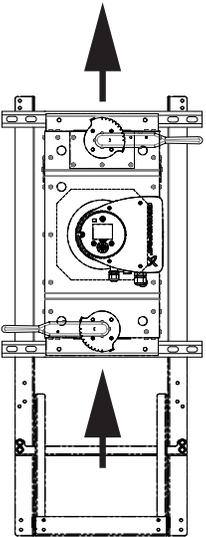
M3D dual head insulated pumps, vertical flow (shown: M3D065-150BF)



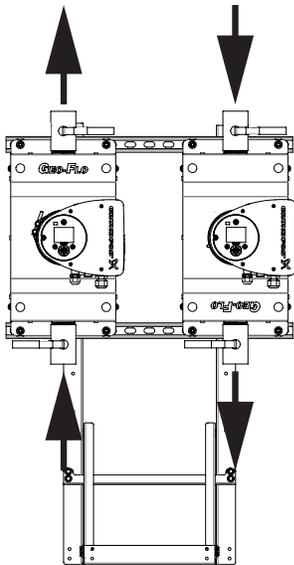
M3D dual head insulated pumps, horizontal right flow (shown: M3D100-120BF-HR) NOTE: M3D065-150 not available with HR flow.



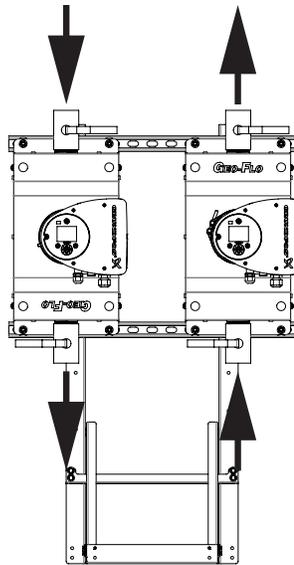
M3D dual head insulated pumps, horizontal left flow (shown: M3D100-120BF-HL)



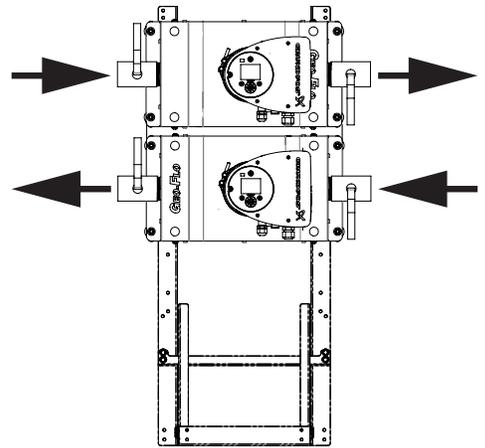
M3S single insulated pump with floor stand (shown: M3S080-100BF)



M3H high head insulated pumps, vertical right flow (shown: M3H065-150BF-VR)

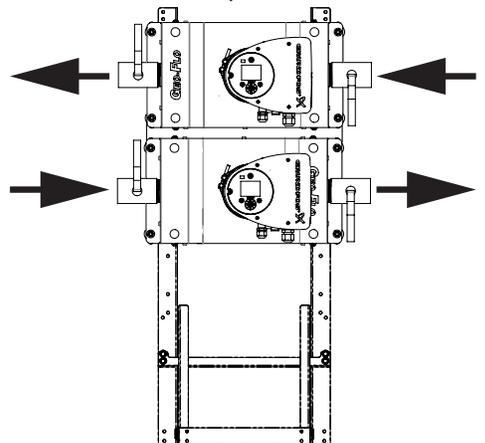


M3H high head insulated pumps, vertical left flow (shown: M3H065-150BF-VL)



Top: M3H high head insulated pumps, horizontal right flow (shown: M3H065-150BF-HR)

Bottom: M3H high head insulated pumps, horizontal left flow (shown: M3H065-150BF-HL)



Commercial Flow Centers, Insulated Pumps & Accessories

Magna3 Accessories

Part Number	Description	U.O.M.
	External Controller for Magna3 for Delta-T Control -- Note 1 (see below)	
4062	UPC GEO external controller, 0-10VDC output -- Note 1	Each
3986	10k thermistor, 1/4" NPT insertion type -- Note 2	Each
3760	AC wall adapter for 4062 -- Note 3	Each
3807	Barrel connector for 3760 -- Note 3	Each
BMS Interface Modules for Magna3 / Dongle for Grundfos GO		
CIM100	LonWorks Network Interface Module	Each
CIM200	Modbus RTU Network Interface Module	Each
CIM300	BACnet MS/TP Network Interface Module	Each
MI204	Dongle for iPhone5 & newer (Lightning connector)	Each
MI301	Dongle for Android (see Grundfos catalog for compatible models)	Each
Flushing Assemblies		
1199	2" foam insulated valve box (Requires: Flo-Link XL adapter fittings) -- two needed	Each
FLC32S	3" flushing assembly (see notes below picture at the bottom of page for features)	Set
FLC42S	4" flushing assembly (see notes below picture at the bottom of page for features)	Set
Pump Enable Control - Pump off unless at least one heat pump is calling		
3808	Pump enable control (up to 5 units w/one insul. pump or flow center), NEMA encl.	Each

NOTE: See page 44 for expansion tanks, air/dirt separators and other accessories.

NOTES:

1. Use external controller for Magna3 Delta-T control for primary-secondary applications to provide heating and cooling Delta-T set points.
2. 4062 controller requires two thermistors.
3. Optional if 24VAC is available near 4062 controller location (e.g. 24VAC from heat pump).



3" and 4" flushing assembly: PP-R body, HDPE fusion connections to/from ground loop and building, 2" brass ball valve flushing connections, butterfly isolation valves (sold as a set, as shown)



4062: External Controller



3986: 10k thermistor, 1/4" NPT



3760: AC wall adapter



3807: Barrel connector for wall adapter



1199: 2" foam insulated valve box for remote flushing (requires Flo-Link XL adapters)



CIM: BMS modules



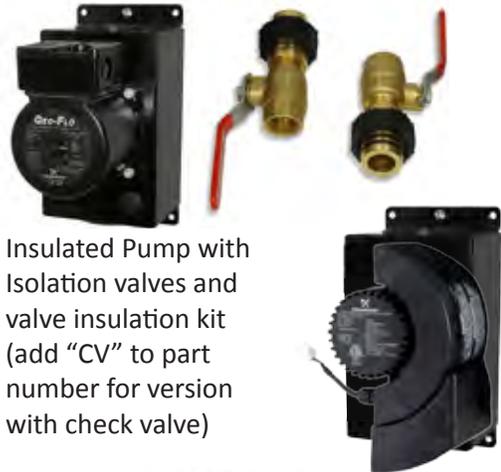
MI: Dongle for Smartphone control of Magna3 via Grundfos GO app

Dongle



3808: Pump Enable Control

Insulated Pumps and Zone Valves for Variable Speed Central Pumping and Primary/Secondary Systems



Insulated Pump with Isolation valves and valve insulation kit (add "CV" to part number for version with check valve)



Temp & Flow, Hose Barb

Also available with Magna GEO variable speed pump! (controller required)



Taco Zone Valves



Belimo B225 & B232 Zone Valves



Belimo P2050, P2075, & PICCV Zone/Flow Control Valves

Part Number	Description	U.O.M.
	Insulated Pumps with Isolation Valves	
1285	Insulated pump, UPS26-99 (3 spd), 230V, cast, isol. valves	Each
1285CV	Insul pmp, UPS26-99 (3 spd), 230V, cast, chk vlv & iso vlvs	Each
1286	Insulated pump, UPS26-99 (3 spd), 115V, cast, isol. valves	Each
1284	Insul. pump, Magna GEO (var. spd.), 230V, cast, isol. valves NOTE: One of the controllers below is required to operate the Magna GEO insulated pump.	Each
3697	Grundfos Magna GEO Controller -- Temperature Control (1/4" MPT immersion thermistors included)	kit
3698	Grundfos Magna GEO Controller -- Temperature & Flow Control, hose kit connections (also available as 1" MPT*)	kit
3766	Grundfos Magna GEO Controller -- Temperature & Flow Control, PVC connections (also available as 1" MPT*)	kit
Motorized Valves** -- ON/OFF control		
VMBBR3F	Taco motorized ball valve, brass 3/4" FPT, 24V w/end switch, Cv = 10.3**	Each
VMBBR4F	Taco motorized ball valve, brass 1" FPT, 24V w/end switch, Cv = 8.9**	Each
VMBBN4F-SR	Belimo B225+LFR24-S+NC/FO motorized ball vlv, nickle plated brass 1" FPT, spring rtn, 24V w/end sw, Cv=30**	Each
VMBBN5F-SR	Belimo B232+AFR24-S+NC/FO mtrzd ball vlv, nickle plated brass 1-1/4" FPT, spring rtn, 24V w/end sw, Cv=37**	Each
PICCV Valves (ON/OFF Zone Valve with Flow Control)***		
Call	Belimo P2050B0_ _+LF24-MFT-S US, motorized ball valve w/flow control, brass, 1/2", _ _ GPM, sprng ret, end sw***	Each
Call	Belimo P2075B0_ _+LF24-MFT-S US, motorized ball valve w/flow control, brass, 3/4", _ _ GPM, sprng ret, end sw***	Each
Call	Belimo PICCV-25- _ _+LF24-MFT-S US, mtr ball valve w/flow control, brass, 1", _ _ GPM, sprng ret end sw***	Each

*If 1" MPT connections are desired, call to substitute P/N 3921 brass 1" MPT x flow sensor adapter.

**Choose valve based upon Cv (Flow Coefficient) for flow rate (see Table 1, below). Higher Cv = lower pressure drop.

***Underscore digits (_) are flow rate in GPM. For example, P02050B30 is 3 GPM; PICCV-25-015 is 15 GPM. See Table 2 for available sizes/flow rates.

U.S. GPM	Recommended Minimum Cv
3	2 to 3
4.5	3 to 4
6	4 to 6
7.5	6 to 8
9	7 to 9
10	8 to 10
12	9 to 12
15	11 to 15
18	13 to 18

Table 1: Recommend Min. Cv. Higher Cv = lower pressure drop.

