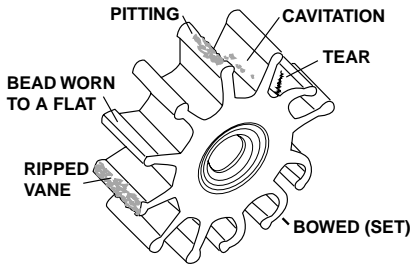


**HOW TO USE THE NEXT 6 PAGES**

We have provided several charts and formulas that will assist you in determining pipe and hose friction losses, viscous liquid handling, metric vs. English standard measure, and more. On pages 142 and 143 we have provided a simple application questionnaire that identifies the variables that enter into the selection of a pump. Make things easy on yourself and let us do the work! Just photocopy the form, fill it out and fax it to us. Or you can just pick up the phone and call! We enjoy a challenge!

**FLEXIBLE IMPELLER**



**When to Replace Your Impeller**

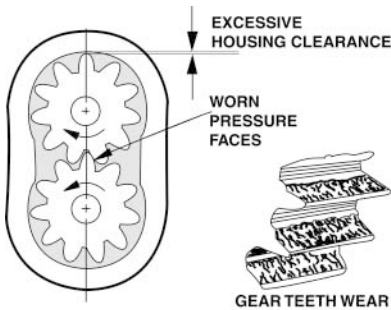
**PUMPING VISCOUS LIQUIDS WITH FIP PUMPS**

Flexible impeller pumps will effectively handle thin, viscous, shear sensitive and/or particle laden fluids. The below chart displays the maximum RPM and percentage of horsepower increase required at different viscosities.

S.S.U.	RPM	% Increase	S.S.U.	RPM	% Increase	S.S.U.	RPM	% Increase	S.S.U.	RPM	% Increase
50	1750	0	700	1680	15	4,000	1400	86	15,000*	787	315
100	1750	2	800	1645	18	5,000	1312	110	20,000*	700	375
200	1750	4	900	1610	20	6,000	1225	130	30,000*	612	475
300	1750	7	1,000	1574	22	7,000	1138	150	40,000*	525	525
400	1750	9	1,500	1540	33	8,000	1050	175	50,000*	437	575
500	1750	11	2,000	1505	45	9,000	962	200	75,000*	298	675
600	1715	13	3,000	1450	65	10,000	875	220	100,000*	175	725

\* Use High Pressure Impeller

**GEAR**



**When to Repair Your Gear Pump**

**PUMPING VISCOUS LIQUIDS WITH GEAR PUMPS**

Gear pumps are designed to handle clean viscous liquids. The below chart displays the maximum rpm and percentage of horsepower increase required at different viscosities.

SPEED REDUCTION		% INCREASE IN HORSEPOWER						
Viscosity in SSU	Recomm. Speed (RPM)	Pressure PSI	Viscosity in SSU					
			500	1000	5000	10,000	50,000	100,000
50	1725	2	30	60	120	200	300	400
500	1500	20	25	50	100	160	260	350
1000	1300	40	20	40	80	120	220	300
5000	1000	60	15	30	60	105	180	250
10,000	600	80	12	25	50	90	150	200
50,000	400	100	10	20	40	80	120	150
100,000	200	-	-	-	-	-	-	-

**CENTRIFUGAL**



**What Cavitation (Low NPSH) Will Do To Your Impeller**

**PUMPING VISCOUS LIQUIDS WITH CENTRIFUGAL PUMPS**

Centrifugals are generally not suitable for pumping viscous liquids. However, liquids with viscosities up to 2000 SSU can possibly be handled with centrifugal pumps. The below table displays the percent reduction in flow and head, and the percent increase in power when pumping liquids more viscous than water.

Viscosity SSU	100	250	500	750	1000	1500	2000
Flow Reduction GPM %	3	8	14	19	23	30	40
Head Reduction Feet %	2	5	11	14	18	23	30
Horsepower Increase %	10	20	30	50	65	85	100