

Droplet12 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 Droplet12
- 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		184,800 Btu/hr	54 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	57.5°F	14.2°C
	Flow, DW	3.91 US gpm	14.8 l/min
	Δp	0.65 ft	0.20 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	117.4°F	47.4°C
	Flow, DW	15.0 US gpm	56.8 l/min
	Δp	6.83 ft	2.08 m

Booster Pump Performance

Option 1	Max. Available Head*	12.8 ft	3.9 m
	Min. System Head Loss Required**	2.83 ft @ 3.91 gpm	0.86m @ 14.8 l/min
Option 2	Max. Available Head*	26.0 ft	7.9 m
	Min. System Head Loss Required**	2.83 ft @ 3.91 gpm	0.86m @ 14.8 l/min
Option 3	Max. Available Head*	32.5 ft	9.9 m
	Min. System Head Loss Required**	2.83 ft @ 3.91 gpm	0.86m @ 14.8 l/min
Option 4	Max. Available Head*	52.2 ft	15.9 m
	Min. System Head Loss Required**	2.83 ft @ 3.91 gpm	0.86m @ 14.8 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:		SMALL PLANET SUPPLY TUMWATER, WA	
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.		TITLE: <b>DROPLET12 EXTENSION PACKAGE</b> (TECHNICAL DATASHEET)	
		SIZE <b>B</b>	DWG. NO. <b>003-00043</b>
		REV <b>A</b>	SHEET 1 OF 4

