

Droplet4 Extension Package

- Brazed plate heat exchanger, single wall
- Circulator pump (select Option)
- Mechanical Room Controller
 - (4) Storage tank temperature sensors
 - PLC to communicate storage tank conditions with Droplet

Required Field Wiring

- Storage Tank temperature sensor in Tank thermowell (min. one landed)
- Start/Stop signal from Mech. Room Controller to Circulator Pump
- Temperature probe from pump to return pipe thermowell
 - Allows pump to adjust speed to maintain 140°F to Storage Tank
- Ethernet connection from Mech. Room Controller to remote Droplet4
- Mech. Room Controller whip plugged into standard 110VAC wall outlet
- *Optional:* Temp. probe from Mech. Room Controller to return pipe thermowell
 - Can be used to remotely monitor system performance

Heat Exchanger Performance

Heat Load		61,600 Btu/hr	18 kW
High-Lift Conditions	Temperature, Domestic Water (DW) IN	45°F	7.2°C
	Temperature, DW OUT	140°F	60°C
	Temperature, Heat Pump (HP) OUT	145°F	62.8°C
	Temperature, HP RETURN	58.4°F	14.7°C
	Flow, DW	1.3 US gpm	4.92 l/min
	Δp	0.60 ft	0.18 m
End-of-run (EOR) Conditions	Temperature, Domestic Water (DW) IN	115°F	46.1°C
	Temperature, DW OUT	140°F	60°C
	Temperature, Heat Pump (HP) OUT	145°F	62.8°C
	Temperature, HP Return	117.6°F	47.6°C
	Flow, DW	5.0 US gpm	18.9 l/min
	Δp	6.16 ft	1.88 m

Booster Pump Performance

Option 1	Max. Available Head*	13.5 ft	4.12 m
	Min. System Head Loss Required**	2.76 ft @ 1.31 gpm	0.84m @ 4.96 l/min
Option 2	Max. Available Head*	26.6 ft	8.1 m
	Min. System Head Loss Required**	2.76 ft @ 1.31 gpm	0.84m @ 4.96 l/min
Option 3	Max. Available Head*	33.2 ft	10.1 m
	Min. System Head Loss Required**	2.76 ft @ 1.31 gpm	0.84m @ 4.96 l/min
Option 4	Max. Available Head*	52.9 ft	16.1 m
	Min. System Head Loss Required**	2.76 ft @ 1.31 gpm	0.84m @ 4.96 l/min

*Max. Pump Head - Δp (HX) at EOR Flow

**System pressure drop at high-lift flow conditions to achieve stable deliver temperature at pump min. speed

NOTES:

Booster pump varies speed based on constant temperature (140°F at storage tank).
 Pump requires pipe thermowell/remote temp. sensor; start/stop signal from Droplet controller. See Pg.2 for detail.

SMALL PLANET SUPPLY TUMWATER, WA		
TITLE: DROPLET4 EXTENSION PACKAGE (TECHNICAL DATASHEET)		
SIZE B	DWG. NO. 003-00039	REV A
SCALE: 1:1		SHEET 1 OF 4

