PumpTech Customer Education

http://www.Pumptechnw.com

Bellevue Moses Lake Canby

PumpTech Product Lines

PumpTech inc.

Two full time Mechanical Engineers
Licensed in OR, WA & ID

SolidWorks & E-Drawings Viewer

AutoCad Compatible Drawings

All Systems UL QCZJ Listed

Designed to HI Standards

HYDRONIX

iRover
Mobile HMI

METERMAN
Pump Systems
"For The Best In Flow Technology"

PumpTech inc.

Manufacturing Facility Canby, OR

HYDRONIX

iRover Mobile HMI

METERMAN Pump Systems "For The Best In Flow Technology"

PumpTech inc.

Installation, Maintenance & Repair

- 9 Full Time Service Technicians
- 3 Full Service Shops
- 6 Service Trucks
- 23 Ton Crane Truck
- 8 Ton Crane Truck
- 3 Ton Crane Truck
- 2 Ton Flatbed & Trailer
- 1 Ton Flatbed & Trailer

HYDRONIX

iRover
Mobile HMI

METERMAN
Pump Systems
"For The Best In Flow Technology"

PumpTech Pipeline

Summer 2010 — www.PumpTechnw.com — Volume I, Issue 2

PumpTech Inc. — Serving the Pacific Northwest

PumpTech Pipeline

Providing Knowledgeable Solutions

Cornell Names PumpTech Its Top Industrial Distributor

Cornell Pump Company (Clackamas, Oregon) has named PumpTech its number one industrial pump distributor in the US. Cornell manufacturers a wide line of clear water, solids handling, hot oil and food processing pumps for numerous industrial applications.

Mike Shoemaker, PumpTech's Industrial Products Manager, accepted the award at the annual distributor's meeting in Chicago. Our industrial sales team covers Idaho, Oregon and Washington and focuses on the food processing, petrochemical, oil & gas, lumber, pulp & paper, power generation, and aluminum industries.

In addition to Cornell, PumpTech represents a number of other manufacturers of specialty industrial products. Congratulations to our industrial sales team !

PumpTech Named NW Master Distributor for Grundfos

Grundfos Pumps (Olathe, Kansas) has selected PumpTech as the Pacific Northwest master distributor for its Grundfos Dosing line of chemical metering pumps.

The product line includes a wide range of diaphragm metering pumps with flows to 1050 GPH and pressures up to 3000 PSI. Grundfos Dosing pumps offer a variety of metering technologies including digital dosing. Digital dosing pumps utilize stepper-motors that allow a 1000:1 turn down. In addition to dosing pumps, Grundfos offers a complete line of measurement & disinfection equipment including one of the best chlorine generators on the market.

Per this agreement PumpTech will stock $100,000 of Grundfos Dosing pumps to support sales in the Pacific Northwest. This inventory will be centrally located in our Canby, OR branch and will allow quick delivery to OEM's. Additionally, this inventory will support our MeterMan division which manufacturers chemical metering systems in our Canby facility and also functions as the Grundfos Key Systems provider for the entire western United States.

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Moses Lake WA 98837
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Astoria Energy
Ammonia Skids
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Pump Ed 101
Moses Lake
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Team
Information
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Fall 2010 — www.PumpTechnw.com — Volume I, Issue 3

PumpTech Inc. — Serving the Pacific Northwest

PumpTech Pipeline

Providing Knowledgeable Solutions

PumpTech's Feature Rich Multi-Pump Controller

PumpTech's intelligent, multi-pump controller features an integrated PLC and Color Touch-Screen Human Machine Interface (HMI) that makes setup simple and extremely flexible. Up to four pumps can be set up for VFD control, across the line starting or a combination of the two.

The controller is preprogrammed for pump down, level control and booster applications. At start up all you have to do is select the application and follow the setup instructions on the screen.

The PLC provides for 22 digital inputs and 12 digital outputs. Also two 4-20mA or 0-10VDC transducer inputs are provided.

When motors are started across the line or via RVSS, "smart" motor

Continued on Page 4

QCEC Introduces New Refrigerated Sampler

Quality Control Equipment Company (QCEC) has introduced a new sampler with a modular refrigeration system. The refrigerator unit slides out for easy service or replacement. All units are made right here in the US and come with a 2 year warranty.

It features the same, time proven sampling technology that has set QCEC apart from its competition for over 40 years. All samplers use vacuum pumps rather than peristaltic pumps for higher reliability and accuracy. Vacuum pumps never need hose replacement and increase the sampling range by providing lifts to 28 feet and horizontal runs up to 150 feet. This provides lots of flexibility when locating the sampling unit.

The QLS model is the only sampler in the world that provides repeatable, self calibration and consistent sample size. It also provides flow - paced samples from a 4 - 20 input.

For more information on the features and benefits of QCEC samplers, contact your local PumpTech branch.