4

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2

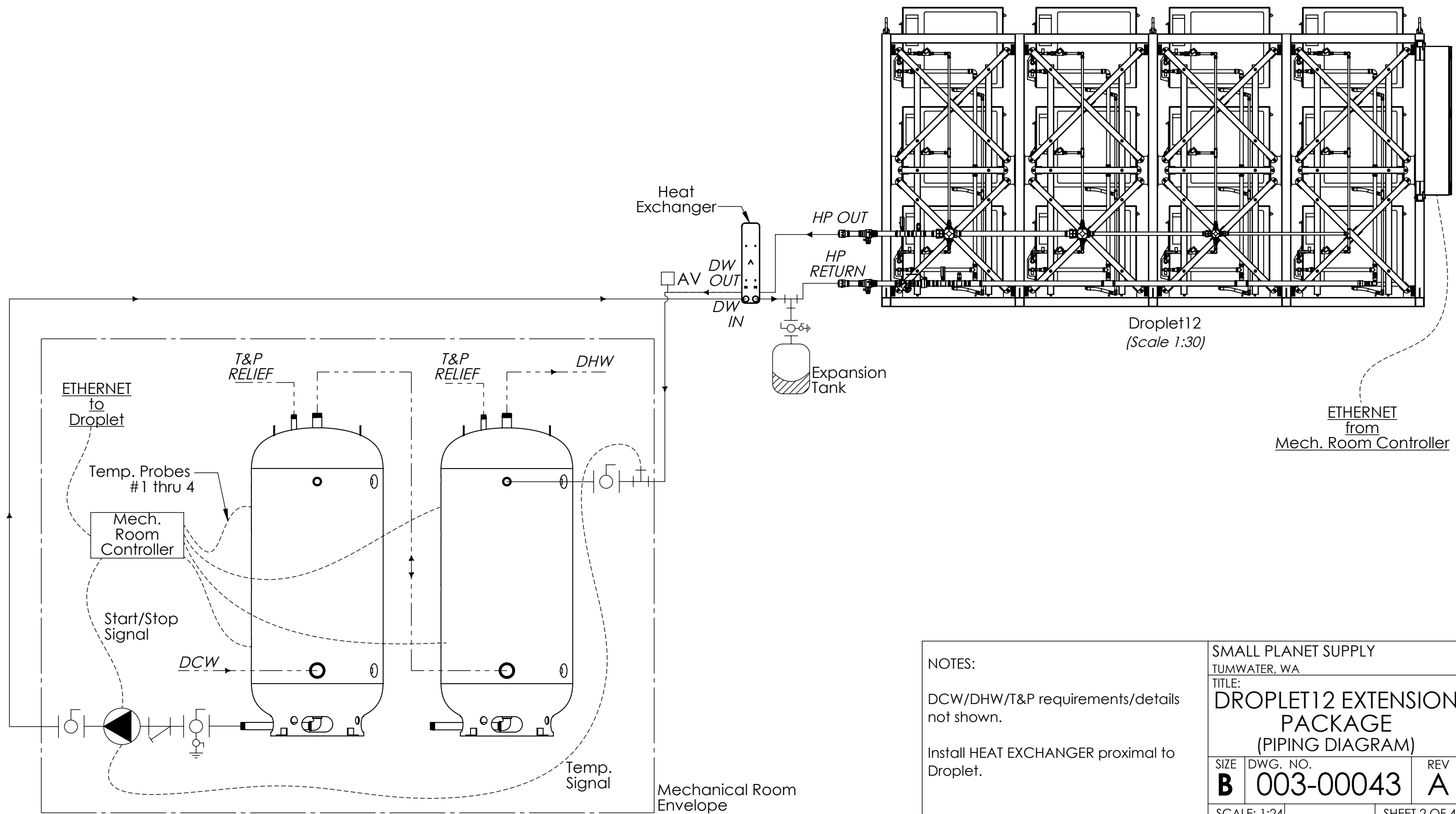
1

B

B

A

A



Droplet12  
(Scale 1:30)

ETHERNET  
from  
Mech. Room Controller

Mechanical Room  
Envelope

NOTES:  
DCW/DHW/T&P requirements/details not shown.  
Install HEAT EXCHANGER proximal to Droplet.