4

3

2

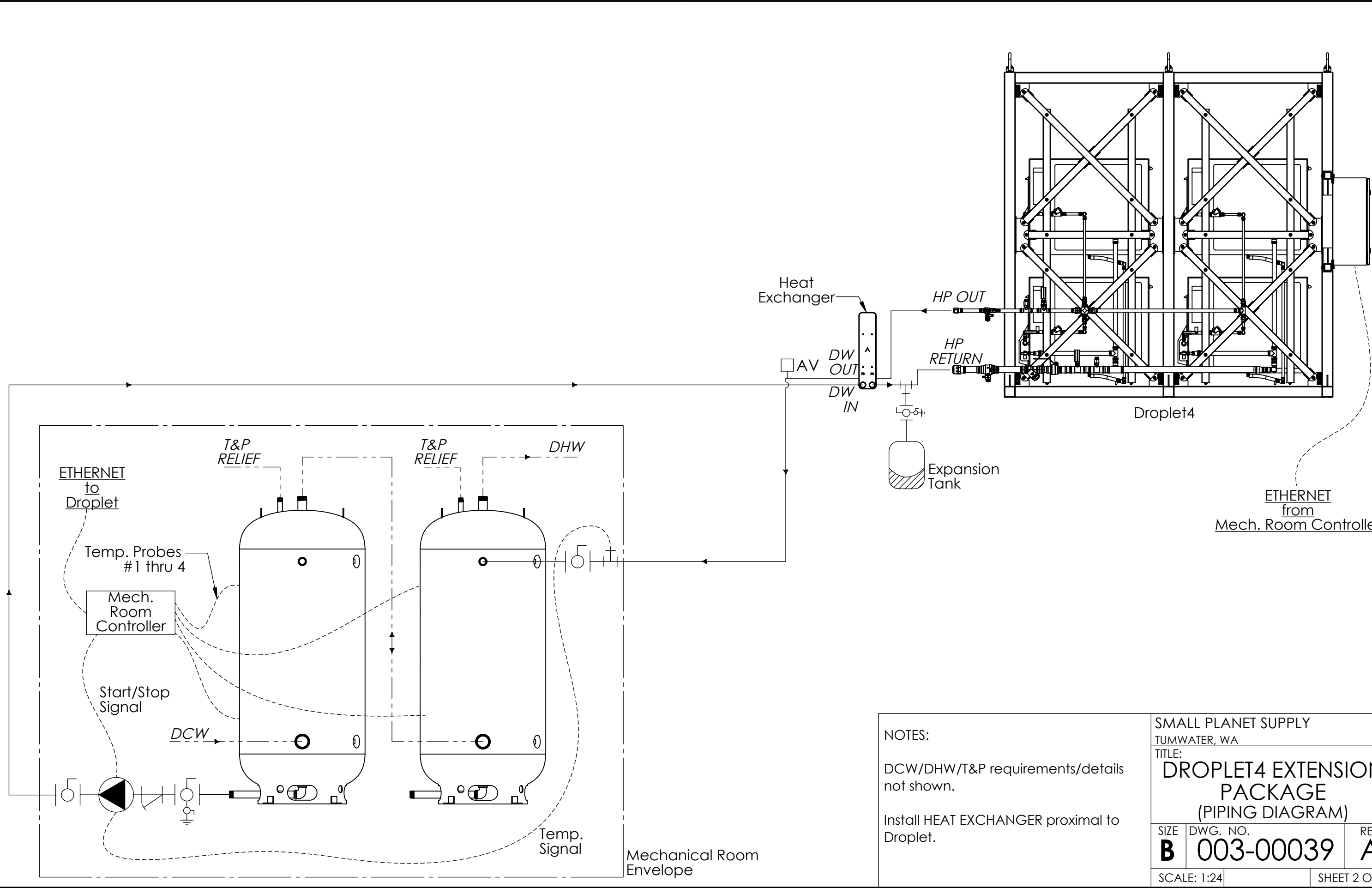
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B

B

A

A



ETHERNET to Droplet

T&P RELIEF

T&P RELIEF

DHW

Temp. Probes #1 thru 4

Mech. Room Controller

Start/Stop Signal

DCW

Temp. Signal

Mechanical Room Envelope

Heat Exchanger

AV
DW OUT
DW IN

HP OUT

HP RETURN

Expansion Tank

Droplet4

ETHERNET from Mech. Room Controller

NOTES:

DCW/DHW/T&P requirements/details not shown.

Install HEAT EXCHANGER proximal to Droplet.

SMALL PLANET SUPPLY
TUMWATER, WA

TITLE:
DROPLET4 EXTENSION PACKAGE
(PIPING DIAGRAM)