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newsletter@PumpTechnw.com

Pump Ed 101

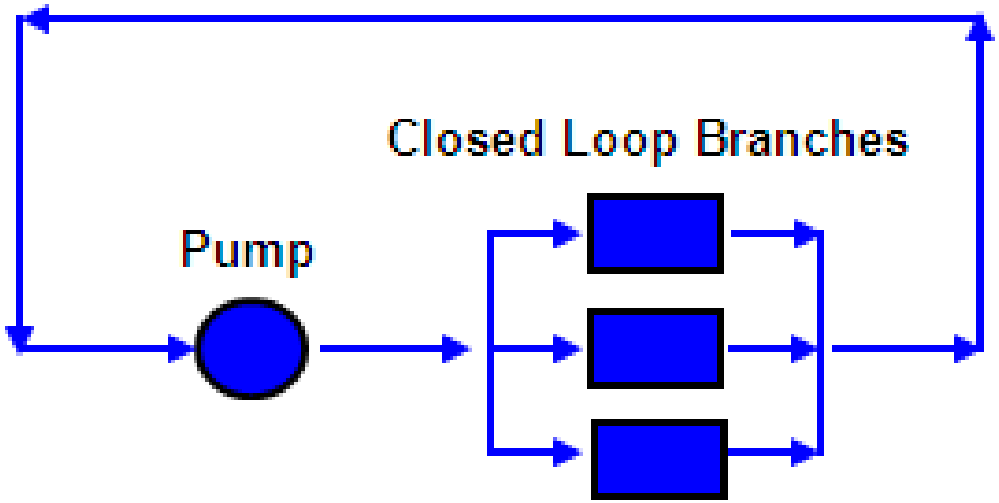
Joe Evans, Ph.D

http://www.PumpEd101.com

http://www.PumpTechnw.com

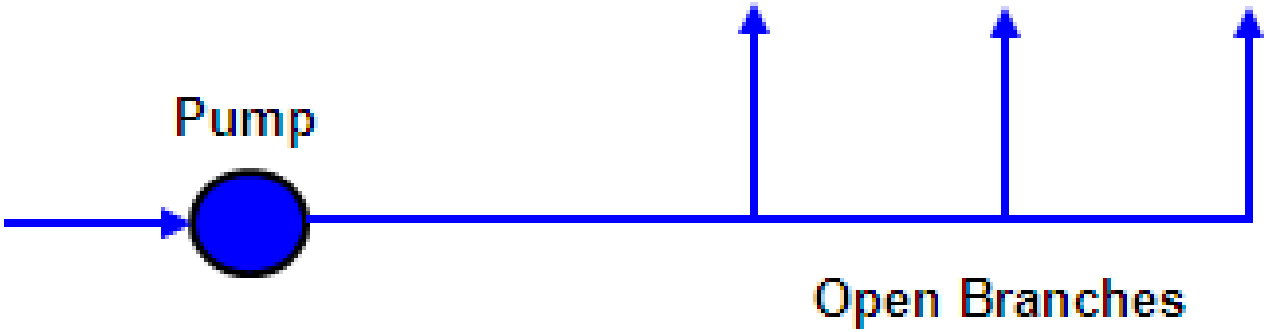
Branch Line Pumping Options

Branch Lines – Closed or Open Loop



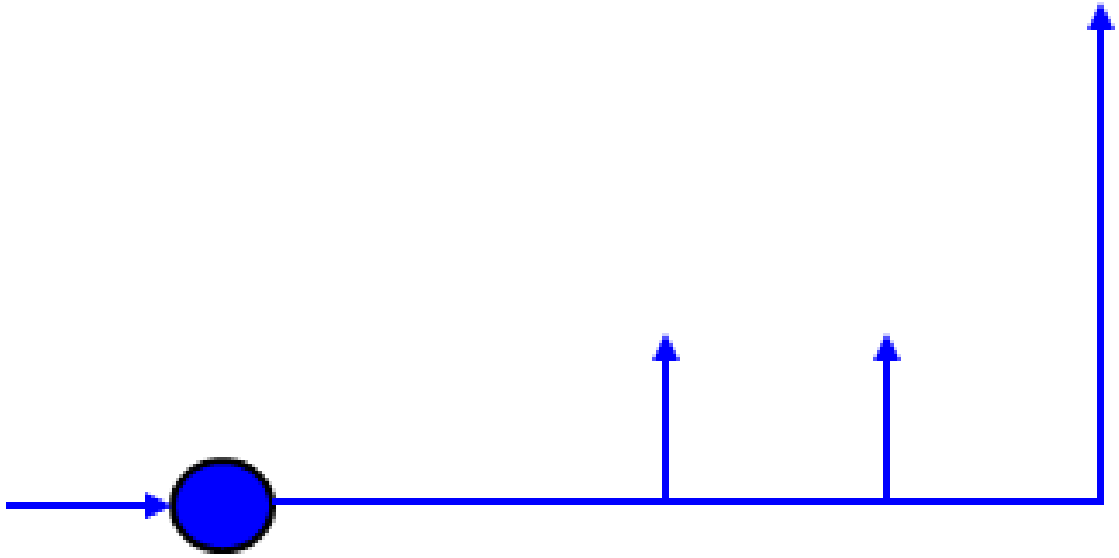
HP = Flow X Head / 3960 X eff

Branch Lines – Open Discharge



HP = Flow X Head / 3960 X eff

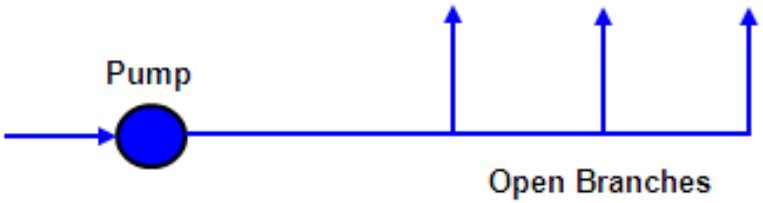
Branch Lines – Open Discharge



HP = Flow X Head / 3960 X eff

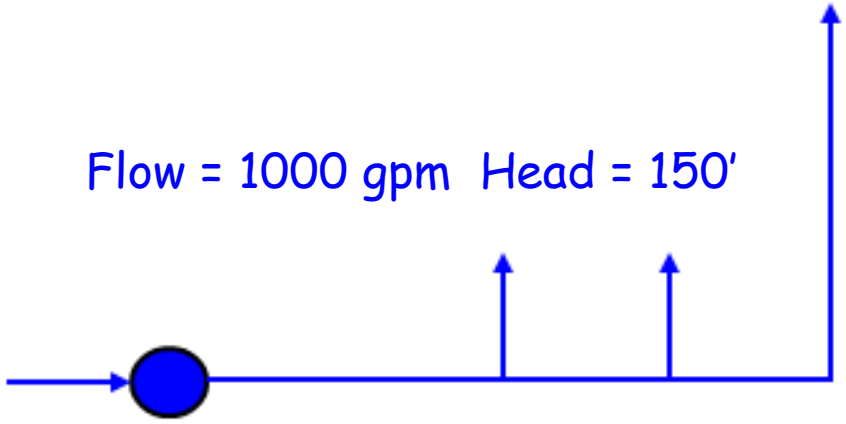
Branch Lines – Open Discharge

Flow = 1000 gpm Head = 50'



HP = 15.5

Flow = 1000 gpm Head = 150'

