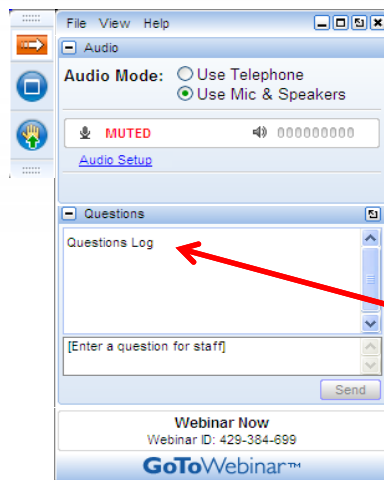


Sponsor eShowcase: Peristaltic Pumps – Tubing Selection

Wednesday, May 14, 2015
1:00 - 1:45 pm ET

How to Participate Today



- **Audio Modes**
 - Listen using Mic & Speakers
 - Or, select "Use Telephone" and dial the conference (please remember long distance phone charges apply).
- **Submit your questions using the Questions pane.**
- **A recording will be available for replay shortly after this webcast.**



FLEX-PRO. Peristaltic Pump Tube Selection
Peristaltic Pump Applications

Chlorination	<ul style="list-style-type: none">• Can run dry, prime under pressure and pump out accumulated gases.
Slurries	<ul style="list-style-type: none">• Can pump viscous fluids (12,000 cP) with a high specific gravity and high concentration of solids such as lime and carbon slurries.
Polymers	<ul style="list-style-type: none">• Perfect for easily damaged, sensitive fluids such as flocculants & coagulants - water or oil based polymers.
Particulates	<ul style="list-style-type: none">• Can pump fluids containing particulates such as calcium hypochlorite.
Corrosive fluids	<ul style="list-style-type: none">• Ideal for corrosive chemicals including high concentration acids and aggressive alkalis. Only the pump tube material and connectors contact the chemical.

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FLEX-PRO. Peristaltic Pump Tube Selection
Peristaltic Pump Components

- Pump Tube
- Pump Head and Roller
- Motor
- Control Electronics
- Enclosure

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FLEX-PRO. Peristaltic Pump Tube Selection

Pump Head Components

- Pump Head
- Roller Assembly
- Tube Assembly
- Cover



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FLEX-PRO. Peristaltic Pump Tube Selection

Pump Head

Pump Head Diameter

- Larger heads allow for greater distance between the pinch rollers resulting in more volume pumped per occlusion (pinch).




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FLEX-PRO. Peristaltic Pump Tube Selection

Roller Assembly

Number of Occlusions per Revolution

- Less rollers result in longer tube life.
- Slower RPM result in longer tube life.



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FLEX-PRO. Peristaltic Pump Tube Selection

Tube Assembly

Variables Affecting Tube Performance

APPLICATION VARIABLES	TUBING CHARACTERISTICS		
	Tube Diameter	Material Formulation	Material Stiffness
Discharge Pressure	X		X
Output Volume	X		
Chemical		X	

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FLEX-PRO. Peristaltic Pump Tube Selection

Tubing Characteristics

Material Formulation

Tube Diameter

Material Stiffness

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FLEX-PRO. Peristaltic Pump Tube Selection