SIZE	DWG. NO.	REV
B	003-00039	A

SCALE: 1:24

SHEET 2 OF 4

4

3

2

1

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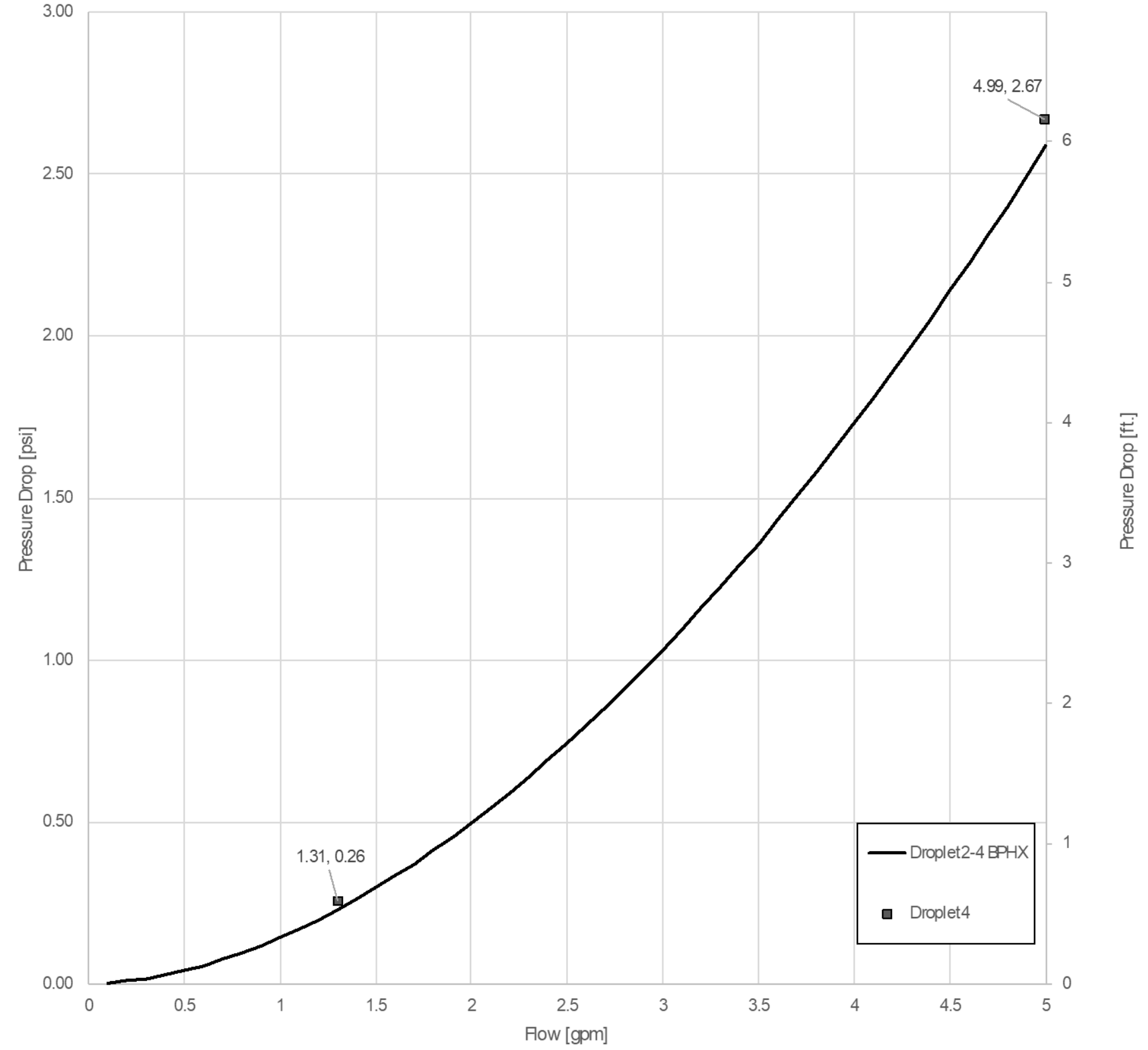
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1

Droplet4 Flow v. Pressure Drop (Building Side)

High Lift: 45°F→140°F, End-of-run: 115°F→140°F, Air Temp.: ≥5°F



B

B

A

A

NOTES:			SMALL PLANET SUPPLY		
Pressure drop of building-side heat exchanger at Droplet4 boundary conditions (high-lift & end-of-run).			TUMWATER, WA		
			TITLE:		
			DROPLET4 EXTENSION PACKAGE		
			(BPHX PRESSURE DROP CURVE)		
SIZE	DWG. NO.	REV			
B	003-00039	A			
SCALE: 1:1			SHEET 3 OF 4		