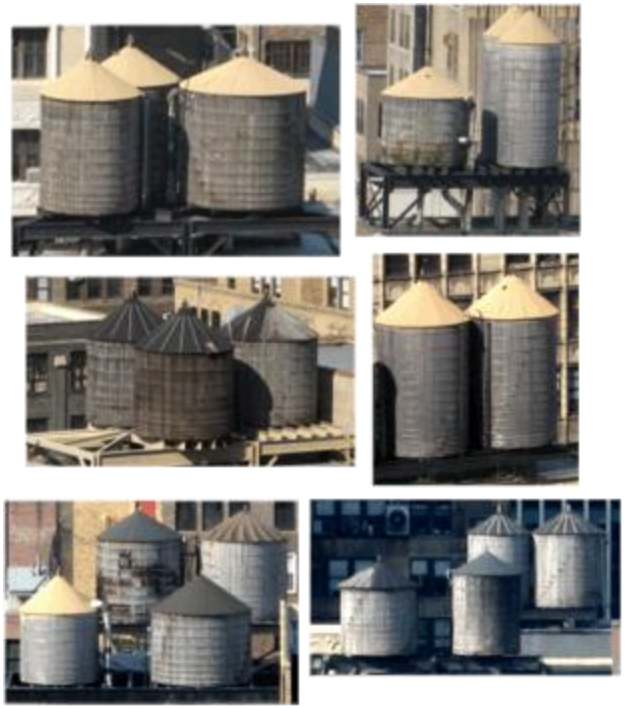


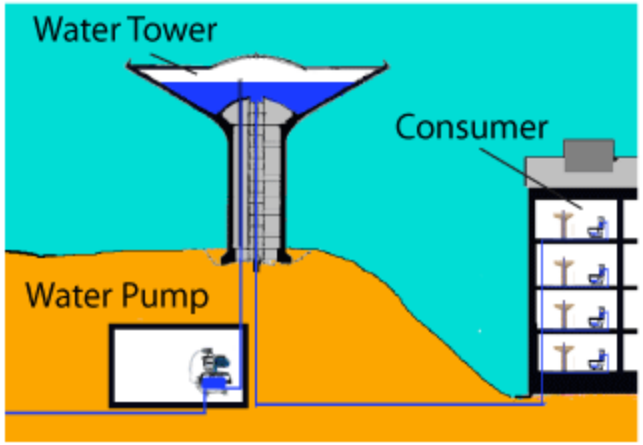
HP = 46.5

At 666 gpm HP = 30.9

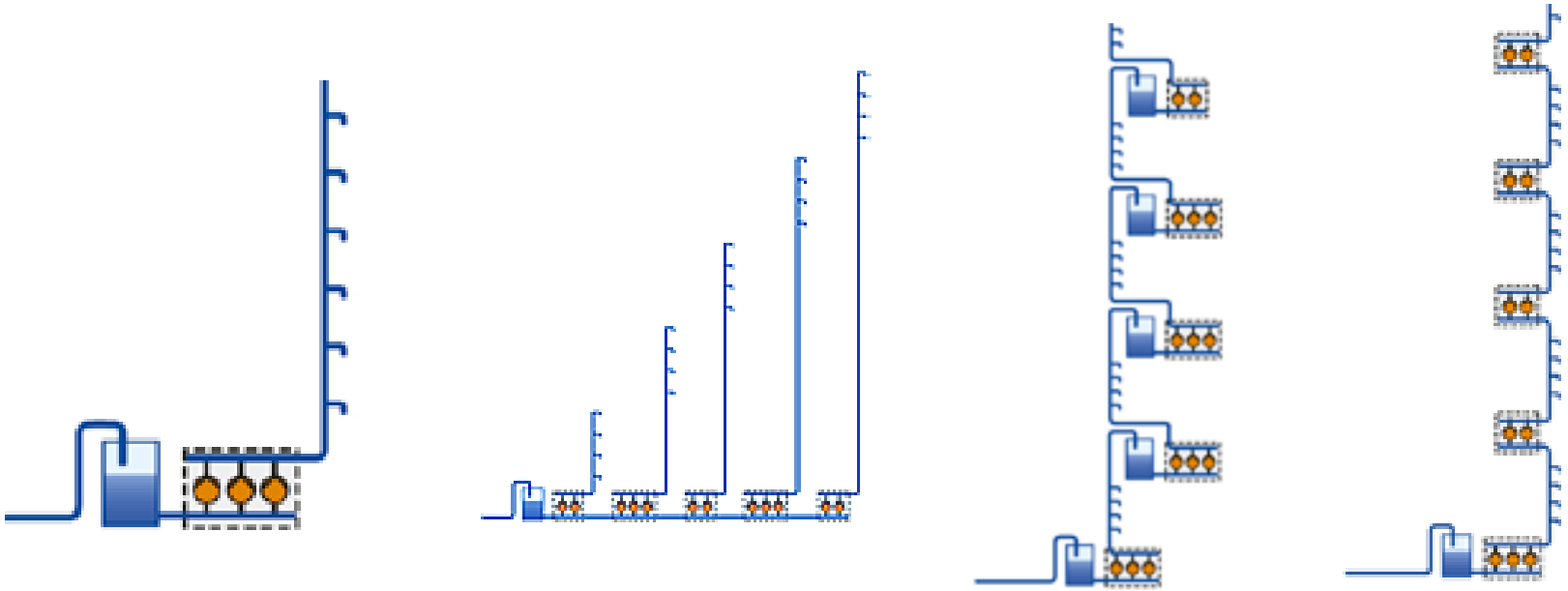
HP = Flow X Head / 3960 X eff

Branch Line Options