Tubing Characteristics

Flex-Pro Peristaltic Pump Tubing Options

Material Designation	Tube Material	Tube Size	Tube Size	Tube Stiffness	Maximum Pressure Capability			Max Temp
Code	Material	Code	ID Inches	Code	A2 PSI (bar)	A3 PSI (bar)	A4 PSI (bar)	F (C)
ND	Norprene	D	0.075	Medium	125 (8.6)	125 (8.6)	NA	185 (85)
NEE	Norprene	EE	0.093	Medium	110 (7.6)	110 (7.6)	NA	185 (85)
NGG	Norprene	GG	0.187	Medium	110 (7.6)	110 (7.6)	NA	185 (85)
NHL	Norprene	HL	0.250	Medium	65 (4.5)	65 (4.5)	65 (4.5)	185 (85)
NJ	Norprene	J	0.312	Hard	NA	125 (8.6)	100 (6.9)	185 (85)
NK	Norprene	K	0.375	Hard	NA	125 (8.6)	80 (5.5)	185 (85)
NKL	Norprene	KL	0.375	Soft	NA	30 (2.1)	30 (2.1)	185 (85)
NL	Norprene	L	0.500	Medium	NA	NA	50 (3.4)	185 (85)
NP	Norprene	P	0.750	Medium	NA	NA	30 (2.1)	185 (85)
TH	Norprene Chemical	H	0.250	Medium	50 (3.4)	50 (3.4)	30 (2.1)	130 (54)
TK	Norprene Chemical	K	0.375	Medium	NA	50 (3.4)	30 (2.1)	130 (54)
GE	Tygothane	E	0.125	Medium	65 (4.5)	65 (4.5)	NA	130 (54)
GG	Tygothane	G	0.187	Medium	65 (4.5)	65 (4.5)	NA	130 (54)
GH	Tygothane	H	0.250	Medium	NA	65 (4.5)	65 (4.5)	130 (54)
GK	Tygothane	K	0.375	Medium	NA	65 (4.5)	65 (4.5)	130 (54)

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FLEX-PRO. Peristaltic Pump Tube Selection

Material Formulation

Norprene® & Flex-A-Prene®
Use for most applications

12.5% Sodium Hypochlorite	50% Sulfuric Acid	Aluminum Sulfate (Alum)
50% Sodium Hydroxide (Caustic)	HydroFluosilicic Acid (Flouride)	Polyaluminum Chloride (PAC)
Liquid Ammonium Sulfate	Calcium Chloride	Calcium Hypochlorite
Calcium Hydroxide (Lime Slurry)	Zinc Sulfate	Sodium Bisulfite

Not for use with oil based fluids

Tygothane® Tubes
Excellent for oil based fluid applications

Polymers	Inks	limonene-D
Aluminum Sulfate (Alum)	Calcium Chloride	Sodium Bisulfite

Norprene Chemical®
Use for Strong Acids

98% Sulfuric Acid	Peracetic Acid
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FLEX-PRO. Peristaltic Pump Tube Selection

Tube Diameter / Output volume

Output vs Tube Diameter

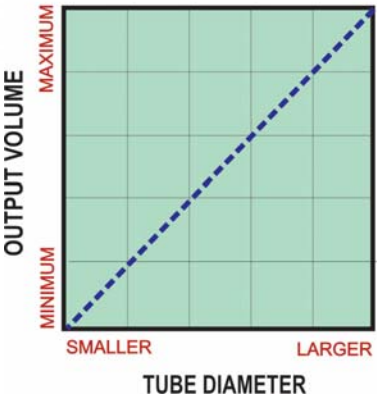
Tube Life vs Tube Diameter

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FLEX-PRO. Peristaltic Pump Tube Selection

Diameter vs Output Volume

Output vs Tube Diameter



- Smaller diameter tubes output less than large diameter tubes.
- Smaller diameter tubes can be soft and still pump against high pressures.
- Large diameter tubes must be stiff (hard) to pump against high pressures.

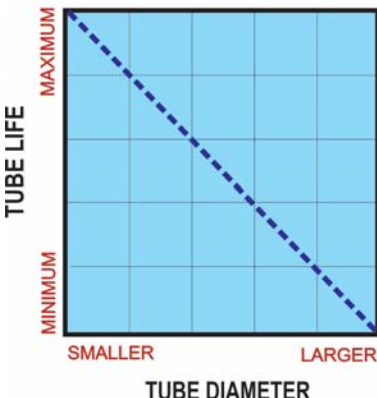
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FLEX-PRO. Peristaltic Pump Tube Selection