Connections	U.S. GPM
1/2"	0.5 to 5.5†
3/4"	6 to 10†
1"	11 to 19††

Table 2: Flow rates/sizes for PICCV Valves

†1/2 GPM increments
††1 GPM increments

The Industry's First HDPE Hydraulic Separator Designed for Geothermal Applications

GHS Series Hydraulic Separator -- Up to 90 U.S. GPM per Side

Application: The Geo-Flo Hydraulic Separator (GHS) creates a low pressure loss zone, where two independent primary and secondary circuits may be connected. The flow in one circuit does not affect the flow in the other circuit. The pressure drop of the ground loop (primary circuit) may be considered separately from the pressure drop of the inside piping and heat pump heat exchangers (secondary circuit) for smaller pump sizing. Additional benefits of a Hydraulic Separator include air and dirt separation. The low pressure loss zone (less than 2 fps) causes any dirt/debris to fall to the bottom of the tank, where it can be drained at the blow-down valve. Likewise, any air that may still be in the system collects at the top of the tank, where it can be eliminated via the automatic air vent.

Cabinet/Insulation: Power coated steel; CFC-free, polyurethane foam insulation

Tank: High density polyethylene

Automatic Air Vent: Brass body and cover, air vent with silicone rubber seal, polyethylene temperature resistant float. Can be disassembled for inspection and cleaning.

Ball Valves: (3) 1/2" FPT full port brass, one for connection to expansion tank, one for connection to automatic air vent, and one for use as a blow-down valve.



Part Number	Description			U.O.M.
	GHS Series Hydraulic Separator			
	Left Connections	Right Connections	Max. Flow Rate	
GHS-06-2F2F	2" Flange*	2" Flange*	40 U.S. GPM**	Each
GHS-06-2F2N		2" NPT female		Each
GHS-06-2F2P		2" HDPE pipe		Each
GHS-06-2N2F	2" NPT female	2" Flange*		Each
GHS-06-2N2N		2" NPT female		Each
GHS-06-2N2P		2" HDPE pipe		Each
GHS-06-2P2F	2" HDPE pipe	2" Flange*		Each
GHS-06-2P2N		2" NPT female		Each
GHS-06-2P2P		2" HDPE pipe		Each
GHS-06-3F3F	3" Flange*	3" Flange*	90 U.S. GPM**	Each

* All flange connections are standard ANSI Class 150 flanges.
NOTE: Gaskets and hardware for flanges are not included.
 ** Flow rate on each side of hydraulic separator, not combined flow.

Commercial Flow Centers

Geo-Flo's commercial flow centers have many of the same proven features of our Flo-Link double O-ring product line, like Flo-Link XL double O-ring fittings. Larger 2" full-flow valves and a wide variety of pump combinations allow the designer a great deal of flexibility. Flo-Link XL double O-ring style flow centers are unsurpassed in ease of installation. Flo-Link XL double O-ring fittings provide leak-free union fittings at the flow center, installed without tools (no need for pipe wrenches). Virtually any type of transition (fusion, thread, barb, etc.) is available for Flo-Link XL fittings. Geo-Flo's full-flow 3-way flushing and isolation valves are designed for the wide range of temperatures experienced in ground loop applications. Foam insulated cabinets protect against condensation at low operating temperatures.



Grundfos VersaFlo® Commercial Flow Centers with pump(s): Large 2" full-flow 3-way flushing and isolation valves are built into the foam insulated cabinets. Pump choices (next page) allow for a wide variety of flow and head designs.



SuperBrute XL Flow Center with two Grundfos UPS60-150 pumps in series: The all-in-one design of the SuperBrute XL provides pumps, valves, and foam-insulated cabinet in one package. Large 2" full-flow 3-way flushing and isolation valves are designed for higher flow rates associated with light commercial and large residential applications.

VersaFlo and SuperBrute Commercial Flow Center Features:

- Industry's first geothermal specific 2" full-flow flushing and service valve
- Forged brass valves with NBR seals
- Standard ½" socket drive for valve actuation
- Symmetrical design allows actuation on both sides of valve
- Blow-out proof spool
- Powder-coated steel cabinet
- Valve access on both sides of cabinet for installation flexibility
- Foam insulated cabinet for condensation protection
- Wall mounted for space savings
- Slotted mounting holes for installation ease
- Utilizes Flo-Link XL family of fittings for installation ease and choice of piping
- Grundfos VersaFlo 3-Speed wet rotor circulator models UPS32-160, UPS40-160, UPS40-240 or SuperBrute UPS60-150
- 3-Speed selectable control box
- Pumps available in single-phase, 230 volt and 3-phase, 208-230 volt (call for availability of 3PH pumps - VersaFlo only)

Commercial Flow Centers, Insulated Pumps & Accessories

Part Number	Description	U.O.M.
	SuperBrute XL Commercial Flow Center (Flo-Link XL Connections)	
1237	SuperBrute UPS60-150, Double Pump 230V, 1PH, cast iron	Each
Each unit contains: Mounting hardware.		
VersaFlo Single Pump Commercial Flow Centers (Flo-Link XL Connections)		
1206	UPS32-160 VersaFlo, Single Pump 230V, 1PH, cast iron	Each
1208	UPS40-160 VersaFlo, Single Pump 230V, 1PH, cast iron	Each
1210	UPS40-240 VersaFlo, Single Pump 230V, 1PH, cast iron	Each
Each unit contains: Mounting hardware.		
VersaFlo Double Pump Commercial Flow Centers (Flo-Link XL Connections)		
1207	UPS32-160 VersaFlo, Double Pump 230V, 1PH, cast iron	Each
1209	UPS40-160 VersaFlo, Double Pump 230V, 1PH, cast iron	Each
1211	UPS40-240 VersaFlo, Double Pump 230V, 1PH, cast iron	Each
Each unit contains: Mounting hardware.		
Wilo Variable Speed Commercial Flow Center (Flo-Link XL Connections)		
1258	Wilo Stratos 1.5 x 3-40, Single Pump 230V, 1PH, cast iron	Each
1264	Wilo Stratos 2 x 3-35, Single Pump 230V, 1PH, cast iron	Each
Each unit contains: Mounting hardware.		
Wilo Variable Speed Light Commercial Flow Center (1" FPT Connections)		
1257	Wilo Stratos 1.25 x 3-35 GPC, Single Pump 230V, 1PH, flanged brass	Each
Each unit contains: Mounting hardware.		
Loop Pressurization		
3551	Geo-Booster (loop pressurization system -- 35 psig)	Each

SuperBrute XL, VersaFlo and Wilo Commercial Flow Centers

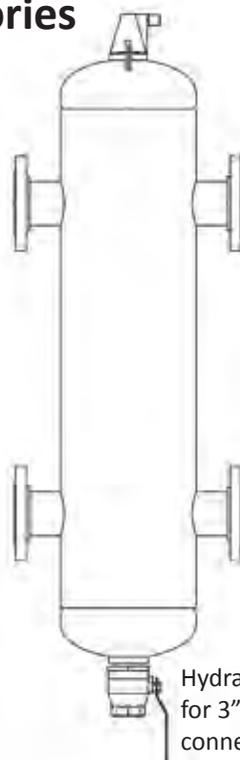


Geo-Flo has a wide variety of Flo-Link XL double O-ring adapter fittings for SuperBrute XL and VersaFlo flow centers. See the Accessories / Pipe / Fittings section for details.

Geo-Flo Commercial Accessories



Inline and tangential air and dirt separators for 2" an larger piping connections (shown: inline air separator with 3" flange connections and trim kit)



Hydraulic separators for 3" an larger piping connections

Geo-Flo has a full range of air separators, hydraulic separators, expansion tanks, water make-up/glycol feeder systems, and other commercial accessories. These specialty items are quoted on a per job basis. Contact Geo-Flo for details.



Bladder style expansion tanks

Geo-Flo hose kits significantly cut installation time by providing all of the fittings needed to connect a geothermal heat pump to a Geo-Flo flow center. Available in 3/4" to 2" sizes, as well as with Flo-Link and Flo-Link XL fittings, Geo-Flo hose kits improve installation appearance, while reducing labor.



1100



1101



1181



1354

Part Number	Description	U.O.M.
	3/4" Hose Kit (MPT @ Flow Center & Heat Pump)	
1100	Hose kit contents: <ul style="list-style-type: none"> • Qty 1: 12 ft. 1" ID black hose • Qty 2: Insulating boot • Qty 2: Insulating boot caps • Qty 2: PT plug, 1/4" MPT • Qty 2: Fitting, 1" MPT x 1" hose barb (flow center) • Qty 2: Elbow, 3/4" MPT x 1" hose barb w/PT port (heat pump connection) • Qty 8: Hose clamps 	Each
1" Hose Kit (MPT @ Flow Center & Heat Pump)		
1101	Hose kit contents: <ul style="list-style-type: none"> • Qty 1: 12 ft. 1" ID black hose • Qty 2: Insulating boot • Qty 2: Insulating boot caps • Qty 2: PT plug, 1/4" MPT • Qty 2: Fitting, 1" MPT x 1" hose barb (flow center) • Qty 2: Elbow, 1" MPT x 1" hose barb w/PT port (heat pump connection) • Qty 8: Hose clamps <p>NOTE: Kit available without hose as part # 3813.</p>	Each
1" Hose Kit (Flo-Link Dbl O-ring @ Flow Center; MPT @ HP)		
1181	Hose kit contents: <ul style="list-style-type: none"> • Qty 1: 10 ft. 1" ID black hose • Qty 2: Insulating boot • Qty 2: Insulating boot caps • Qty 2: PT plug, 1/4" MPT • Qty 2: Fitting, Flo-Link x 1" hose barb (flow center) • Qty 2: Elbow, 1" MPT x 1" hose barb w/PT port (heat pump connection) • Qty 8: Hose clamps <p>NOTES:</p> <ol style="list-style-type: none"> 1. For heat pumps with 3/4" connections use swivel adapter fitting P/N 3731, 3/4" MPT x 1" swivel. 2. Kit available without hose as part # 3814. 	Each
1" Hose Kit (Flo-Link Dbl O-ring @ Flow Cntr & Ht Pump)		
1354	Hose kit contents: <ul style="list-style-type: none"> • Qty 1: 12 ft. 1" ID black hose • Qty 2: Insulating boot • Qty 2: Insulating boot caps • Qty 2: PT plug, 1/4" MPT • Qty 2: Fitting, Flo-Link x 1" hose barb (flow center) • Qty 2: Elbow, Flo-Link x 1" hose barb w/PT port (heat pump connection) • Qty 8: Hose clamps 	Each
1354CV	1354 hose kit with check valve at flow center connection	Each