Branch Line Options



Single Pump – Single Pipeline

Branch Line Pumping

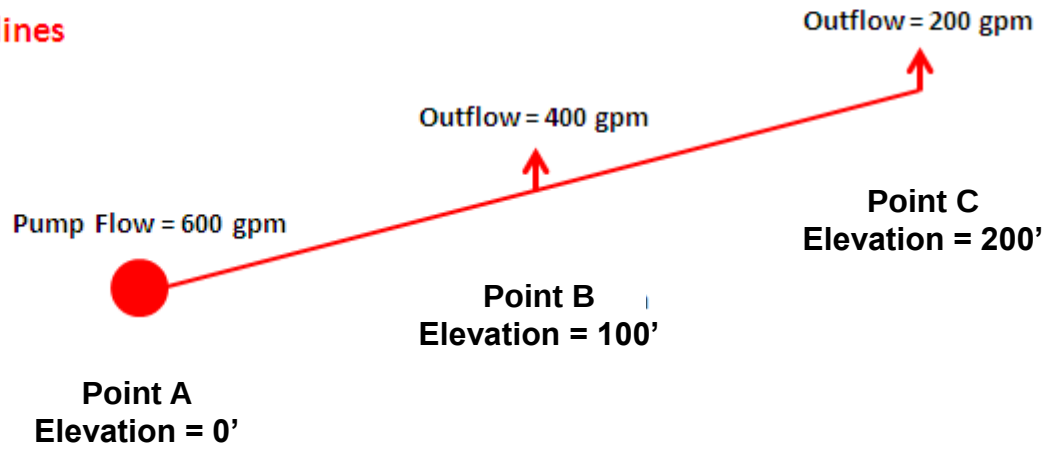
Multiple Discharges / Single Pump & Pipeline
versus
Multiple Pumps / Multiple Pipelines

