

Quest PowerHeat PHE 500 Pro



Central Hydronic Heater System

The Quest PowerHeat PHE 500 Pro features:

The PHE 500 is an accessory device designed for use in conjunction with any of the Quest Central Hydronic Glycol Heaters. It transfers heat from the primary heated glycol circuit to another liquid that is being pumped through the secondary circuit. The PHE 500 consists of the following components contained inside a portable stainless steel cabinet.

Features:

- A liquid to liquid brazed plate heat exchanger.
- A stainless steel centrifugal pump that generates flow for the secondary circuit.
- Electrical circuitry, switching and protection for the pump.
- Plumbing circuitry to provide the correct liquid flow routing through the heat exchanger circuits and the pump.
- A Y-strainer to filter impurities out of the liquid in the secondary circuit.



PowerHeat PHE 500 Pro Specifications

Part Number	4034300	
Capacity	Glycol to Glycol = up to 300,000 BTU's* Glycol to Water = up to 700,000 BTU's* *conditions dictate actual output	
Electrical Supply	120V, 20 Amps, 60Hz Single Phase	
Power Inlet	L5-20P Male NEMA Twist Lock	
Warranty	One year 100% Parts and Labor	
Dimensions		
	US	Metric
Width	19.5"	495mm
Height	18.75"	476mm
Depth	37.5"	953mm
Weight	181 lbs	82 kg
Accessories		
4030153	3/4" x 50' Hose with Couplers	
4030417	3/4" x 25' Hose with Couplers	
4030418	3/4" x 15' Hose with Couplers	
4034982	Expansion Tank	
Uses for Expansion Tank:		
	Expanding fluid overflow	
	A filling spot to add glycol	
	An emergency or loss-of-power overflow tank	

One Expansion Tank can handle one 980 and up to two PHE's.
PHE Recommended Usage - Any time you are pumping fluid above level with the central hydronic heater, this unit is recommended. It is mandatory when lifting/supplying fluid above three stories.

Pump Specifications

Goulds pump model	NPE-1ST1F1B4	NPE-1ST1E4C4
Impeller diameter Inches (millimeters)	5.1875 (132)	5.75 (146)
Motor: -various motors may be supplied		
horse power (watts)	1.0 (746)	1.5 (1119)
Voltage utilized	115	115
Full Load Amp Rating	≤ 13	≤ 16
Phase	1	1
Hertz	60	60
Design system flow (+/- 20%) USGPM (Liters/Sec.)	30 (1.89)	35 (2.2)
Design pump pressure (+/- 15%) PSI (Kilopascals)	35 (241)	40 (275)



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Specifications subject to change without notice. 02/15



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Expansion Tank Specifications

Part Number	4034982
Expansion Tank Capacity	Up to 17 Gallons (though it should never be anywhere near that)
Dimensions	27"L x 22"W x 50.5"H-in 685.8L x 558.8W x 1282.7H-mm

*Cannot exceed 3000 ft of hose

Brazed Plate Specifications: Heating 50% Glycol to 170°F

Model: FP5X12L-70 (1-1/4" MPT)			
Load (Btu/h).....	250000	Nominal surface (ft ²).....	26.1
Log mean temp. diff. (°F).....	31.8	Dimensions.....	4.9W x 12.2H x 6.7D
Overall HTC (Btu/h-ft ² -°F).....	316	Plate construction.....	Single wall
Oversurface percent.....	4.9	Net Weight (lb).....	24.9
Model Size.....	5 x 12L		
Design Conditions	Side A - Liquid	Side B - Liquid	
Fluid Type	Propylene glycol	Propylene glycol	
Fluid conc.	50	50	
Fluid mass flow rate (lb/min)	248.9	210.5	
Entering fluid temp. (°F)	200.0	147.8	
Leaving fluid temp. (°F)	181.5	170.0	
Fluid flow rate (GPM)	30.0	25.0	
Fluid fouling factor (h-ft ² -°F/Btu)	0.00010	0.00010	
Model Parameters			
Number of channels	34	35	
Velocity (ft/s)	0.84	0.68	
Pressure drop (psi)	1.0	0.7	
Heat transfer coef. (Btu/h-ft ² -°F)	747	614	
Internal volume (ft ³)	0.102	0.105	

Brazed Plate Construction and Technical Data

GEA brazed plate	Model	FP5x12L-70
Braze alloy	Copper	99.9%
Connector	Stainless Steel	304
Plates	Stainless Steel	316L
Maximum allowable pressure	PSI (Bar)	300 (20.7)
Maximum allowable temperature	°F (°C)	350 (176.7)
Minimum allowable temperature	°F (°C)	-320 (-195.6)
Code Approvals	Listed	UL, CRN
	Available	ASME, CE



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