1251



1261



3477



3478



Part Number	Description	U.O.M.
	1-1/4" Hose Kit (MPT @ Flow Center & Heat Pump)	
1251	Hose Kit contents: <ul style="list-style-type: none"> Qty 1: 12 ft. 1-1/4" ID black hose, 150 psi Qty 2: PT plug, 1/4" MPT Qty 2: Fitting, 1-1/4" MPT x 1-1/4" hose barb (flow center connection) Qty 2: Elbow, 1-1/4" MPT x 1-1/4" hose barb w/PT port (heat pump connection) Qty 8: Hose clamps 	Each
1-1/4" Hose Kit (Flo-Link XL @ Flow Center; MPT @ HP)		
1261	Hose kit contents: <ul style="list-style-type: none"> Qty 2: 8 ft. 1-1/4" ID black hose. 150 psi Qty 2: PT plug, 1/4" MPT Qty 2: Fitting, Flo-Link XL x 1-1/4" hose barb (flow center connection) Qty 2: Elbow, 1-1/4" MPT x 1-1/4" hose barb w/PT port (heat pump connection) Qty 8: Hose clamps Compatible with SuperBrute XL, VersaFlo, and Wilo commercial flow centers.	Each
2" Hose Kit (Flo-Link XL @ Flow Center; MPT @ HP)		
3477	Hose kit contents: <ul style="list-style-type: none"> Qty 2: 8 ft. lengths of 2" ID wire-reinforced hose Qty 2: PT plug, 1/4" MPT Qty 2: Fitting, Flo-Link XL x 2" hose barb (flow center connection) Qty 2: Elbow, 2" MPT x 2" hose barb w/PT port (heat pump connection) Qty 10: Stainless steel hose clamps Compatible with SuperBrute XL, VersaFlo, and Wilo commercial flow centers.	Each
2" Hose Kit with Strainer (Flo-Link Dbl O-ring @ Flow Center; MPT @ Heat Pump)		
3478	Hose kit contents: <ul style="list-style-type: none"> Qty 2: 8 ft. lengths of 2" ID wire-reinforced hose Qty 2: PT plug, 1/4" MPT Qty 1: Fitting, Flo-Link XL x 2" hose barb (flow center connection) Qty 1: Fitting, Flo-Link XL x 2" MPT (flow center to strainer connection) Qty 1: 2" Wye strainer Qty 1: Fitting, 2" MPT x 2" hose barb Qty 2: Elbow, 2" MPT x 2" hose barb w/PT port (heat pump connection) Qty 8: Stainless steel hose clamps Compatible with SuperBrute XL, VersaFlo, and Wilo commercial flow centers.	Each



3461

NP PLUS, NP^v PLUS, & NP^{v2} PLUS



1347

NP PLUS, NP^v PLUS, & NP^{v2} PLUS



1346

Part Number	Description	U.O.M.
	Insulating Boots	
3461	Insulating boot set for 1" elbows	Set
Hose Kit for NP PLUS, NP^v PLUS, & NP^{v2} PLUS*** (part #s 1338 through 1343N)		
1347	Hose kit contents: <ul style="list-style-type: none"> Qty 1: 12 ft. 1" ID black hose Qty 3: Insulating boot Qty 3: Insulating boot caps Qty 2: PT plug, 1/4" MPT Qty 2: 1/4" brass plug Qty 1: Fitting, Flo-Link x 1" hose barb (flow center) Qty 1: Fitting, Flo-Link elbow x 1" hose barb (flow ctr) Qty 2: Elbow, 1" MPT x 1" hose barb w/PT port (heat pump connection) Qty 8: Hose clamps Compatible with NP Plus flow centers and heat pumps with 1" FPT connections.	Each
1346	Hose kit contents: <ul style="list-style-type: none"> Qty 1: 12 ft. 1" ID black hose Qty 3: Insulating boot Qty 3: Insulating boot caps Qty 2: PT plug, 1/4" MPT Qty 2: 1/4" brass plug Qty 1: Fitting, Flo-Link x 1" hose barb (flow center) Qty 1: Fitting, Flo-Link elbow x 1" hose barb (flow ctr) Qty 2: Elbow, Flo-Link x 1" hose barb w/PT port (heat pump connection) Qty 8: Hose clamps Compatible with NP Plus flow centers and heat pumps with Flo-Link double O-ring connections.	Each
NOTE: NP ^v PLUS Kit (part #s 1344 & 1345) use hose kits for pressurized flow centers (part #s 1181 or 1354, page 45).		



Part Number	Description	U.O.M.
	Hose	
2139	1" ID Black 150 psi hose, 450 ft. roll	Each
3559	1-1/4" Black 150 psi hose, 400 ft. roll	Each
2950	1" ID Black 150 psi hose, 12 ft. length	Each
2945	1" ID Black 150 psi hose, 10 ft. length	Each
3418	2" ID Black 200 psi hose, 8 ft. length	Each

Flo-Link™ double O-ring fittings are the geothermal industry's best transition/union fittings for connections to flow centers and heat pumps. The Flo-Link design provides a leak-free connection without the use of thread sealant, and saves installation time. All part numbers shown are for the set.

PE and PVC Adapters

2911: Flo-Link x 1-1/4" PE Fusion 2912: Flo-Link x 1" PE Fusion 3096: Flo-Link x 3/4" PE Fusion 3917: Flo-Link x 1-1/4" PE pipe* 3425: Flo-Link x 1-1/4" PVC Glue



*Use with Triton style fittings. Also available w/ 40mm pipe (P/N 3243).

Brass Adapters - Hose Barb

2913: Flo-Link x 1" Hose Barb 3490: Flo-Link x 1" Hose Barb (w/check valve) 2942: Flo-Link x 1-1/4" Hose Barb



Flo-Link Full Port Isolation Valve Set

3790: 1" FPT
4066: 1" FPT w/chk vlv
3875: 1-1/4" FPT



Part # 4066 includes factory installed check valve

Brass Adapters - Threaded

3072: Flo-Link x 1" MPT 3326: Flo-Link x 1" FPT 4143: Flo-Link x 1" FPT (w/check valve) 3885: Flo-Link x 1-1/4" FPT 3498: Flo-Link (Female) x 1" MPT



NEW!

Brass Adapters with Fitting for PT Port*

Flo-Link x Hose Barb w/fitting for PT port 3263: Flo-Link Elbow x 1" Hose Barb w/fitting for PT port 3389: Flo-Link x 1" MPT with fitting for PT port 3255: Flo-Link Elbow x 1" MPT w/fitting for PT port 3144: Flo-Link x 1-1/8" Sweat w/fitting for PT port



Installation/Service Adapters

2914: Flo-Link x Male Cam Adapter 3203: Flo-Link by Male Garden Hose Adapter 3248: Flo-Link x Female Garden Hose Adapter



Misc. Adapters

3924: Flo-Link x 1" PE fusion elbow w/PT tap



Flo-Link™ Double O-ring Service Kits

Keep Flo-Link™ Double O-ring fittings on your trucks with new service kit pricing!



FLSK-AST

Flo-Link Assortment:
One set of PE fusion,
one set of PVC glue,
and one set of brass
barb fittings to provide
maximum flexibility
when installing and
servicing Flo-Link flow
centers.



FLSK-PE5

Bulk PE Kit:
Special pricing for 10 sets of 1-1/4" PE fusion
x Flo-Link double O-ring adapters



FLSK-PVC5

Bulk PVC Kit:
Special pricing for 10 sets of 1-1/4" PVC glue
x Flo-Link double O-ring adapters



FLSK-FL

Flo-Link Flushing Set:
All of the fittings needed for flushing flow
centers with Flo-Link fittings or with FPT
fittings. Connect your flush cart to the
CAM fittings or connect a garden hose to
the Flo-Link adapters.

Flo-Link XL™ double O-ring fittings have the same benefits as Flo-Link fittings, but are designed for commercial flow centers with 2" 3-way valves. All part numbers shown are for the set except part # 3476 (each).

PE Adapters

3463: Flo-Link XL x 1-1/4" PE Fusion



3464: Flo-Link XL x 1-1/2" PE Fusion



3465: Flo-Link XL x 2" PE Fusion



Threaded Adapters

3318: Flo-Link XL x 2" FPT



3320: Flo-Link XL x 1-1/2" FPT



3655: Flo-Link XL x 1-1/4" MPT



3476 (each): Flo-Link XL x 2" MPT



Sweat and Hose Barb Adapters

3395: Flo-Link XL x 2" Sweat



3397: Flo-Link XL x 2" Hose Barb



3652: Flo-Link XL x 1-1/4" Hose Barb



Installation/Service Adapters

3380: Flo-Link XL x 1" Cam



3486: Flo-Link XL x 1-1/2" Cam



3485: Flo-Link XL x 1" Female Garden Hose



Flo-Link XL Isolation Valve Sets

3791: Flo-Link XL x 1-1/2" FPT

3792: Flo-Link XL x 2" FPT



Swivel Adapters

- 3731 (set of 2): 3/4" MPT x 1" Swivel
- 3732 (set of 2): 1" MPT x 1" Swivel
- 4323 (set of 2): 1" MPT x 1-1/4" Swivel
- 3726 (set of 2): 1-1/4" MPT x 1-1/4" Swivel



Dual Unit Connection Kit

- Dual Unit Connection Kit for Flo-Link (double O-ring) and Flo-Link XL (double O-ring, large) Flow Centers
- 3970: Flo-Link
- 4243: Flo-Link XL



Heat Pump Adapters & PT Ports (Threaded Fittings at Heat Pump)

- 2143 (ea.): 1/4" PT Plug
- 2144 (ea.): 1/2" PT Plug
- 2265 (ea.): 3/4" MPT Elbow x 1" Hose Barb w/ftng for PT
- 3447 (ea.): 1" MPT Elbow x 1" Hose Barb w/fitting for PT Port
- 3929 (ea.): 1" MPT x 1" Hose Barb w/Fitting for PT Port
- 4309 (ea.): 3/4" MPT Elbow x 3/4" Hose Barb w/ftng for PT



- 3481 (kit): Set of 1" MPT x 1" FPT Elbows with PT Ports
- 3660 (kit): Set of 1-1/4" MPT x 1-1/4" Hose Barb w/PT Ports
- 3500 (kit): Set of 1-1/4" MPT x 1-1/4" FPT Elbows with PT Ports



- 3711 (ea.): 1/4" Plug*
- 3556 (ea.): 1-1/4" MPT Elbow x 1-1/4" Hose Barb w/Fitting for PT Port
- 3449 (ea.): 2" MPT Elbow x 2" Hose Barb w/Fitting for PT Port
- 3450 (ea.): 2" MPT x 2" FPT Elbow w/Fitting for PT Port



*Use with Flo-Link or threaded fittings that have a 1/4" FPT port, where a P/T plug is not needed.