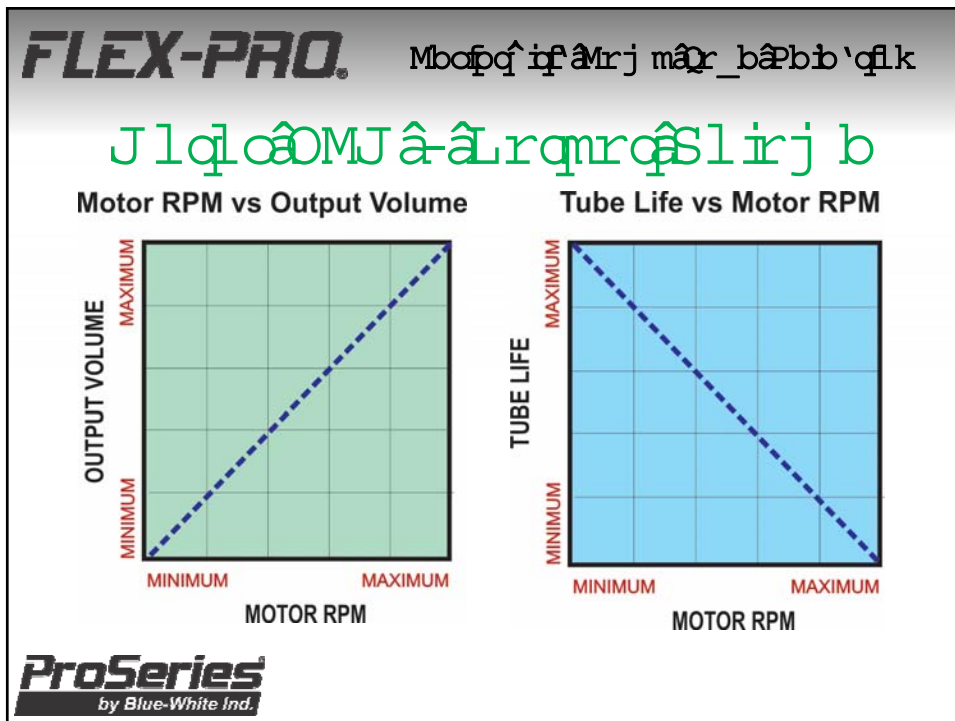
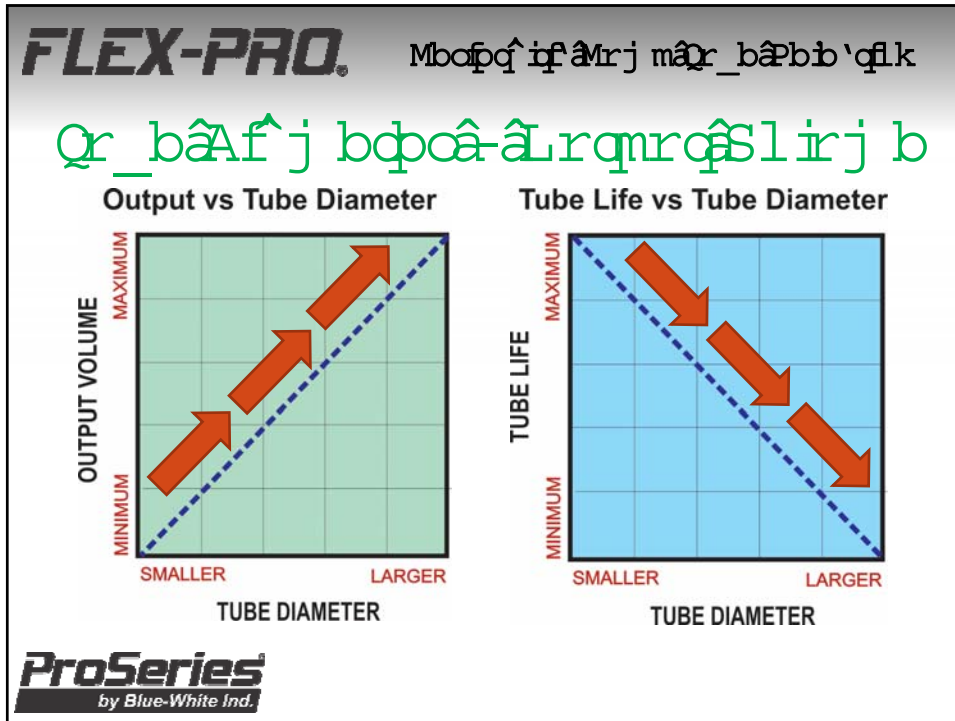
Diameter vs Tube Life