HP = (Flow X Head) / (3960 X Efficiency)

One Pump / One Pipeline

Point A to B & C

43.2 HP = (600 x 200) / (3960 X 0.7)



Multiple Pumps – Multiple Pipelines

Branch Line Pumping

Multiple Discharges / Single Pump & Pipeline versus Multiple Pumps / Multiple Pipelines

HP = (Flow X Head) / (3960 X Efficiency)

One Pump / One Pipeline

Point A to B & C

43.2 HP = (600 x 200) / (3960 X 0.7)

Two Pumps / Two Pipelines

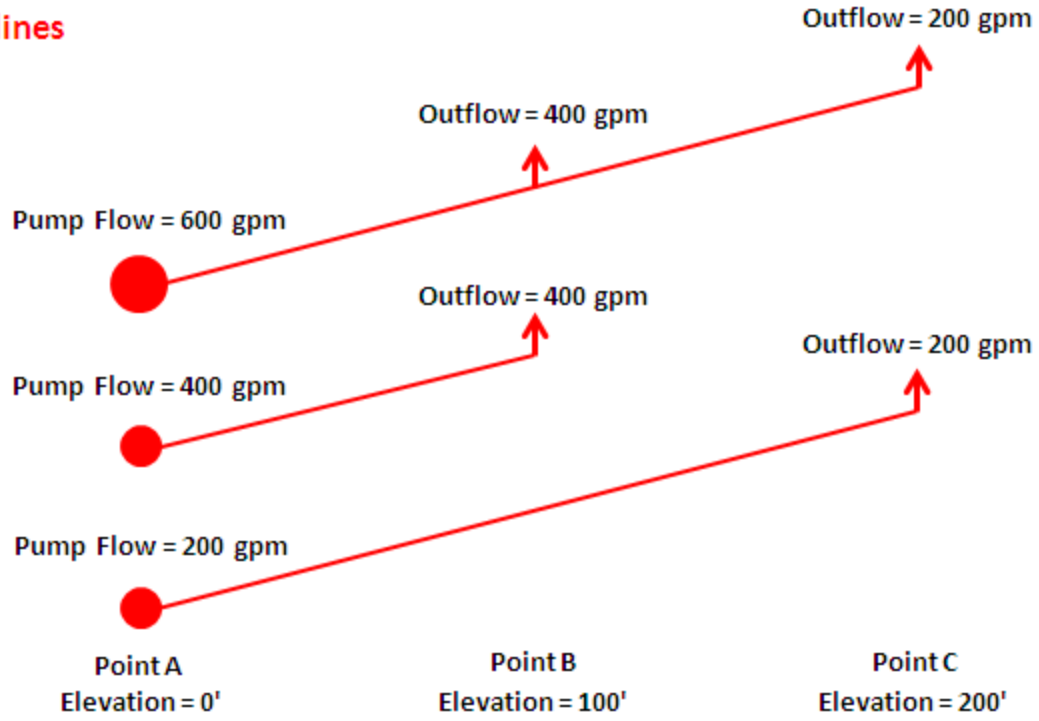
Point A to B

14.4 HP = (400 X 100) / (3960 X 0.7)

Point A to C

14.4 HP = (200 X 200) / (3960 X 0.7)

Head includes elevation & friction but the example assumes zero friction. Other assumptions include 70% pump efficiency and valves at points B & C.



Branch Line versus Multiple Line Analysis

REQUIRED DATA	A to B & C	A to B		A to C		? to ?
Pump Operation - Hours / Day	8	8		8		0
Pump Operation - Days / Year	365	365		365		0
Pump Flow - GPM	600	400		200		0
Pump Head - Feet	200	100		200		0
Pump Efficiency - %	70%	70%		70%		70%
Motor Efficiency - %	94.0%	90.0%		90.0%		90.0%
Energy Cost in $/KWH	$0.11	$0.11		$0.11		$0.00
Initial &Additional System Costs	$44,000.00	-10,000.00	*	17,000.00	*	
RESULTS						
Annual Flow	105,120,000	70,080,000		35,040,000		0
BHP At Design Point	43.3	14.4		14.4		0.0
Wire to Water Efficiency - %	66%	63%		63%		63%
Annual Energy Cost	$11,035.06	$3,841.83		$3,841.83		$0.00
KW Per 1000 Gallons Pumped	0.954	0.498		0.997		#DIV/0!
Cost Per 1000 Gallons Pumped	$0.105	$0.055		$0.110		#DIV/0!
PAYBACK						
Annual Savings - $$	$3,351.39					
Annual Savings - %	30%					
Additional cost	$7,000					
Payback - Years	2.1					