Accessories/Pipe/Fittings

4310 (ea.): 3/4" MPT x 3/4" Hose Barb



3557 (ea.): 1-1/4" MPT x 1-1/4" Hose Barb

2146 (ea.): 1" MPT x 1" Hose Barb



3416 (ea.): 2" MPT x 2" Hose Barb



2147 (ea.): 1" MPT x 1-1/4" Hose Barb

3831 (set): 1-1/4" PVC Glue x 1" Hose Barb



2943 (ea.): Size 20 (3/4" to 1-3/4") Stainless Steel Hose Clamp



Accessories/Pipe/Fittings

Part Number	Description	
	Ball Valves, Butterfly Valves, Check Valves	U.O.M.
3543	Ball Valve, Brass Full-Port, 1/4" FPT x FPT	Each
3705	Ball Valve, Brass Full-Port, 1/2" FPT x MPT	Each
4312	Ball Valve, Brass Full-Port, 3/4" FPT x MPT	Each
3968	Ball Valve, Brass Full-Port, 1" FPT x FPT	Each
3786	Ball Valve, Brass Full-Port, 1" FPT x MPT	Each
3787	Ball Valve, Brass Full-Port, 1-1/4" FPT x MPT	Each
3576	Ball Valve, Brass Full-Port 1-1/2" FPT x FPT	Each
3706	Ball Valve, Brass Full-Port 1-1/2" FPT x MPT	Each
3575	Ball Valve, Brass Full-Port 2" FPT x FPT	Each
3707	Ball Valve, Brass Full-Port 2" FPT x MPT	Each
3919*	Valve, Butterfly, 3" flange, CI Body, Al Brnz Disc, NBR Seat*	Each
3925*	Valve, Butterfly, 4" flange, CI Body, Al Brnz Disc, NBR Seat*	Each
3918	Check Valve, 2" FPT, Spring, Brass, NBR Seat	Each
Fusion Ball Valves		
PFV33	Fusion ball valve, 3/4" x 3/4"	Each
PFV44	Fusion ball valve, 1" x 1"	Each
PFV88	Fusion ball valve, 2" x 2"	Each
PFV55U	Fusion ball valve, 1-1/4" x 1-1/4", true union	Each
PFV88U	Fusion ball valve, 2" x 2", true union	Each
Wye Strainers		
3656	Wye Strainer, 1-1/4" FPT, Brnz, #20 mesh, 304 SS strainer	Each
3462	Wye Strainer, 2" FPT, Brnz, #20 mesh, 304 SS strainer	Each



NOTE:
Strainer is #20 mesh, 304 SS

Wye Strainer



PFV33

Fusion Ball Valve



FPT x MPT Ball Valve

FPT x FPT Ball Valve



3" & 4" Butterfly Valves



3918 Check Valve



PFV88U

Union Fusion Ball Valve

* Valve design eliminates the need for a gasket.

Barbed Fitting Adapters

Valves & Strainers

Part Number	Description	U.O.M.
	Flange Sets	
2534	Flange Set 1" FPT Isolation Valve Laser Cut, UP15 & UP26	Set
2535	Flange Set 1-1/4" FPT Isol. Valve, Laser Cut, UP15 & UP26	Set
2270	Flange Set 1" FPT Isol. Valve, Stamped Bronze, UP15 & UP26	Set
2135	Flange Set 1" FPT, Cast Iron, Black, UP15 & UP26	Set
2238	Flange Set, 1-1/4" FPT, Cast Iron, Black, UP15 & UP26	Set
3494	Flange Kit, UP15 & UP26 pumps, 1-1/4" SWT	Set
3495	Flange Kit, UP15 & UP26 pumps, 1-1/2" SWT	Set
3445	Flange Kit, UPS40 pumps, 1-1/2" SWT	Set
3446	Flange Kit, UPS40 pumps, 2" SWT	Set
3528	Flange Kit, 1" FPT, Cast Iron, Wilo 1.25 x 3-35	Set
Flange Adapters / Hardware / Brackets		
3920	Flange Kit, Grundfos, CI, GF 53, 2" FPT, four bolt flange, set of two (includes gaskets)	Kit
3893*	Flange Adapter-Fusion, 2" flange x 2" IPS DR11 HPDE pipe*	Each
3896*	Flange Adapter-Fusion, 3" flange x 3" IPS DR11 HPDE pipe*	Each
4252*	Flange Adapter-Fusion, 4" flange x 4" IPS DR11 HPDE pipe*	Each
3894	Backup ring for 2" flange (3893)	Each
3897	Backup ring for 3" flange (3896)	Each
4253	Backup ring for 4" flange (4252)	Each
Call	Gasket/hardware kit for 2" flange (3893)	Kit
Call	Gasket/hardware kit for 3" flange (3896)	Kit
Call	Gasket/hardware kit for 4" flange (4252)	Kit
4244	Pump mounting bracket for UP/UPS 15 & 26 pumps	Each

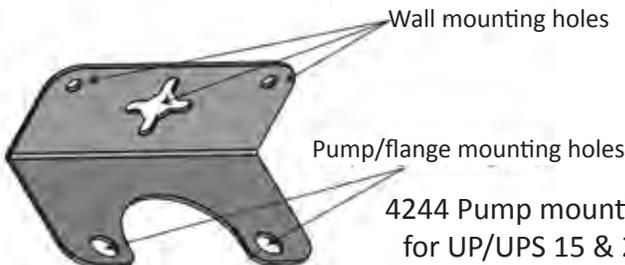
* Also requires backup ring and gasket/hardware kit.



Fusion Flange Adapter (shown with backup ring)



3920 Flange Kit (shown above: 1 of 2 flanges)



4244 Pump mounting bracket for UP/UPS 15 & 26 pumps

2534 (also similar to 2535, except with 1-1/4" connections)



2270



2135 (also similar to 2238)



3445 (also similar to 3494 & 3495, except with UP15 / UP26 flanges)



3446



PFC33



3895/4254



PFL33S



PFL33



PFT553



Part Number	Description		U.O.M.
	Fusion Couplings		
PFC33	Fusion coupling, 3/4" x 3/4"		Each
PFC43	Fusion coupling, 1" x 3/4"		Each
PFC44	Fusion coupling, 1" x 1"		Each
PFC53	Fusion coupling, 1-1/4" x 3/4"		Each
PFC54	Fusion coupling, 1-1/4" x 1"		Each
PFC55	Fusion coupling, 1-1/4" x 1-1/4"		Each
PFC84	Fusion coupling, 2" x 1"		Each
PFC85	Fusion coupling, 2" x 1-1/4"		Each
PFC88	Fusion coupling, 2" x 2"		Each
3895	Butt fusion reducer, 3" x 2" IPS, DR11		Each
4254	Butt fusion reducer, 4" x 3" IPS, DR11		Each
Fusion Elbows			
PFL33	Fusion elbow, 3/4" x 3/4"		Each
PFL33S	Fusion elbow, 3/4" x 3/4" Street		Each
PFL43	Fusion elbow, 1" x 3/4"		Each
PFL44	Fusion elbow, 1" x 1"		Each
PFL44S	Fusion elbow, 1" x 1" Street		Each
PFL53	Fusion elbow, 1-1/4" x 3/4"		Each
PFL55	Fusion elbow, 1-1/4" x 1-1/4"		Each
PLF55-45	Fusion elbow, 1-1/4" x 1-1/4" 45 degree		Each
PFL55S	Fusion elbow, 1-1/4" x 1-1/4" Street		Each
PFL88	Fusion elbow, 2" x 2"		Each
Fusion Tees			
PFT333	Fusion Tee, 3/4" x 3/4" x 3/4"		Each
PFT444	Fusion Tee, 1" x 1" x 1"		Each
PFT533	Fusion Tee, 1-1/4" x 3/4" x 3/4"		Each
PFT544	Fusion Tee, 1-1/4" x 1" x 1"		Each
PFT553	Fusion Tee, 1-1/4" x 1-1/4" x 3/4"		Each
PFT554	Fusion Tee, 1-1/4" x 1-1/4" x 1"		Each
PFT555	Fusion Tee, 1-1/4" x 1-1/4" x 1-1/4"		Each
PFT855	Fusion Tee, 2" x 1-1/4" x 1-1/4"		Each
PFT884	Fusion Tee, 2" x 2" x 1"		Each
PFT885	Fusion Tee, 2" x 2" x 1-1/4"		Each
PFT888	Fusion Tee, 2" x 2" x 2"		Each

PFP3



PH55x3



PFA54HB



PFA54M



PFAL33F



PFAL33M

PFTA332F



PFA88F



3647



Part Number	Description	U.O.M.
	Fusion Caps	
PFP3	Fusion cap, 3/4"	Each
PFP4	Fusion cap, 1"	Each
PFP5	Fusion cap, 1-1/4"	Each
PFP8	Fusion cap, 2"	Each
Pre-Assembled Fusion Headers		
PH53x3	Fusion header, 1-1/4" x (3) 3/4" circuits	Each
PH54x3	Fusion header, 1-1/4" x (4) 3/4" circuits	Each
PH55x3	Fusion header, 1-1/4" x (5) 3/4" circuits	Each
PH56x3	Fusion header, 1-1/4" x (6) 3/4" circuits	Each
Fusion Ball Valves		
	See Valve Section on page 52	Each
Fusion x Hose Barb Adapters		
PFA34HB	Fusion adapter, 3/4" socket fusion x 1" hose barb	Each
PFA54HB	Fusion adapter, 1-1/4" socket fusion x 1" hose barb	Each
PFA44HB	Fusion adapter, 1" socket fusion x 1" hose barb	Each
3665	Fusion adapter, set of 2 - PFA54HB	Set
Fusion x Brass Thread Adapters		
PFA32F	Fusion adapter, 3/4" socket fusion x 1/2" FPT	Each
PFA33M	Fusion adapter, 3/4" socket fusion x 3/4" MPT	Each
PFAL33F	Fusion adapter, 3/4" socket fusion x 3/4" FPT, elbow	Each
PFAL33M	Fusion adapter, 3/4" socket fusion x 3/4" MPT, elbow	Each
PFA44M	Fusion adapter, 1" socket fusion x 1" MPT	Each
PFA53M	Fusion adapter, 1-1/4" socket fusion x 3/4" MPT	Each
PFA54M	Fusion adapter, 1-1/4" socket fusion x 1" MPT	Each
PFA55M	Fusion adapter, 1-1/4" socket fusion x 1-1/4" MPT	Each
PFA88M	Fusion adapter, 2" socket fusion x 2" MPT	Each
PFA88F	Fusion adapter, 2" socket fusion x 2" FPT	Each
Fusion Adapter Tees		
PFTA332F	Fusion adapter tee, 3/4" fusion x 3/4" fusion x 1/2" FPT	Each
PFTA442F	Fusion adapter tee, 1" fusion x 1" fusion x 1/2" FPT	Each
PFTA4M32F	Fusion adapter tee, 1" MPT x 3/4" fusion x 1/2" FPT	Each
PFTA4M42F	Fusion adapter tee, 1" MPT x 1" fusion x 1/2" FPT	Each
PFTA551F	Fusion adapter tee, 1-1/4" fusion x 1-1/4" fusion x 1/4" FPT (allows addition of PT port)	Each
PFTA881F	Fusion adapter tee, 2" fusion x 2" fusion x 1/4" FPT	Each
PFTA884M	Fusion adapter tee, 2" fusion x 2" fusion x 1" MPT	Each
Pond Loop Spaced Coil		
3647	Pond loop spaced coil, 3/4" PE x 300 ft.	Each