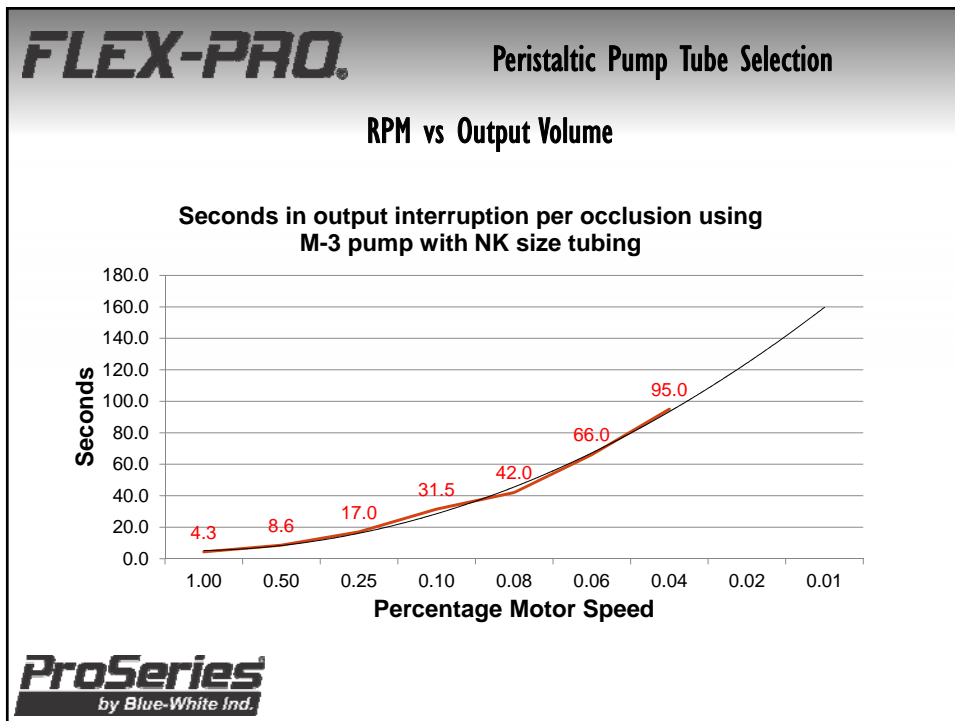
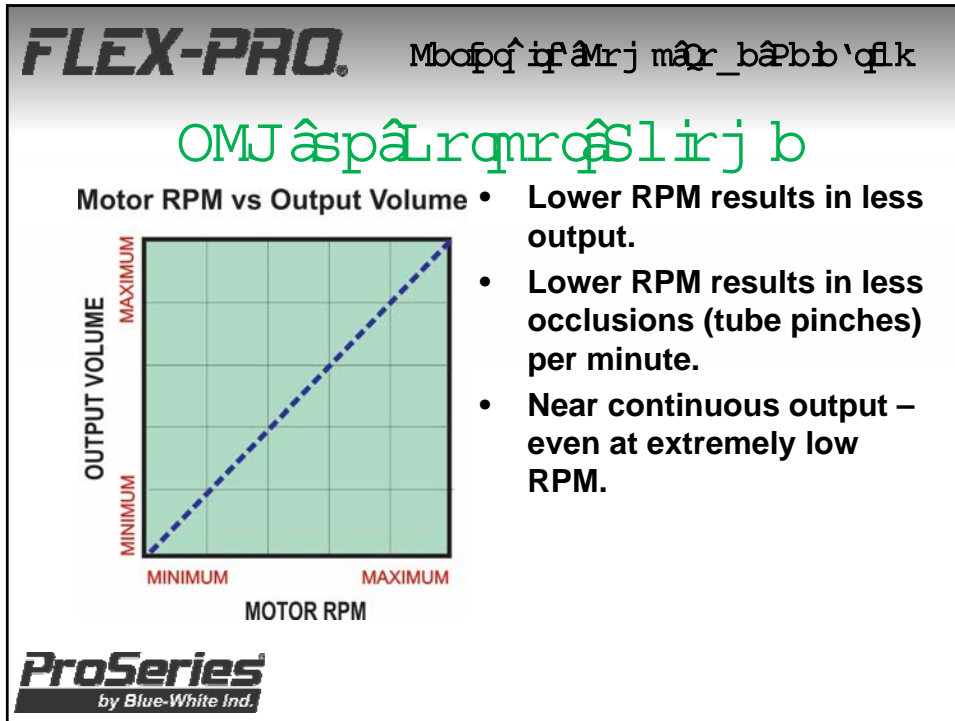
- Smaller diameter tubes will typically last longer.
- Soft, smaller diameter tubes can pump against high pressures and last longer.
- Stiff, large diameter tubes do not last very long.