SMALL PLANET SUPPLY TUMWATER, WA		
TITLE: <b>DROPLET12 EXTENSION PACKAGE</b> (PIPING DIAGRAM)		
SIZE <b>B</b>	DWG. NO. <b>003-00043</b>	REV <b>A</b>
SCALE: 1:24		SHEET 2 OF 4

4

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1

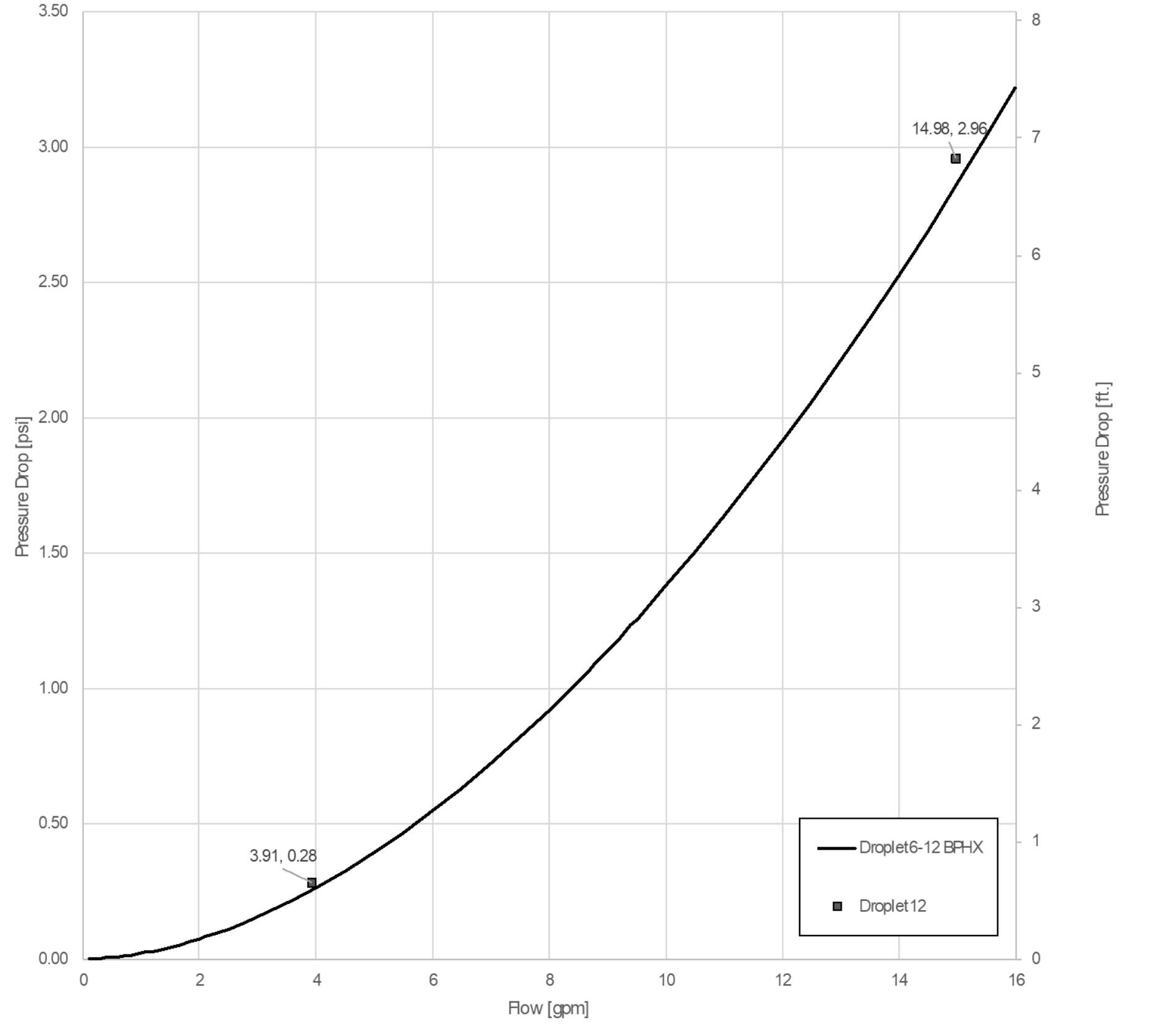
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1