Single Pump – Single Pipeline

Branch Line Pumping

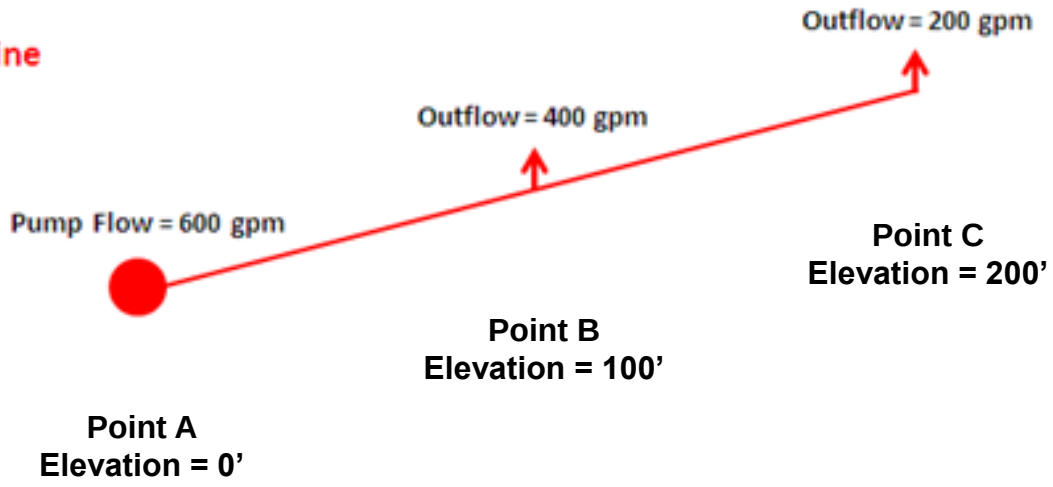
Multiple Discharges / Single Pump & Pipeline
versus
Multiple Pumps / Single Pipeline

HP = (Flow X Head) / (3960 X Efficiency)

One Pump / One Pipeline

Point A to B & C

43.2 HP = (600 x 200) / (3960 X 0.7)



Multiple Pumps- Single Pipeline

Branch Line Pumping

Multiple Discharges / Single Pump & Pipeline versus Multiple Pumps / Single Pipeline

HP = (Flow X Head) / (3960 X Efficiency)