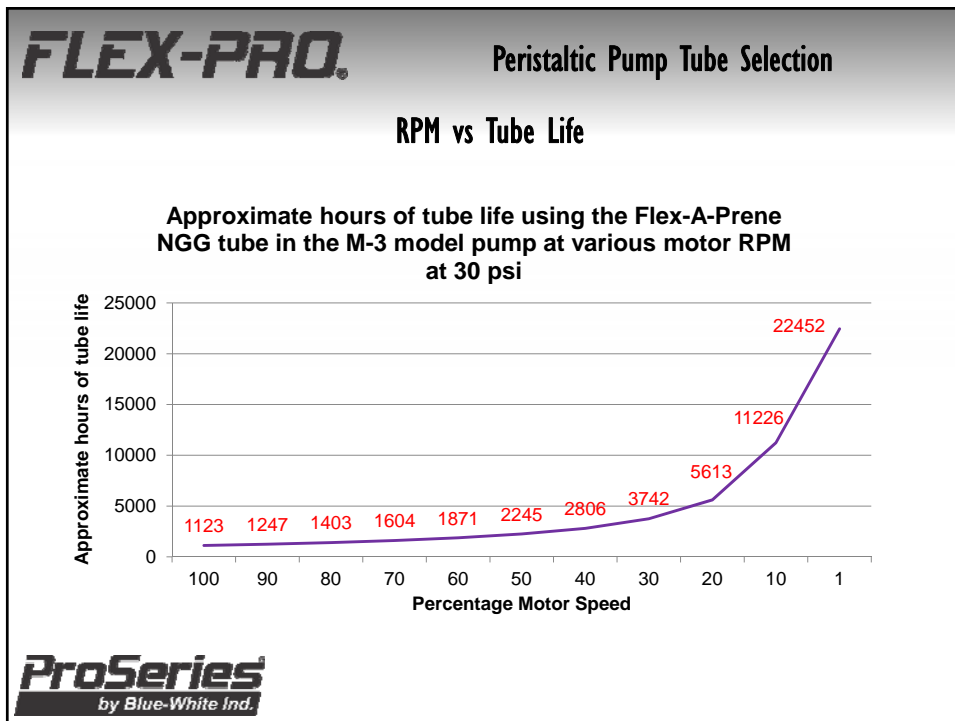
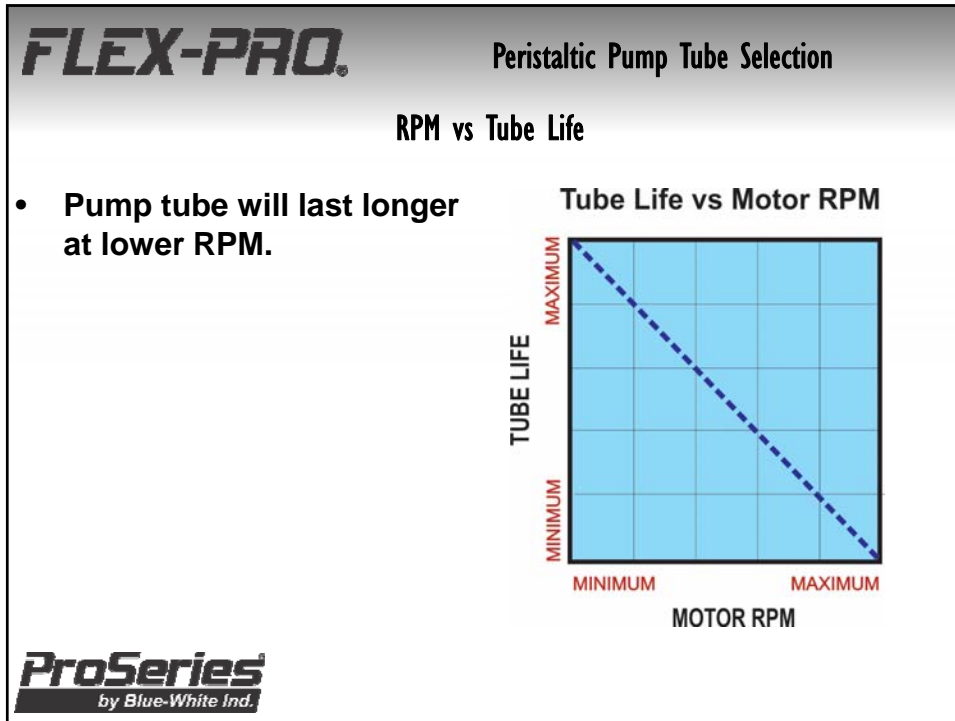
Tube Life vs Tube Diameter