3567



Pump Sharing Relay (shown with NEMA enclosure)



3808



Compression Fittings

PCA55F

PCA55PVC



2480



Part Number	Description	U.O.M.
	Geothermal Marking Tape	
3567	Geothermal marking tape, 2" x 1000'	Each
NOTE: Above part number is for one roll. Box quantity is 9.		
Dual Unit Kit/Flow Center Sharing/Pump Enable Relay		
3561	Pump sharing relay (2 units; 1 flow center)	Each
3562	Pump sharing relay (2 units; 1 flow center) w/NEMA encl.	Each
3808	Pump enable control (up to 5 units, single flow center), NEMA enclosure	Each
Compression fittings, 1-1/4"		
PCA55F	1-1/4" Compression X 1-1/4" FPT	Each
PCA55PVC	1-1/4" HDPE Compression X 1-1/4" PVC Compression	Each
Underground Flushing Kit (FPT Connections)		
2480	Underground flushing kit contains: <ul style="list-style-type: none"> Qty 4: Socket fusion fittings, 1" MPT x 1-1/4" fusion Qty 1: Pro series box Qty 4: Socket fusion coupling, 1-1/4" Qty 2: Brass 3-way flushing valve Qty 4: PE pipe, 1-1/4" 	Kit
Valve Boxes (Flo-Link Double O-Ring Connections)		
3514	Valve box, single, composite valve, Flo-Link	Each
3522	Valve box, double, brass valves, Flo-Link	Each
Each unit contains: Mounting hardware. NOTE: See Flo-Link fittings for adapters.		

3514



3522



Valve Box Notes:

1. Flush port on the front (caps installed in photos).
2. Valve boxes may be used with insulated pumps or with NP series flow center for additional isolation if desired.

High Density Equipment Mounting Pads

Most geothermal systems are installed indoors, which makes vibration and sound isolation important. Standard condenser pads are not designed for indoor packaged equipment. Geo-Flo’s geothermal equipment pads are made of high density SBR recycled rubber, which provides a high degree of vibration and sound absorption for compressor-bearing units installed indoors.

Part Number	Description	U.O.M.
	Unit Mounting Pad	
4055	3/4" high density rubber equipment pad, 24" x 36", boxed	Each
4056	3/4" high density rubber equipment pad, 28" x 36", boxed	Each

Equipment Pad Features:

- Absorbs low frequency sound/vibration (particularly suited for compressors)
- Environmentally friendly recycled material (SBR bonded black recycled rubber)
- High density (60 lbs/cu. ft.)
- Anti-skid texture
- Non-porous, both sides
- Rated for packaged unit weight (very little compression)
- May be trimmed as needed
- Individually boxed



NOTE: Not rated for downflow applications with electric heat.

Taco motorized valves



Flow Regulator



Flow Meter



Part Number	Description	
	Motorized Valves	U.O.M.
VMBBR3F	Valve, motorized ball valve, brass 3/4" FPT, 24V w/end sw	Each
VMBBR4F	Valve, motorized ball valve, brass 1" FPT, 24V w/end switch	Each
VMSPR	Powerhead for older (orange) VMSBZ** valves	Each
Flow Regulator Valves		
VFR33F-2	Valve, flow regulator, 3/4" FPT x 3/4" FPT, 2 GPM	Each
VFR33F-3	Valve, flow regulator, 3/4" FPT x 3/4" FPT, 3 GPM	Each
VFR33F-4	Valve, flow regulator, 3/4" FPT x 3/4" FPT, 4 GPM	Each
VFR33F-5	Valve, flow regulator, 3/4" FPT x 3/4" FPT, 5 GPM	Each
VFR33F-6	Valve, flow regulator, 3/4" FPT x 3/4" FPT, 6 GPM	Each
VFR33F-7	Valve, flow regulator, 3/4" FPT x 3/4" FPT, 7 GPM	Each
VFR33F-8	Valve, flow regulator, 3/4" FPT x 3/4" FPT, 8 GPM	Each
VFR33F-9	Valve, flow regulator, 3/4" FPT x 3/4" FPT, 9 GPM	Each
Flow Meter		
3753	Variable area flow meter, 2 to 20 GPM, 1" FPT	Each

Geo-Flo’s hydronic accessories are designed water-to-water heat pumps and boilers for radiant floor and chilled water cooling applications.

GPM-1
Isolation
Flanges (also
available as
GPM-2)



GPM-3
Isolation
Flanges (also
available
as GPM-4)



Insulated Pump
for Chilled
Water/Hot Water
Applications with
Isolation valves
and valve insula-
tion kit



Also available
with Magna
GEO variable
speed pump!
(see important
note, below*)



Insulated Pump
for load side of
large water-to-
water units
(Flo-Link XL
fittings)



Water Heater
Adapters (use
ASME rated water
heater as buffer
tank)

* Variable spd pump requires controller (page 8).
** Use with ASME rated water heater.

Part Number	Description		U.O.M.
	GPM-1 Isolation Flange (FPT Connections)		
1037	GPM-1 UPS26-99 3-spd, 230V Grundfos, cast iron, isol. vlvs		Each
1057	GPM-1 UP26-116, 230V Grundfos, cast iron, isol. valves		Each
1089	GPM-1 UP26-116SF, 230V Grundfos, stainless, isol. vlvs		Each
1069	GPM-1 UPS26-99 3-spd, 115V Grundfos, cast iron, isol. vlvs		Each
Each unit contains: Mounting hardware.			
		GPM-2 Isolation Flange (FPT Connections)	
1038	GPM-2 UPS26-99 3-spd, 230V Grundfos, cast iron, isol. vlvs		Each
1058	GPM-2 UP26-116, 230V Grundfos, cast iron, isol. valves		Each
1090	GPM-2 UP26-116SF, 230V Grundfos, stainless, isol. vlvs		Each
1047	GPM-2 UP26-99 3-spd, 115V Grundfos, cast iron, isol. vlvs		Each
Each unit contains: Mounting hardware.			
		GPM-3 Isolation Flange (FPT Connections)	
1045	GPM-3 UPS26-99 3-spd, 230V Grundfos, cast iron, isol. vlvs		Each
1061	GPM-3 UP26-116, 230V Grundfos, cast iron, isol. valves		Each
1091	GPM-3 UP26-116SF, 230V Grundfos, stainless, isol. vlvs		Each
1070	GPM-3 UP26-99 3-spd, 115V Grundfos, cast iron, isol. vlvs		Each
Each unit contains: Mounting hardware.			
		GPM-4 Isolation Flange (FPT Connections)	
1046	GPM-4 UPS26-99 3-spd, 230V Grundfos, cast iron, isol. vlvs		Each
1062	GPM-4 UP26-116, 230V Grundfos, cast iron, isol. valves		Each
1092	GPM-4 UP26-116SF, 230V Grundfos, stainless, isol. vlvs		Each
1071	GPM-4 UPS26-99 3-spd, 115V Grundfos, cast iron, isol. vlvs		Each
Each unit contains: Mounting hardware.			
		Insulated Pumps w/Isolation Valves--See important note, below*	
1285	Insulated pump, UPS26-99 (3 spd), 230V, cast, isol. valves		Kit
1286	Insulated pump, UPS26-99 (3 spd), 115V, cast, isol. valves		Kit
1284	Insul. pump, Magna GEO (var. spd.), 230V, cast, isol. valves		Kit
		Large Insulated Pumps (requires Flo-Link XL adapters)	
1360	Insul. pump, SuperBrute, UPS60-150, 230V, cast, XL fittings		Each
1319	Insul. Pump, VersaFlo UPS32-160, 230V, cast, XL fittings		Each
Call	Insul. Pump, VersaFlo UPS40-160, 230V, cast, XL fittings		Each
1321	Insul. Pump, VersaFlo UPS40-240, 230V, cast, XL fittings		Each
		Water Heater Adapters**	
3721	1" straight mechanical thread x 1" female swivel		Set

Hydro-Connect™

Integrated Hydronic Control
System and Buffer Tank

Geo-Flo's Hydro-Connect™ is an engineered solution to simplify your hydronic design by providing easy to understand Integrated Controls, Outdoor Temperature Reset, Warm Weather Shut Down and Zoning with a Buffer Tank.