**Droplet12 Flow v. Pressure Drop (Building Side)**  
*High Lift: 45°F→140°F, End-of-run: 115°F→140°F, Air Temp.: ≥5°F*



**NOTES:**  
 Pressure drop of building-side heat exchanger at Droplet12 boundary conditions (high-lift & end-of-run).

SMALL PLANET SUPPLY TUMWATER, WA		
TITLE: <b>DROPLET12 EXTENSION PACKAGE</b> (BPHX PRESSURE DROP CURVE)		
SIZE <b>B</b>	DWG. NO. <b>003-00043</b>	REV <b>A</b>
SCALE: 1:1		SHEET 3 OF 4

4

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B

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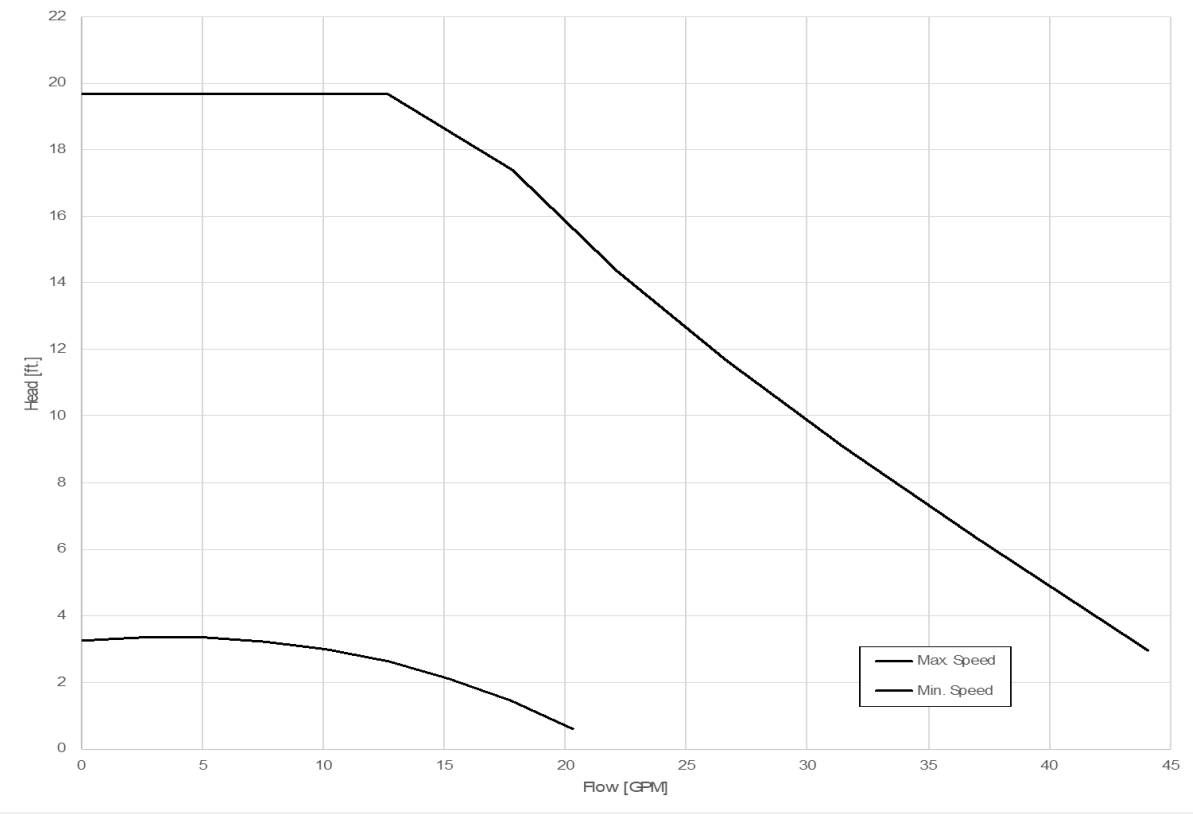
B