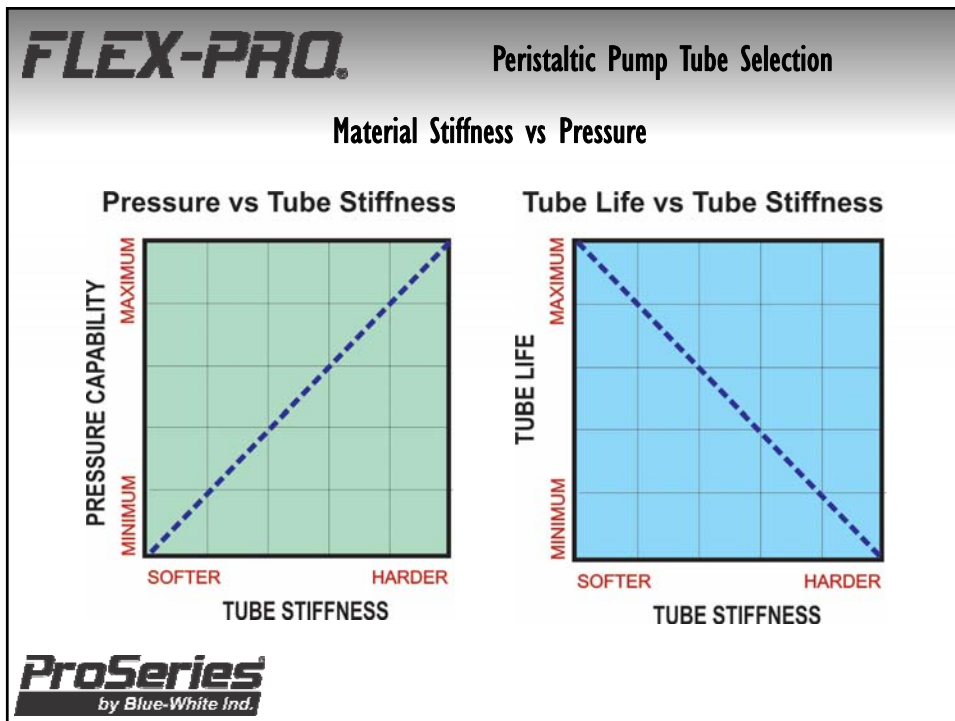
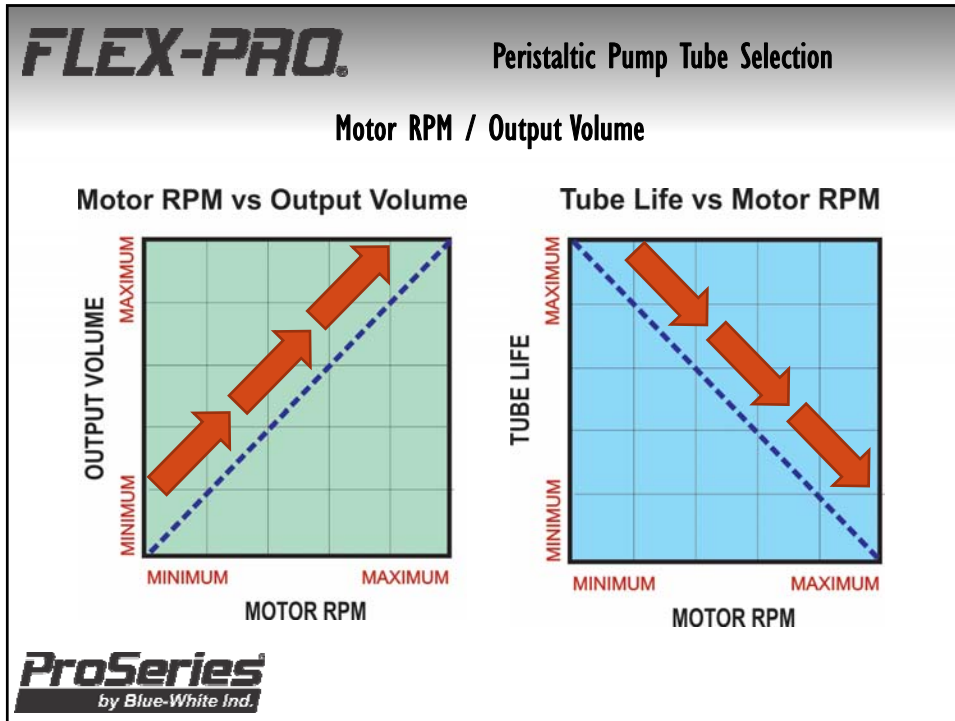