An affordable application solution for:

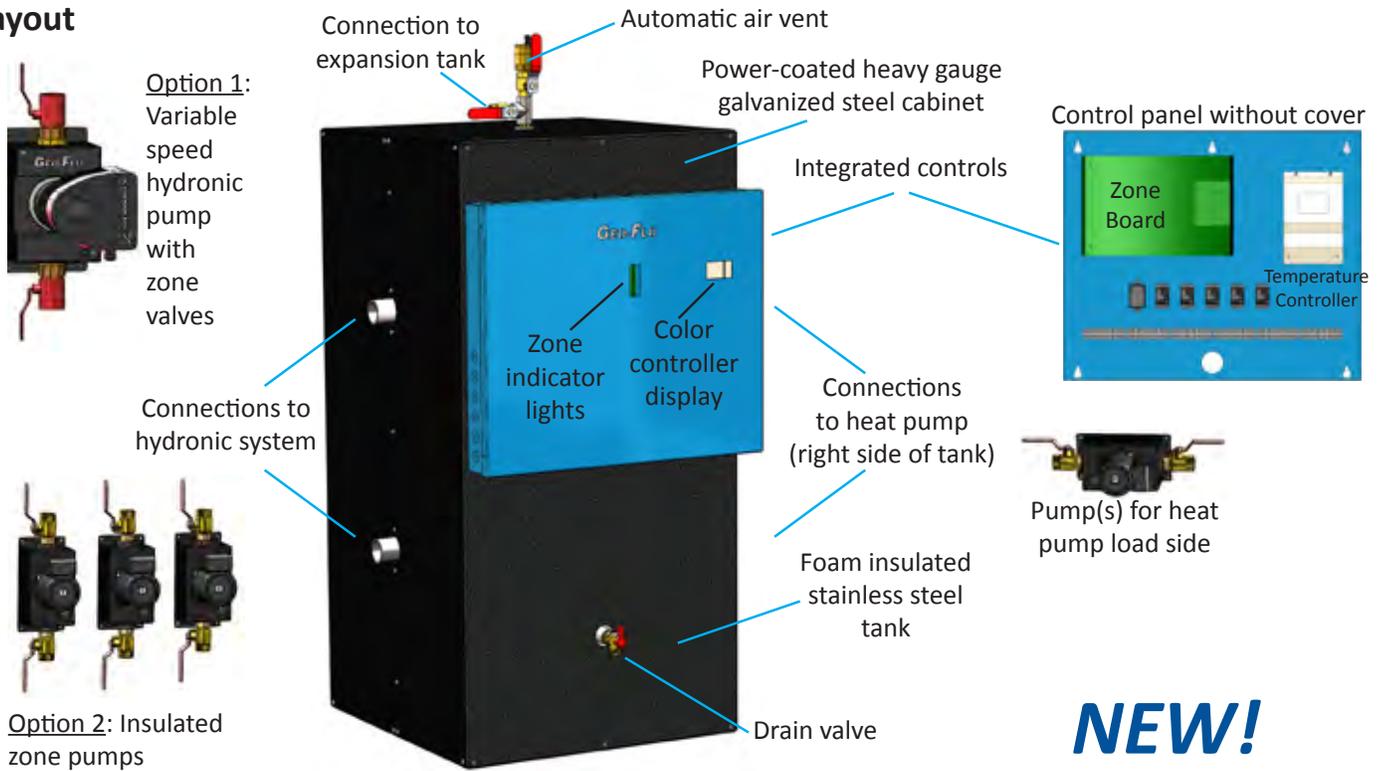
- Geothermal Heat Pumps ...
 - Water-to-Water
 - Combination Units
- Chilled Water Systems
- Low Mass Boilers
- Low Mass Radiation



Functions and Features

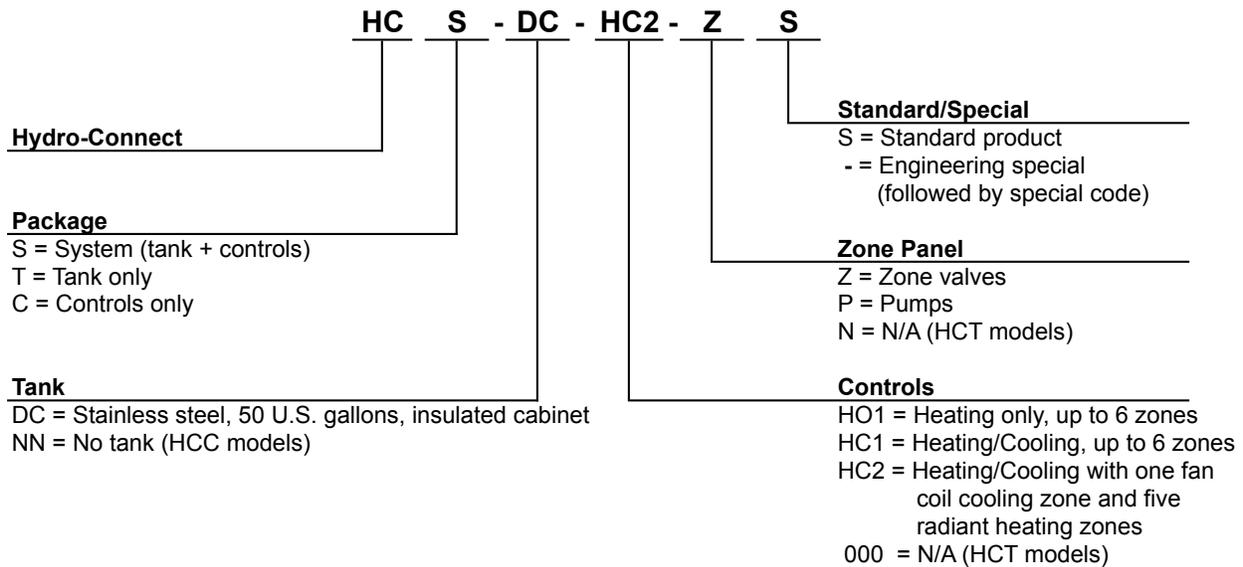
- **Hydraulic separation:** Creates low pressure zone, de-couples the connected source and load side circuits hydraulically. Independent flow in one circuit (source) does not interfere with flow in the other (load).
- **Multiple Control Options:** User selectable for... a) Radiant Floor and Separate Cooling System, b) Radiant Floor and Fan Coil(s), c) Radiant Floor and Forced Air Cooling with a Combination Ground Source Heat Pump.
- **Outdoor Temperature Reset:** Improves system efficiency and saves energy.
- **Warm Weather Shut Down:** Automatically monitors and turns “off” the heating function when warm outdoor ambient occurs.
- **Integrated Controls:** Simplifies electrical wiring between (source side) heating/cooling unit and the (load side) distribution system(s).
- **Independent Zoning (up to 6):** Handles 3 stages of heating/2 stages of cooling, including back up boiler output. Thermostats, source unit(s), and zone valves or zone pumps are wired to the control panel provided with External System Function and Zone Indicator Display Lights.

Layout



NEW!

Nomenclature



Possible Combinations

- Systems:
 HCS-DC-HO1-ZS
 HCS-DC-HC1-ZS
 HCS-DC-HC2-ZS
 HCS-DC-HO1-PS
 HCS-DC-HC1-PS
 HCS-DC-HC2-PS

- Tanks:
 HCT-DC-000-NS

- Controls:
 HCC-NN-HO1-ZS
 HCC-NN-HC1-ZS
 HCC-NN-HC2-ZS
 HCC-NN-HO1-PS
 HCC-NN-HC1-PS
 HCC-NN-HC2-PS

Step 1: Select Hydro-Connect System



Part Number	Description	U.O.M.
	Systems (Tank and Controls)	
HCS-DC-HO1-ZS	Up to 6 Zones, Heating Only, Zone Valves	Each
HCS-DC-HC1-ZS	Up to 6 Zones, Heating-Cooling, Zone Valves	Each
HCS-DC-HC2-ZS	Up to 5 Heating Zones, 1 Fan Coil Cooling Zone, Zone Valves	Each
HCS-DC-HO1-PS	Up to 6 Zones, Heating Only, Circulators	Each
HCS-DC-HC1-PS	Up to 6 Zones, Heating-Cooling, Circulators	Each
HCS-DC-HC2-PS	Up to 5 Heating Zones, 1 Fan Coil Cooling Zone, Circulators	Each
Tank Only		
HCT-DC-000-NS	Stainless steel insulated tank, 50 U.S. gallons	Each
Controls Only		
HCC-NN-HO1-ZS	Up to 6 Zones, Heating Only, Zone Valves	Each
HCC-NN-HC1-ZS	Up to 6 Zones, Heating-Cooling, Zone Valves	Each
HCC-NN-HC2-ZS	Up to 5 Heating Zones, 1 Fan Coil Cooling Zone, Zone Valves	Each
HCC-NN-HO1-PS	Up to 6 Zones, Heating Only, Circulators	Each
HCC-NN-HC1-PS	Up to 6 Zones, Heating-Cooling, Circulators	Each
HCC-NN-HC2-PS	Up to 5 Heating Zones, 1 Fan Coil Cooling Zone, Circulators	Each

Step 2: Select Heat Pump/Backup

Boiler Load Side Pumps



Insulated Pump for Chilled Water/Hot Water with Isolation valves

Also available with Magna GEO* variable speed pump!

Controller kit for Magna GEO insulated pump (flow and temperature version shown)

Part Number	Description	U.O.M.
	Insulated Pumps with Isolation Valves	
1285	Insulated pump, UPS26-99 (3 spd), 230V, cast, isol. valves	Each
1286	Insulated pump, UPS26-99 (3 spd), 115V, cast, isol. valves	Each
1284*	Insul. pump, Magna GEO (var. spd.), 230V, cast, isol. valves NOTE: One of the controllers below is required to operate the Magna GEO insulated pump.	Each
3697	Grundfos Magna GEO Controller -- Temperature Control (1/4" MPT immersion thermistors included)	Kit
3698	Grundfos Magna GEO Controller -- Temperature & Flow Control, hose kit connections (also available as 1" MPT)	Kit
3766	Grundfos Magna GEO Controller -- Temperature & Flow Control, PVC connections (also available as 1" MPT)	Kit
Large Insulated Pumps with Flo-Link XL fittings**		
1360	Insul. pump, SuperBrute, UPS60-150, 230V, cast, XL fittings	Each
1319	Insul. Pump, VersaFlo UPS32-160, 230V, cast, XL fittings	Each
Call	Insul. Pump, VersaFlo UPS40-160, 230V, cast, XL fittings	Each
1321	Insul. Pump, VersaFlo UPS40-240, 230V, cast, XL fittings	Each

* Variable speed pump requires a controller.
** Large insulated pump requires Flo-Link XL adapter fittings.

Step 3: Select Distribution System Zone Valves/Pumps (Premium System)

1. Select zone valve for each hydronic zone (radiant floor, fan coil, etc.).
2. Select a variable speed pump. NOTE: See Application section of this manual for pump selection.