4

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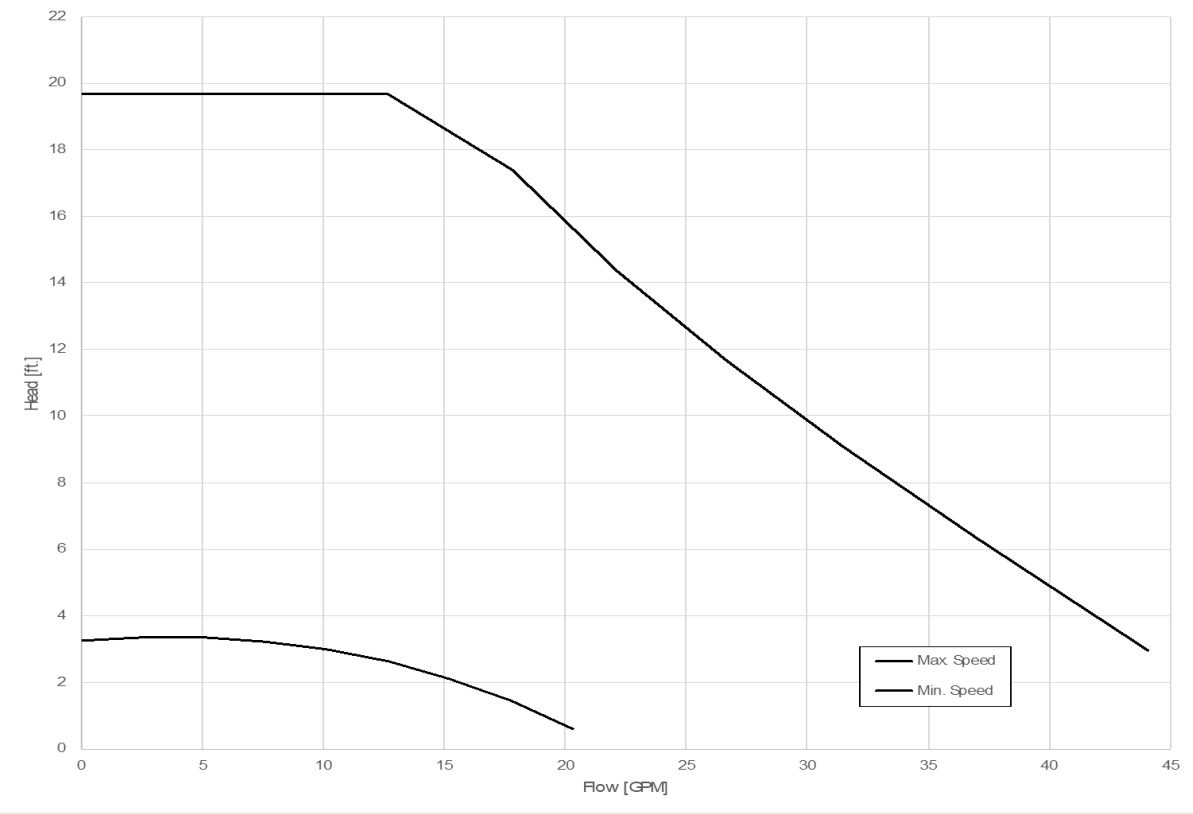
B