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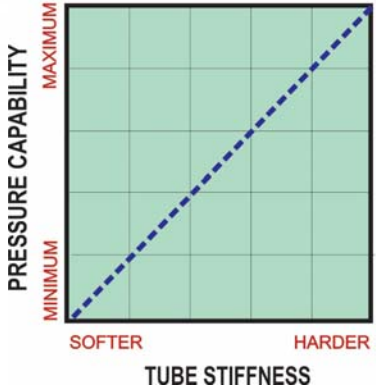




FLEX-PRO. Peristaltic Pump Tube Selection

Material Stiffness vs Pressure

Pressure vs Tube Stiffness



- Stiffer tubes can pump against higher pressures than softer tubes.
- Smaller diameter tubes can be soft and still pump against high pressures.
- Large diameter tubes must be stiff (hard) to pump against high pressures.

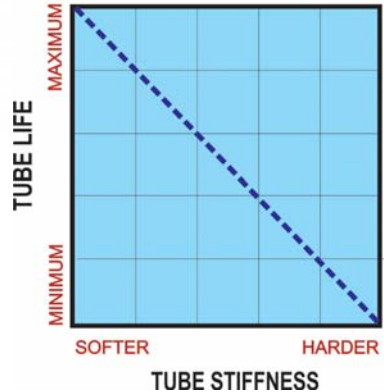
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FLEX-PRO. Peristaltic Pump Tube Selection