B

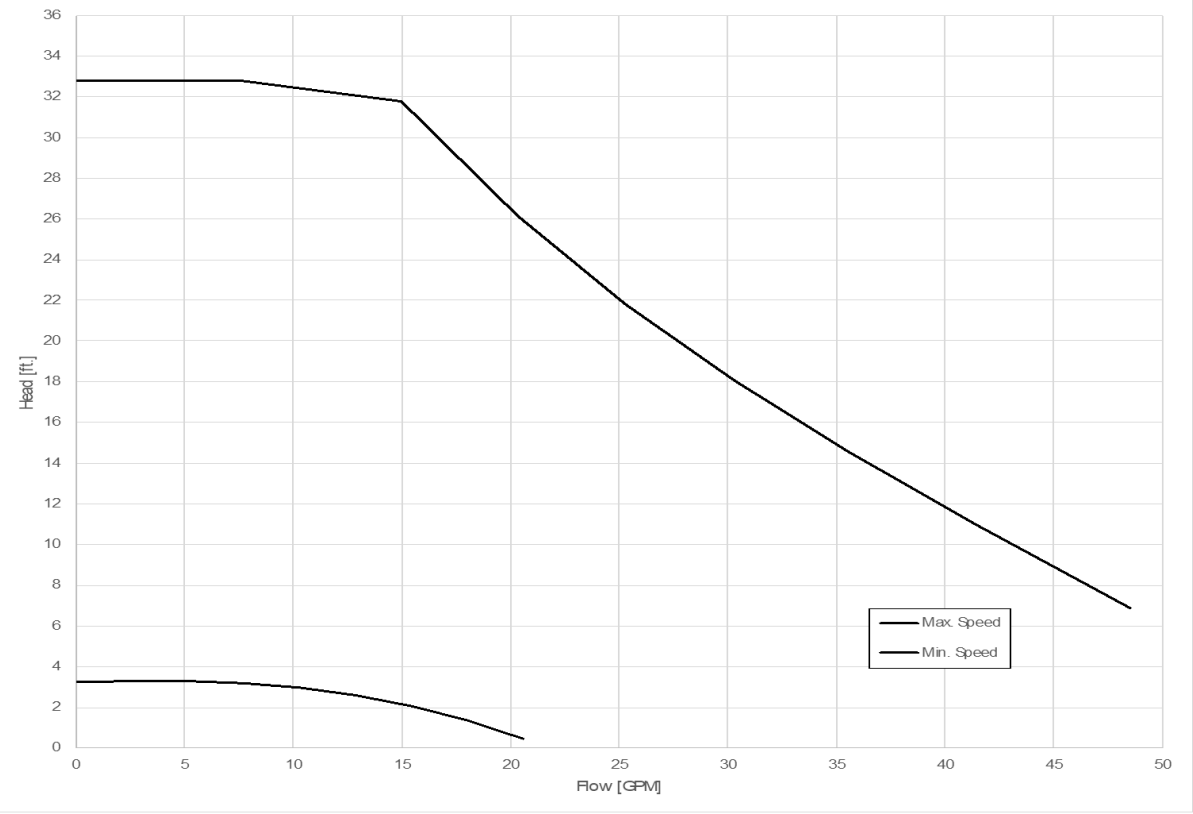
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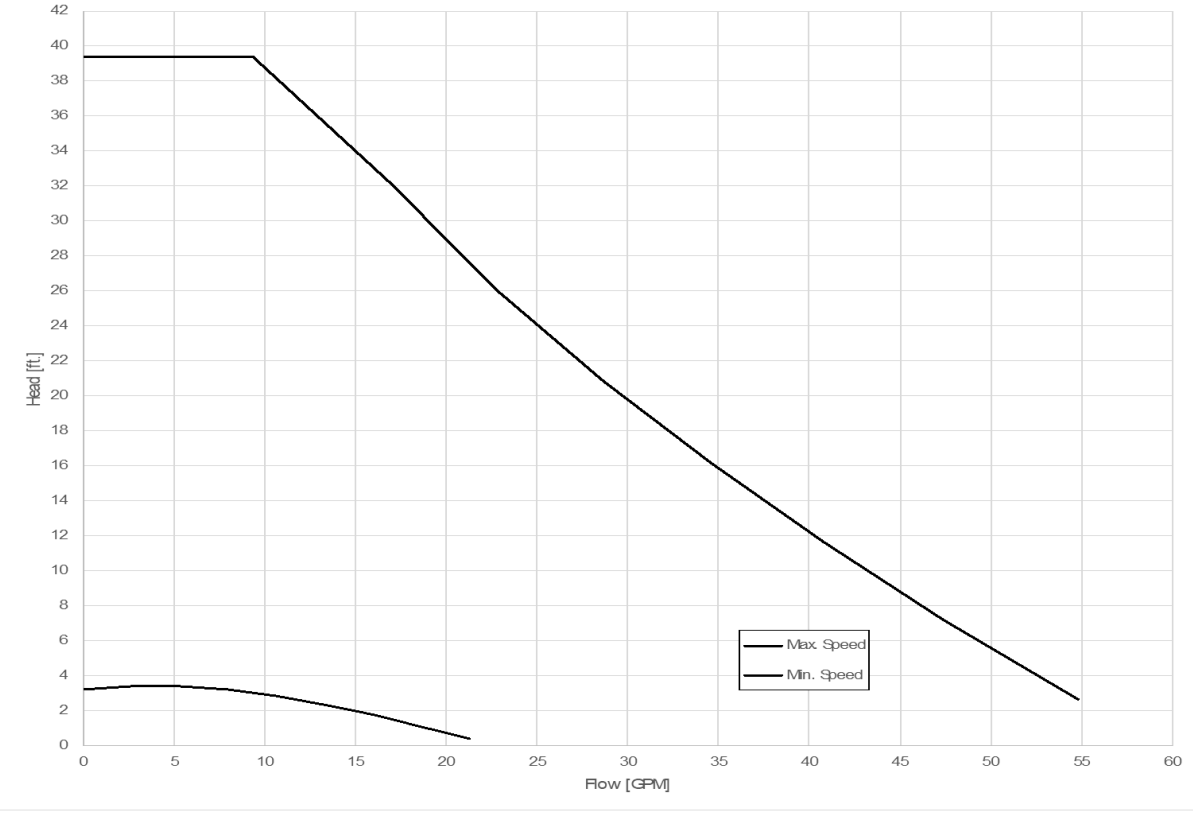
Circulator Pump Option #1  
Head v. Flow