Taco Zone Valves

Part Number	Description	U.O.M.
	Motorized Valves	
VMBBR3F	Taco motorized ball valve, brass 3/4" FPT, 24V w/end switch, Cv = 10.3	Each
VMBBR4F	Taco motorized ball valve, brass 1" FPT, 24V w/end switch, Cv = 8.9	Each
Magna3 Insulated Pump with Isolation Valves (Built-in Constant Differential Pressure Control)		
M3S032-060AC	Magna3 32-60 Insul. Pump w/1-1/4" FPT Isol. Ball Vlvs, 115V/1, cast iron	Each
M3S032-100AC	Magna3 32-100 Insul. Pump w/1-1/4" FPT Isol. Ball Vlvs, 115V/1, cast iron	Each
M3S040-080AC	Magna3 40-80 Insulated Pump w/2" FPT Isol. Ball Vlvs, 115V/1, cast iron	Each
M3S040-120AC	Magna3 40-120 Insulated Pump w/2" FPT Isol. Ball Vlvs, 115V/1, cast iron	Each
M3S040-180AC	Magna3 40-180 Insulated Pump w/2" FPT Isol. Ball Vlvs, 115V/1, cast iron	Each

Magna3 insulated pump (includes isolation ball valves) with built-in constant differential pressure control



NOTE: Magna3 32 series pumps are dual voltage (115/230V). Magna3 40 series must be ordered as either 115V (digit 11 = "A") or 208-230V (digit 11 = "B").

Step 3: Select Distribution System Pumps (Alternate System)

Select a constant speed pump for each hydronic zone (radiant floor, fan coil, etc.)



Insulated Pump for Chilled Water/Hot Water with Isolation valves and built-in check valves

Part Number	Description	U.O.M.
	Insulated/Bracketed Pumps (cast iron volute)	
1286CV	Insulated pump, UPS26-99 (3 spd), 115V, cast, isol. valves, built-in check valve (for use with hot water or chilled water systems)	Each
9451-3F**	Bracketed pump, UPS15-58FC with check valve, 115V, 3/4" FPT	Each
9451-4F**	Bracketed pump, UPS15-58FC with check valve, 115V, 1" FPT	Each
9104-3F**	Bracketed pump, UPS26-99F, 115V, 3/4" FPT***	Each
9104-4F**	Bracketed pump, UPS26-99F, 115V, 1" FPT***	Each



Bracket-mounted pump with built-in check valves (9451-4F shown)**

** **Important:** This pump is not rated for chilled water. Use is intended for heating only systems. Does not include isolation valves.

*** Does not include check valve.

Tools/Replacement Pumps & Parts

The Geo-Flo Flush Cart is the professional's choice to purge air and flush debris from residential and light commercial geothermal ground loops. The Flush Cart includes all the important features required to safely flush and purge the loop including power flushing, power draining, pump and dump, and debris filtering. Its compact design utilizes standard components which allows for easy field service. The 1.5 HP self-priming 115V pump is mounted above the cart's axle, providing a well balanced system that is easy to maneuver.



Part Number	Description	U.O.M.
	Flush Cart & Accessories	
3789	Flush cart w/10 ft. hoses, 1" CAM ftgs (loop side) & 1-1/4" ball vlvs	Each
3563	Flush cart with 10 ft. hoses, 1" CAM ftgs (loop side)	Each
3639	Hose assembly (set of 2, 10 ft.), 1" CAM ftgs (loop side)	Set
3788	Hose assy, (set of 2, 10 ft.), 1-1/4" ball vlvs & 1" CAM ftgs (loop side)	Set
3793	Hose assembly (set of 2, 20 ft.), 1-1/2" CAM ftgs (loop side)*	Set
3594	Filter bag, 100 micron, for flush cart	Each
3832	Filter bag, One (1) micron, for flush cart	Each

*Ships with 2 - CAM male x male adapters. 20 ft. hose assy. set may be used as an extension set or with Flo-Link XL flow centers.

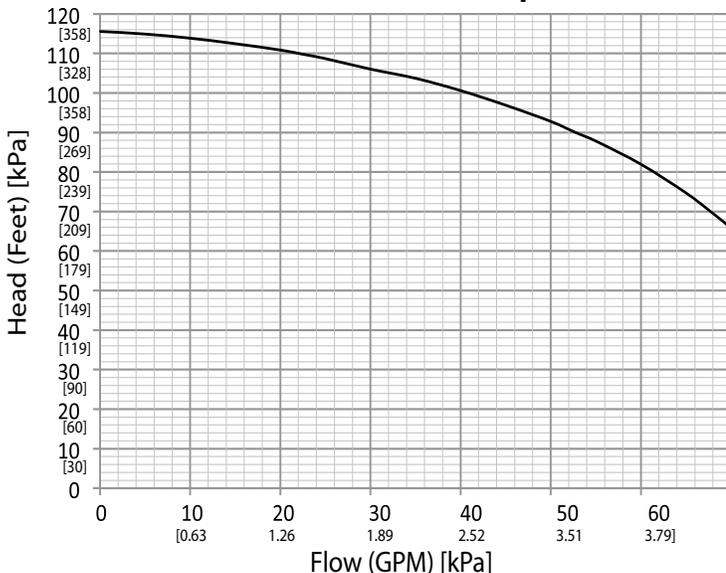


Flush cart hoses with 1-1/4" ball valves

Features:

- **ETL Safety Listing (Listed to UL Standard 778)**
- Tank: 10" Diameter, 13 gallon capacity
- Hand Truck: P-Handle, powder-coated steel
- Tires: 10" Pumatic
- Wiring: 20' 12/3 SJO cord with 15 Amp male plug
- Power Switch: Weatherproof switch box with 20 Amp GFCI protected switch
- Filter: Removable/reusable, 5.5" Dia X 31"long, 100 micron, 90 GPM max.
- Power Flush Valve: Brass, 2" Full port
- Dead-Head Valve: Brass, 1.5" Full port
- Hose connections: 1.5" CAM male quick-connect
- Power Drain Valve: Brass, 1/2" Full port with garden hose swivel connection
- Pump & Dump Valve: Brass, 1/2" Full port with garden hose swivel connection
- Fill Valve: Brass, 1/2" Full port with garden hose swivel connection
- Pump Case Drain Port Valves: (2) 1/4", Brass
- PT Ports: Located on suction & discharge of pump; allows loop pressure drop measurement
- Pump/Tank Connection: 2" flexible wire-reinforced hose
- Sight tube: Flexible with O-ring; allows fluid level monitoring during dead-head
- Hoses: (2) 1.5" ID, Flexible PVC hose with rigid PVC helix with 1.5" CAM female quick connect fittings (pump side) and 1" CAM fittings (loop side)

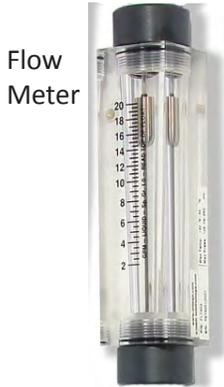
Flush Cart Munro Pump Curve



Tools/Replacement Pumps & Parts



Geo-Gooser



Flow Meter

1" MPT X 1" CAM, Aluminum



Digital thermometer

Pressure Gauge (3.5" dial) with PT adapter (1/8" diam. needle)



Press Gauge 2" dial



2145: 1/8" diam. needle
2634: 1/16" diam. needle

Magnetic Field Indicator



Hydrometer, Alcohols



Part Number	Description	U.O.M.
	Loop Tools & Accessories	
3502	Geo-Gooser loop pressurization device	Each
3509	Geo-Gooser and flush kit -- includes: <ul style="list-style-type: none"> Qty 1: Geo-Gooser Qty 2: Garden hose female x Flo-Link adapter Qty 2: 1" MPT x Flo-Link female 	Kit
3553	Geo-Gooser and flush kit with CAM elbows -- includes: <ul style="list-style-type: none"> Qty 1: Geo-Gooser Qty 2: Garden hose female x Flo-Link adapter Qty 2: 1" MPT x Flo-Link female Qty 1: set of cam lever male 90 (flush fittings) 	Kit
3798	Geo service kit -- includes: <ul style="list-style-type: none"> Qty 1: Geo-Gooser Qty 1: Pressure gauge with needle adapter Qty 1: Thermometer Qty 1: Hydrometer (alcohols) with case 	Kit
3564	Geo service and flush kit -- includes: <ul style="list-style-type: none"> Qty 1: Geo-Gooser Qty 2: Garden hose female x Flo-Link adapter Qty 2: 1" MPT x Flo-Link female Qty 1: Pressure gauge with needle adapter Qty 1: Thermometer Qty 1: Hydrometer (alcohols) with case 	Kit
3666	1" MPT x 1" CAM, Aluminum (for flushing, GPM flow cntr)	Each
3753	Variable area flow meter, 2 to 20 GPM, 1" FPT	Each
3571	Thermometer, digital w/case	Each
3565	Pressure gauge, 0-100 psig, 3.5" dial w/PT adapter	Each
2473	Pressure gauge, 0-100 gsg, 2" dial	Each
3572	Pressure gauge, 0-100 psig, 3.5" dial	Each
2145	Gauge adapter P/T plug w/guard -- 1/8" diam. needle	Each
2634	Gauge adapter P/T plug w/guard -- 1/16" diam. needle	Each
3566	Hydrometer, alcohols	Each
3727	AC Magnetic Field Indicator (check pump operation)	Each

3509



3553



3798



3564



Tools/Replacement Pumps & Parts



Double Face Fusion Tool

Fusion Kit -- 3/4" & 1-1/4"



Fusion Kit -- 3/4", 1-1/4", & 2"



Socket Face Set



Cold Ring Vise Grip Clamp



Depth Gauge/Chamfer Tool



Part Number	Description	U.O.M.
	Fusion Tools	
TFH2	Heat fusion tool - double face	Each
TFK35	Fusion tool kit 3/4" & 1-1/4" -- includes: <ul style="list-style-type: none"> • Complete fusion tool set (3/4" & 1-1/4") • Heating tool w/cover, socket faces, cold rings, 1-1/4" chamfer tool, tool box • Timer, temple sticks, 1-1/4" ratchet cutter 	Kit
TFK358	Fusion tool kit 3/4", 1-1/4", & 2" -- includes: <ul style="list-style-type: none"> • Complete fusion tool set (3/4", 1-1/4" & 2") • Heating tool w/cover, socket faces, cold rings, 1-1/4" & 2" chamfer tools, tool box • Timer, temple sticks, up to 2" ratchet cutter 	Kit
Socket Faces		
TSF3	3/4" IPS socket face set	Set
TSF4	1" IPS socket face set	Set
TSF5	1-1/4" IPS socket face set	Set
TSF6	1-1/2" IPS socket face set	Set
TSF8	2" IPS socket face set	Set
Cold Rings Vise Grip Clamp		
TCR3	3/4" IPS cold ring Vise Grip clamp	Each
TCR4	1" IPS cold ring Vise Grip clamp	Each
TCR5	1-1/4" IPS cold ring Vise Grip clamp	Each
TCR6	1-1/2" IPS cold ring Vise Grip clamp	Each
TCR8	2" IPS cold ring Vise Grip clamp	Each
Depth Gauge/Chamfer Tool		
TCG3	3/4" IPS depth gauge/chamfer tool	Each
TCG4	1" IPS depth gauge/chamfer tool	Each
TCG5	1-1/4" IPS depth gauge/chamfer tool	Each
TCG6	1-1/2" IPS depth gauge/chamfer tool	Each
TCG8	2" IPS depth gauge/chamfer tool	Each
TCGB	Replacement blade for all depth gauge/chamfer tools	Each