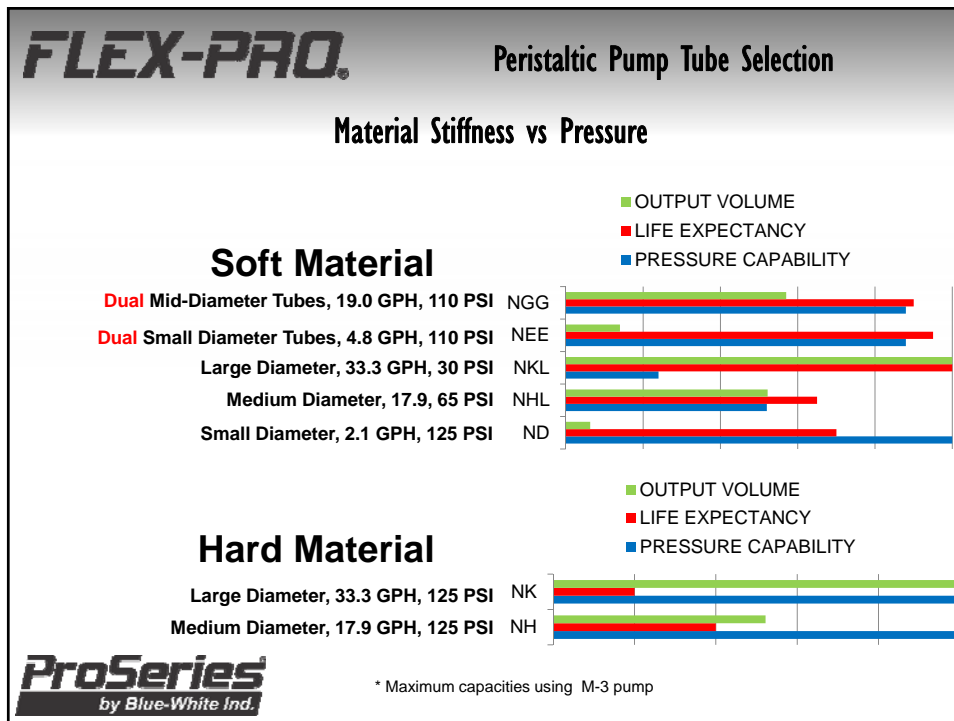
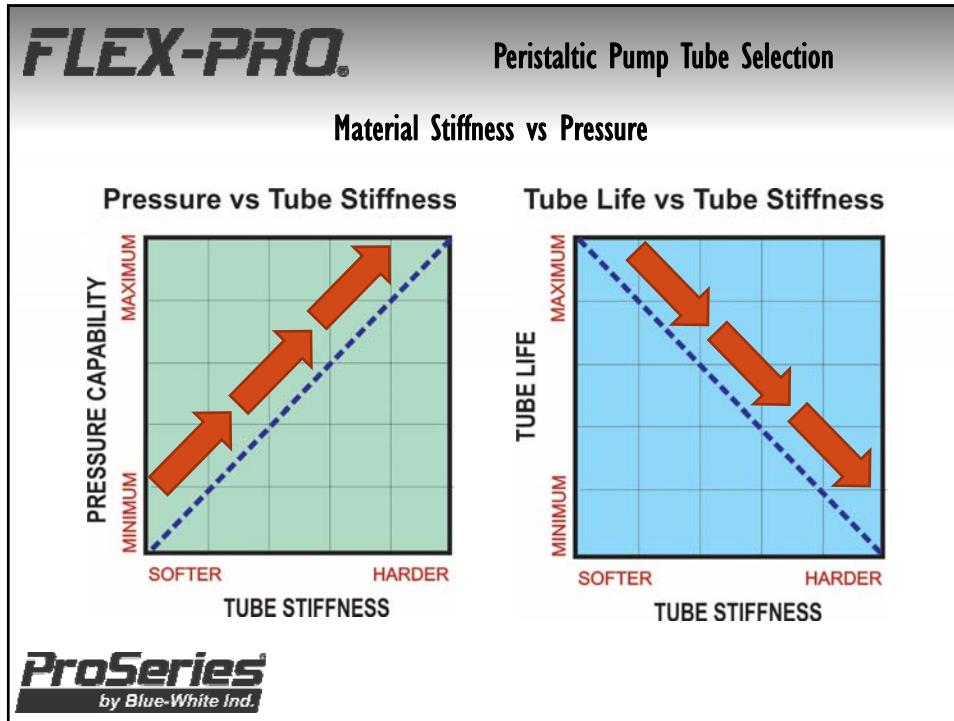
Material Stiffness vs Tube Life

- Softer tubes last longer than stiffer tubes.
- Soft, smaller diameter tubes can pump against high pressures and last longer.
- Large diameter tubes must be stiff to pump against higher pressures and therefore do not last very long.

Tube Life vs Tube Stiffness



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FLEX-PRO. Peristaltic Pump Tube Selection
Re-cap

Variables Affecting Tube performance

APPLICATION VARIABLES	TUBING CHARACTERISTICS		
	Tube Diameter	Material Formulation	Material Stiffness
Discharge Pressure	X		X
Output Volume	X		
Chemical		X	

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FLEX-PRO. Peristaltic Pump Tube Selection
Re-cap

How to pick the best tube

1. Select the most chemical resistant material.
2. Select tube diameters that can meet the psi required.
3. Select the softest material that can meet the psi required.
4. Select the largest output volume tube and use low RPM.
5. For support, contact the factory.

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FLEX-PRO.

Peristaltic Pump Tube Selection

Thank You!

For additional information please contact....

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