B

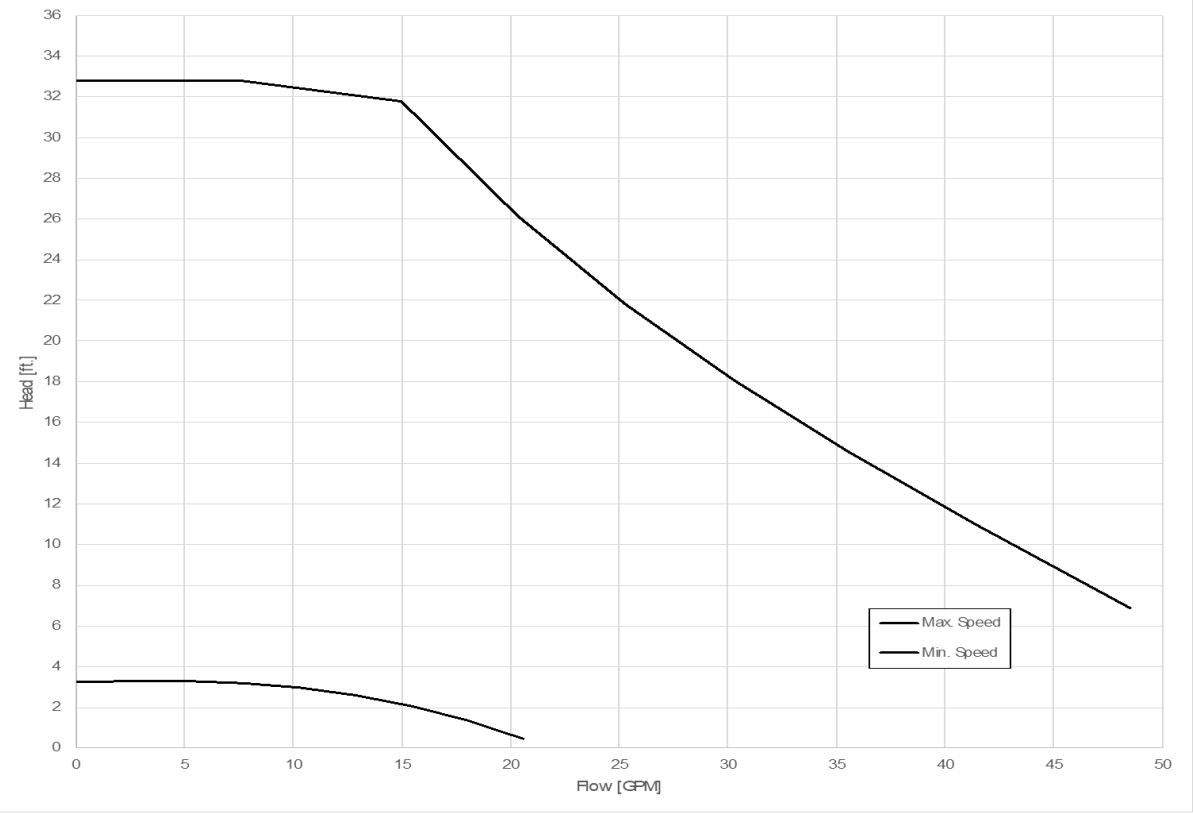
A

A

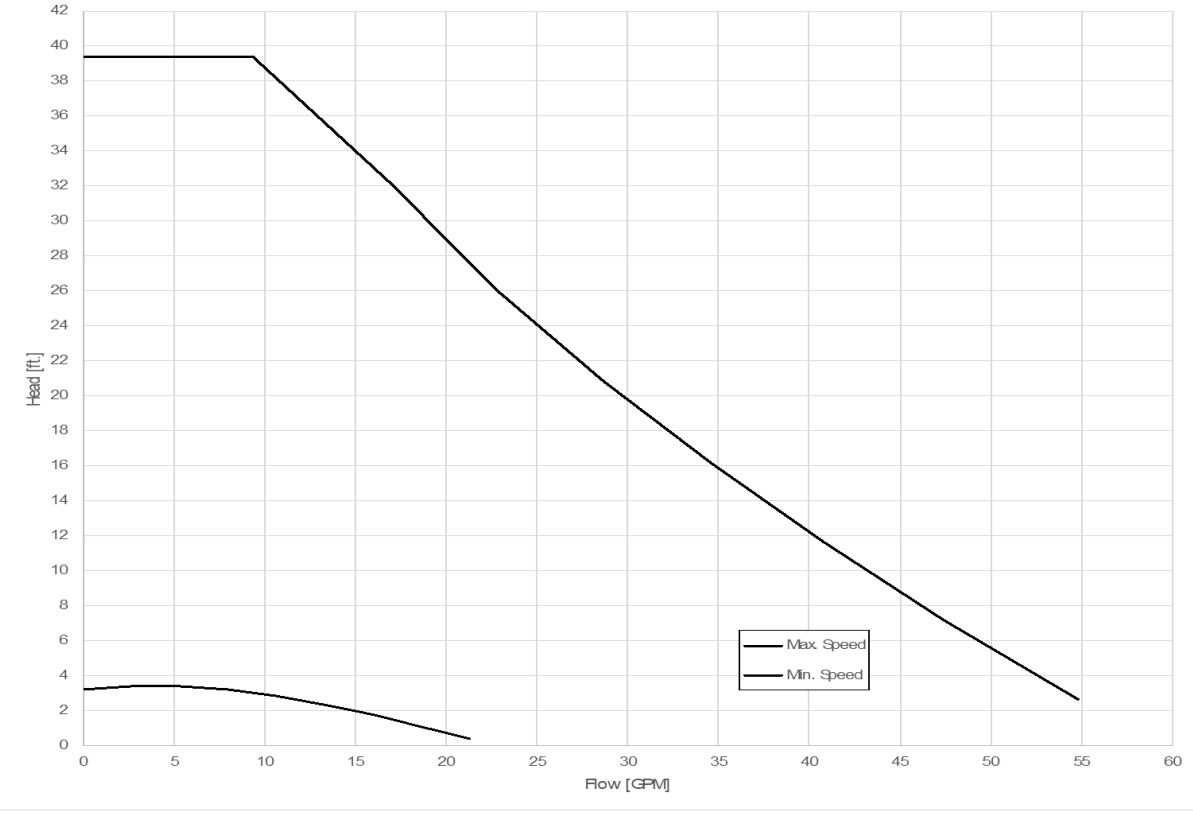
Circulator Pump Option #1
Head v. Flow



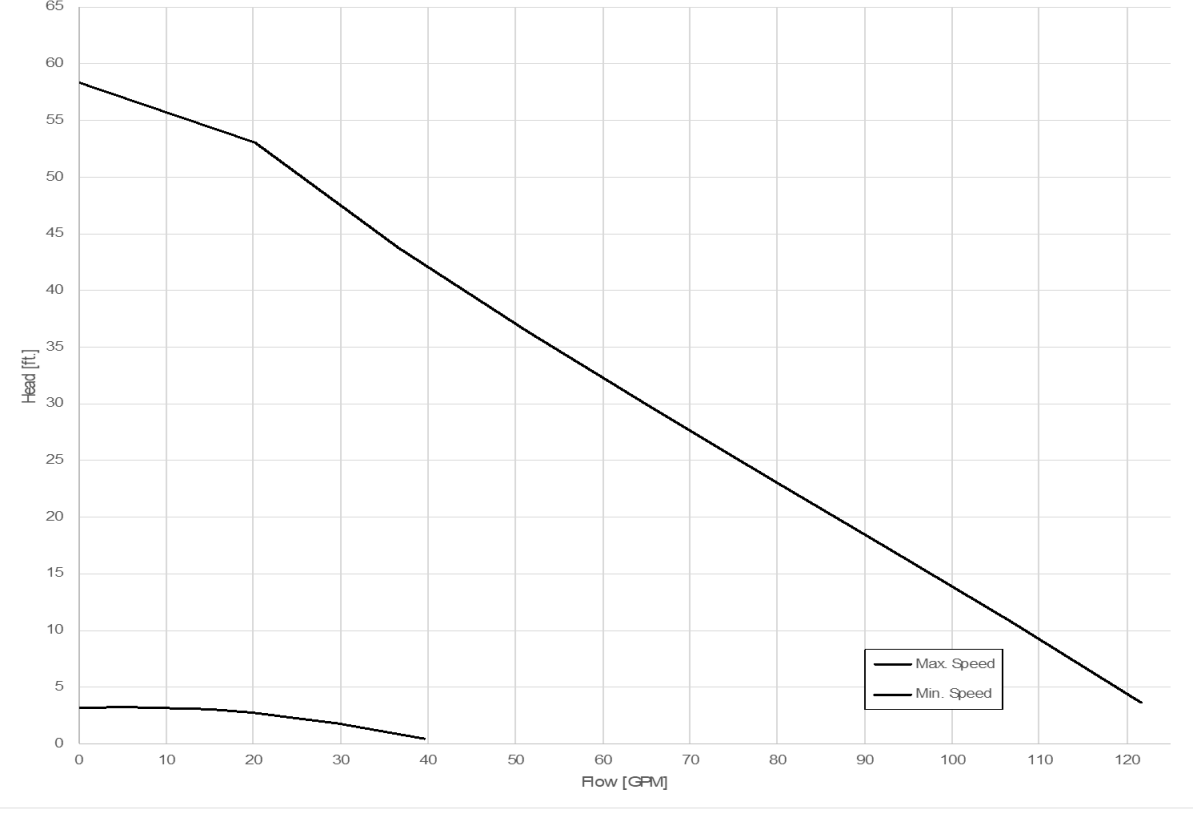
Circulator Pump Option #2
Head v. Flow



Circulator Pump Option #3
Head v. Flow



Circulator Pump Option #4
Head v. Flow



SMALL PLANET SUPPLY TUMWATER, WA		
TITLE: DROPLET4 EXTENSION PACKAGE (CIRCULATOR PUMP CURVES)		
SIZE B	DWG. NO. 003-00039	REV A
SCALE: 1:1		SHEET 4 OF 4

4

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