Tools/Replacement Pumps & Parts

Fusion Holder



Fusion Timer



Temp Stick



Fusion Tool Mounting Bracket



Fusion Tool Heater Bag



Pipe Cutter up to 1"



Pipe Cutter 1-1/4" & 2" versions



Part Number	Description	U.O.M.
	Fusion Tools	
TFH8	Fitting holder - 2" IPS	Each
TFT	Fusion timer	Each
TTS	Temp stick - PE, 500°F	Each
TMB	Mounting bracket for fusion tool	Each
TFHB	Fusion tool heater bag	Each
Pipe Cutters		
TPC4	PE cutter - up to 1"	Each
TPCB4	Replacement blade for TPC4	Each
TPC5	PE ratchet cutter - up to 1-1/4"	Each
TPCB5	Replacement blade for TPC5	Each
TPC8	PE ratchet cutter - up to 2"	Each
TPCB8	Replacement blade for TPC8	Each

Tools/Replacement Pumps & Parts



Replacement pump head -- "NV" (no volute) part numbers



8900/9404/9405/9428*



9417/8994/8951



9418



9024



9420/9421/9422



9424



9423



3535

Part Number	Description	
	Replacement Pumps - Flow Centers	U.O.M.
8900NV	UP26-99 (single speed), 230V Grundfos pump, no volute*	Each
8900	UP26-99F (sngl spd), 230V Grundfos pump, cast iron volute	Each
9425NV	UPS26-99 (3-speed), 230V Grundfos pump, no volute*	Each
9425	UPS26-99F (3-spd), 230V Grundfos pump, cast iron volute	Each
9405NV	UP26-116 (single speed), 230V Grundfos pump, no volute*	Each
9405	UP26-116F (sngl spd), 230V Grundfos pump, cast iron volute	Each
9104NV	UPS26-99 (3-speed), 115V Grundfos pump, no volute*	Each
9104	UPS26-99F (3-spd), 115V Grundfos pump, cast iron volute	Each
9404NV	UP26-99 (single speed), 115V Grundfos pump, no volute*	Each
9404	UP26-99F (sngl spd), 115V Grundfos pump, cast iron volute	Each
9435**	UP26-116SF (sngl spd), 230V Grundfos pump, stainless**	Each
9417	UPS32-160, 230V Grundfos VersaFlo pump, cast iron	Each
8994	UPS40-160, 230V Grundfos VersaFlo pump, cast iron	Each
8951	UPS40-240, 230V Grundfos VersaFlo pump, cast iron	Each
9418	UPS60-150, 230V Grundfos SuperBrute XL, cast iron	Each
9024	Grundfos Magna GEO 32-140 var spd, 230V, cast, STD prof.	Each
9427	Grundfos Magna GEO 32-140 var spd, 230V, cast, INV prof.	Each
9420	Wilco Stratos 1.25 x 3-35, variable speed, 230V, cast iron	Each
9421	Wilco Stratos 1.5 x 3-40, variable speed, 230V, cast iron	Each
9422	Wilco Stratos 2 x 3-35, variable speed, 230V, cast iron	Each
	Replacement Pump - Flush Cart	
9424	Munro 1.5 HP 115V/208-230V single phase	Each
	Replacement Pump/Power Supply - Geo-Booster	
9423	Geo-Booster replacement pump	Each
3535	Geo-Booster pwr supply, 115/230VAC IN; 12VDC OUT, 5A	Each

* It is normally not practical to change the volute in a foamed-in flow center. Part numbers with "NV" at the end indicate that the replacement pump is the pump head only (does not include the volute). This approach lowers the weight of the package (and shipping costs), and avoids disposal issues with the unused cast iron volute.

** P/N 8931 (bronze volute) has been replaced by P/N 9435 (stainless steel volute).

Tools/Replacement Pumps & Parts



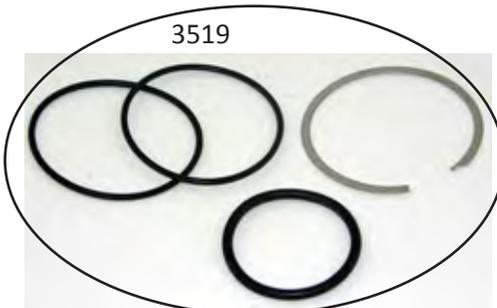
Part Number	Description	U.O.M.
	Magna3 Replacement Pumps	
9441	Magna3 40-80 variable speed, cast iron, 208-230/1	Each
9444	Magna3 40-120 variable speed, cast iron, 208-230/1	Each
9432	Magna3 40-180 variable speed, cast iron, 208-230/1	Each
9449	Magna3 65-120 variable speed, cast iron, 208-230/1	Each
9433	Magna3 65-150 variable speed, cast iron, 208-230/1	Each
Call	Magna3 80-100 variable speed, cast iron, 208-230/1	Each
9448	Magna3 100-120 variable speed, cast iron, 208-230/1	Each



Part Number	Description	U.O.M.
	Flow Center 3-Way Valve Repair Kits	
2938	Repair Kit, Composite Valve, Flo-Link Double O-ring	Kit
3518	Repair Kit, Brass Valve, Flo-Link Double O-ring	Kit
3341	Repair Kit, Brass Valve, FPT Connections	Kit
3519	Repair Kit, XL Valve, Flo-Link XL Double O-ring	Kit
	Blank-off Plate Kits*	
3480	Blank-off Plate Kit, Flo-Link Double O-ring flow centers	Kit
3479	Blank-off Plate Kit, 1" FPT flow centers	Kit



*Used for converting a two-pump flow center to a one pump flow center.



Design Calculators

Geothermal System Design Calculators are available free of charge on the website at www.geo-flo.com. This comprehensive suite of calculators provides geothermal and hydronic design tools, concentrating on the hydronic portions of the system. From pressure drop calculation to pump sizing to flushing requirements, the design suite is just the starting point for new services continually being developed. Calculators available on the website are as follows:

- Residential/light commercial pressure drop Calculators:
 - Single unit, outside header or inside header
 - Central pumping, up to five units
 - Distributed pumping (flow center per heat pump), up to five units
 - Dual unit (NPD) flow center
 - Multi unit (NPM) flow center
- Commercial pressure drop Calculators:
 - Pipe segment pressure drop, up to 6" pipe
 - Flow rate/pump affinity laws
 - Cv calculator
- Pump sizing Calculators:
 - Flow centers, up to 100 U.S. GPM
 - Series/Parallel pump Calculator
 - Reynolds number Calculator
 - Magna3 pump sizing
 - Geothermal expansion tank Calculator
- Flush cart calculator
- Hydronic Calculators:
 - Buffer Tank Sizing Calculator
 - Heat pump load sizing piping (heat pump to buffer tank) pressure drop
 - Radiant floor/fan coil piping pressure drop
 - Expansion tank Calculator (radiant and fan coil systems)
- Pond loop coil Calculator
- Service Calculators (mobile device friendly!):
 - Flow Rate calculator (calculates flow rate based upon heat exchanger pressure drop)
 - HE-HR calculator (calculates Heat of Extraction or Heat of Rejection)

To learn more about the new design suite, go to www.geo-flo.com, and select "Design Calculators." Sign up for an account, and gain instant access to the design suite.

About Calculators

NEW Geo-Flo News



Geo-Flo's experienced product development/engineering department and advanced manufacturing facility create a combination unmatched in the industry for designing custom valves, fittings, and specialty products. Keep Geo-Flo in mind for projects requiring new solutions.



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WARRANTY STATEMENT**

Geo-Flo Products Corporation produces flow centers for many O.E.M. customers (geothermal heat pump manufacturers), as well as for HVAC distributors and commercial representatives. Warranties vary by O.E.M., and are not stated in this document. For warranty coverage and details, owners should contact their installing contractor. Contractors should contact their HVAC distributor, commercial representative, or heat pump manufacturer for warranty information.

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	Misc. corrections to typos, part # updates	Various
	Add Magna GEO options to NP Multi with circulators	21,23
	Reformatted Magna3 section, added drawings & accessories	37
	Added 3" & 4" flushing assemblies	40
	Added commercial accessories (expansion tanks, air separators, etc.)	44
	Updated Flo-Link x Flo-Link hose kit part #; added hose kit w/check vlv	45
	Updated 1/4" brass plug to hex drive (changed P/N from 3027 to 3711)	51
	Added 1" MPT x 1-1/4" swivel adapter set	51
	Updated picture of 2146 1" MPT x 1" hose barb	52
	Added 3/4" thread x hose barb adapter and elbow	51,52
	Added 1-1/4" and 2" union fusion ball valves	52
	Added pump mounting brackets for UP/UPS 15 & 26 pumps	53
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	Added HDPE tee, 2" fusion x 2" fusion x 1" MPT (MPT is on tee side)	55
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30DEC2016	Updated table for heat pump controls to reflect NP series product updates (addition of NP Plus and NPV Plus Kit)	8
	Added NP Plus flow centers	13,14
	Removed 1326 and 1327 NPV Kits (replaced by NPV Plus Kits)	14
	Added 1285CV (insulated pump w/built-in check valve)	39
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	Added 4" flange x HPDE fusion adapter and backup ring	43
	Corrected P/N of Flo-Link x Flo-Link hose kit (changed to 3278)	44
	Discontinued NP hose kit, p/N 3829 (replaced by NP Plus and standard hose kit)	46
	Added hose kits 1346 & 1347 for NP Plus	46
	Added 4066 Flo-Link x 1" FPT isolation valve set with check valve	47
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	Added 4243 Dual unit connection kit for Flo-Link XL flow centers	50
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Geo-Flo Products Corporation
905 Williams Park Drive
Bedford, Indiana 47421, U.S.A.

Main Number: 812-275-8513
Toll Free: 800-784-8069
Fax: 888-477-8829

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