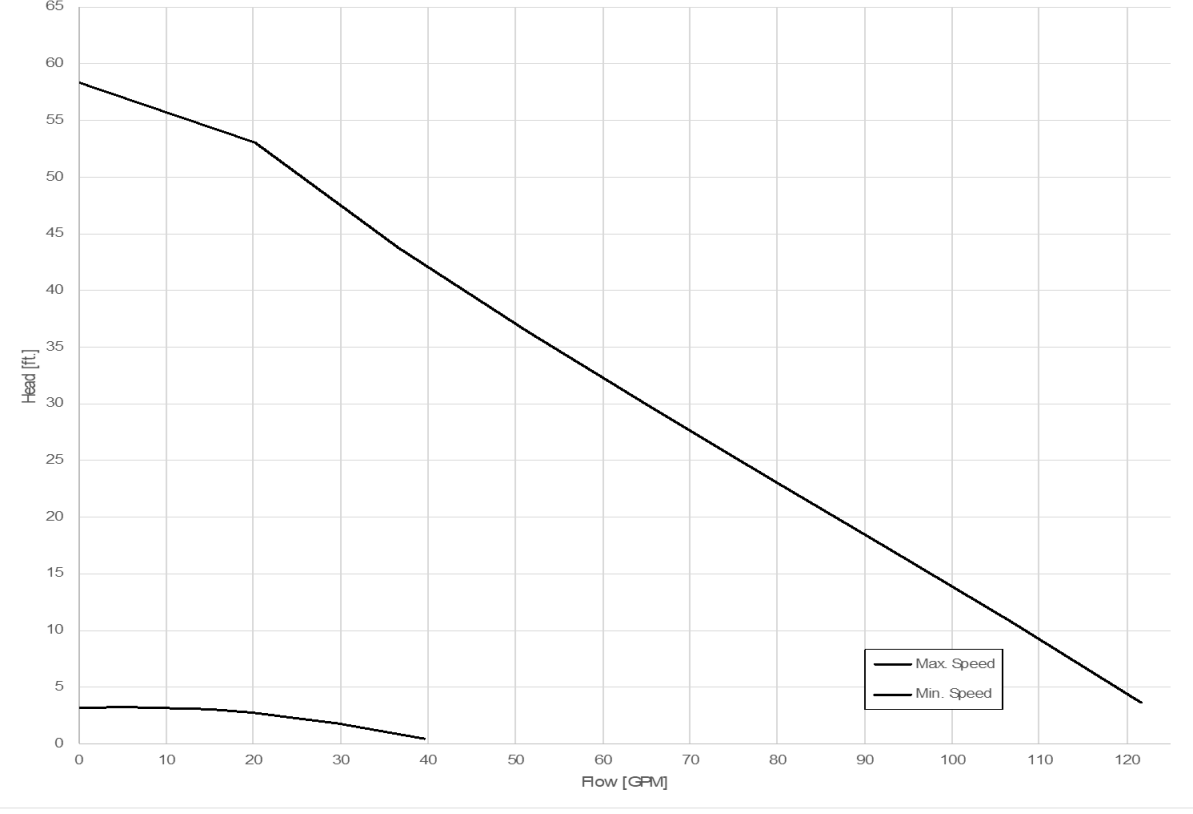
Circulator Pump Option #2  
Head v. Flow



Circulator Pump Option #3  
Head v. Flow



Circulator Pump Option #4  
Head v. Flow



SMALL PLANET SUPPLY TUMWATER, WA		
TITLE: <b>DROPLET12 EXTENSION PACKAGE</b> (CIRCULATOR PUMP CURVES)		
SIZE <b>B</b>	DWG. NO. <b>003-00043</b>	REV <b>A</b>
SCALE: 1:1		SHEET 4 OF 4

4

3

2

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