One Pump / One Pipeline

Point A to B & C

43.2 HP = (600 x 200) / (3960 X 0.7)

Two Pumps / One Pipeline

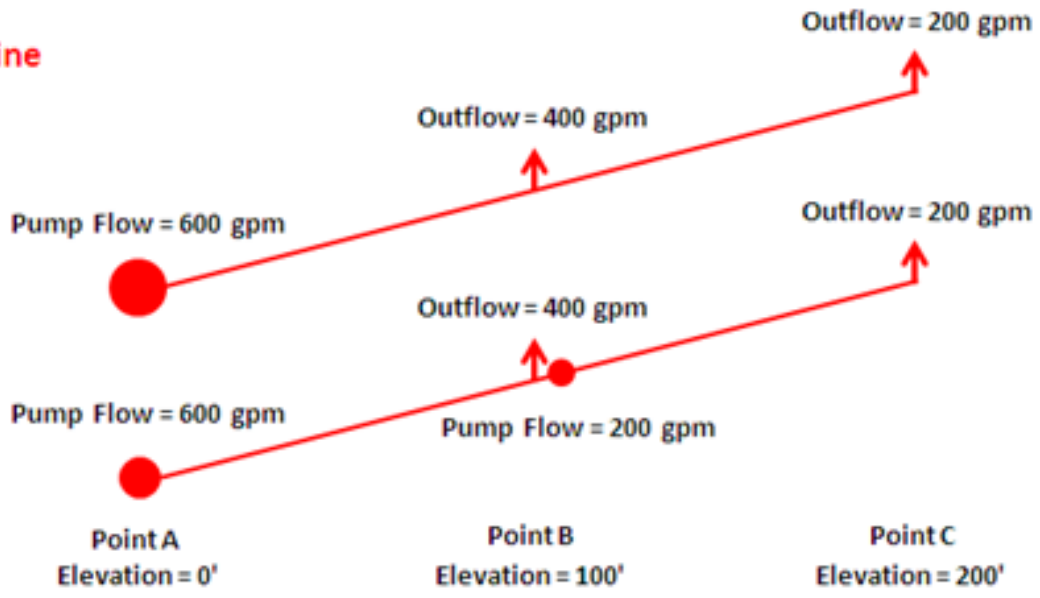
Point A to B

21.6 HP = (600 X 100) / (3960 X 0.7)

Point B to C

7.2 HP = (200 X 100) / (3960 X 0.7)

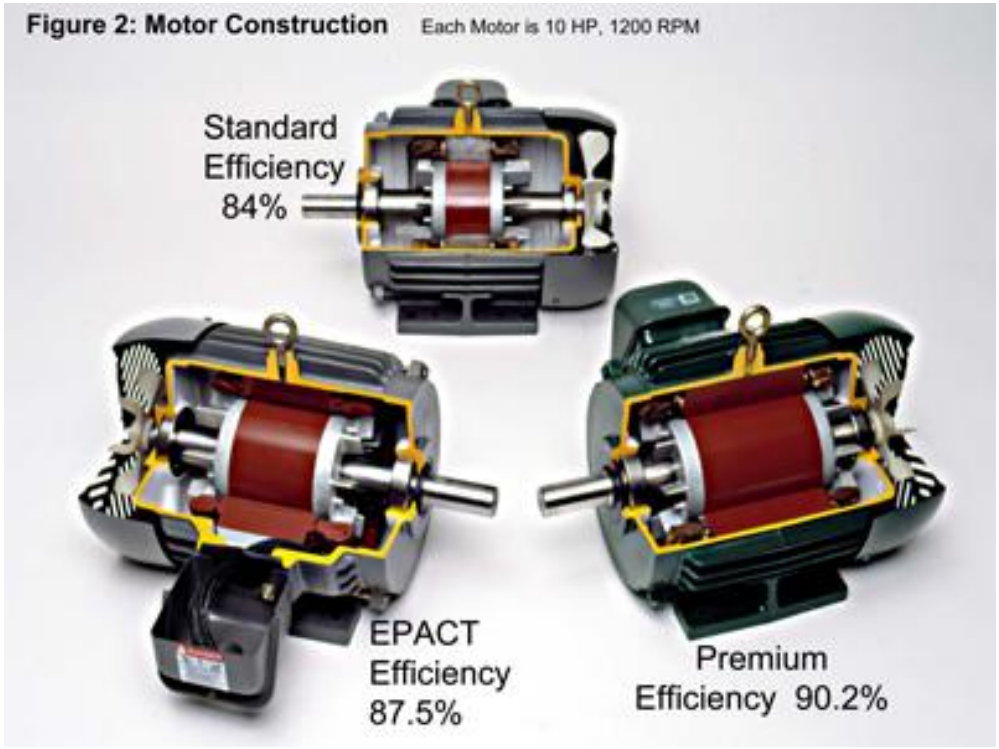
Head includes elevation & friction but the exampleassumes zero friction. Other assumptions include 70% pump efficiency and valves at points B & C.



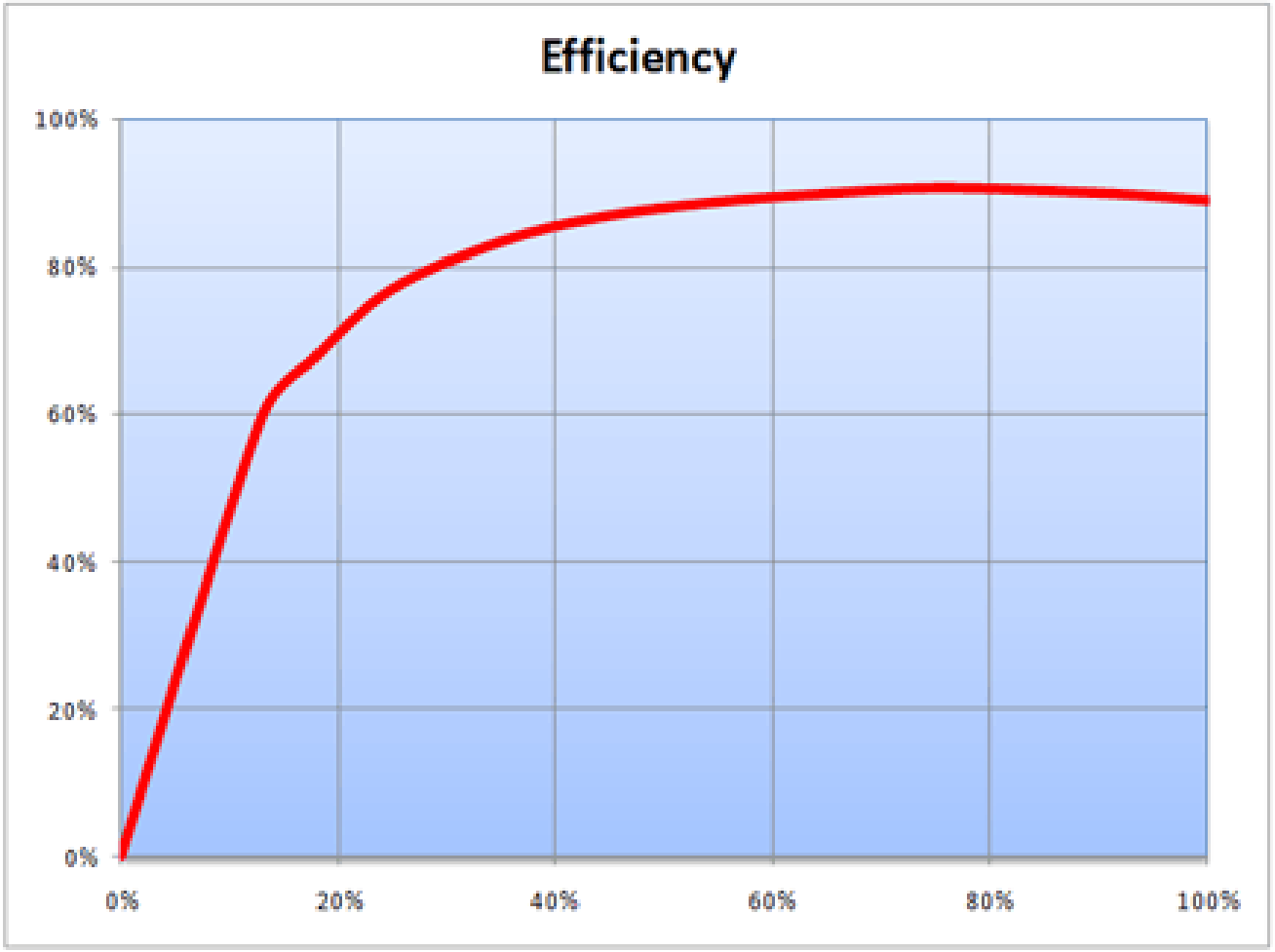
Branch Line versus Multiple Pump Single Line Analysis

REQUIRED DATA	A to B & C	A to B	B to C	? to ?
Pump Operation - Hours / Day	8	8	8	0
Pump Operation - Days / Year	365	365	365	0
Pump Flow - GPM	600	600	200	0
Pump Head - Feet	200	100	100	0
Pump Efficiency - %	70%	70%	70%	70%
Motor Efficiency - %	94.0%	90.0%	90.0%	90.0%
Energy Cost in $/KWH	$0.11	$0.11	$0.11	$0.00
Initial & Additional System Costs	$44,000.00	-8,000.00 *	11,000.00 *	
RESULTS				
Annual Flow	105,120,000	105,120,000	35,040,000	0
BHP At Design Point	43.3	21.6	7.2	0.0
Wire to Water Efficiency - %	66%	63%	63%	63%
Annual Energy Cost	$11,035.06	$5,762.75	$1,920.92	$0.00
KW Per 1000 Gallons Pumped	0.954	0.498	0.498	#DIV/0!
Cost Per 1000 Gallons Pumped	$0.105	$0.055	$0.055	#DIV/0!
PAYBACK				
Annual Savings - $$	$3,351.39			
Annual Savings - %	30%			
Additional cost	$3,000			
Payback - Years	0.9			

Motor Efficiency



Motor Efficiency versus Load



Motor & Pump Efficiency

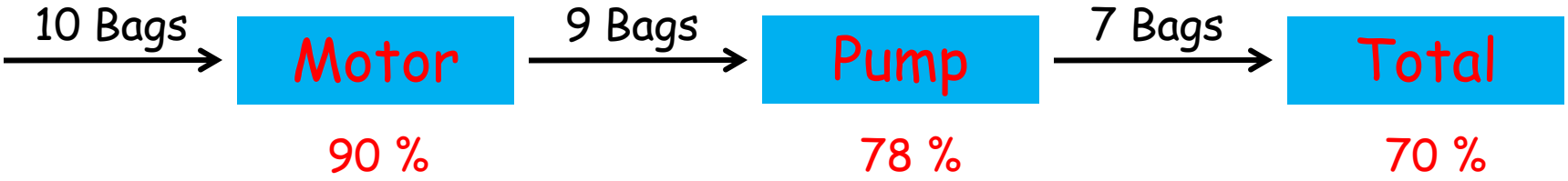
Motor Efficiency = Mechanical Power / Electrical Power

Pump Efficiency = Fluid Power / Mechanical Power

Total Efficiency = Pump Efficiency X Motor Efficiency

Motor & Pump Efficiency

Total Efficiency = Pump Efficiency X Motor Efficiency



0.90 X 0.78 = 0.70 = 70%

Pump ED 101

Joe Evans, Ph.D

http://www.PumpEd101.com

http://www.Pump-Zone.com

Branch Line Pumping Options