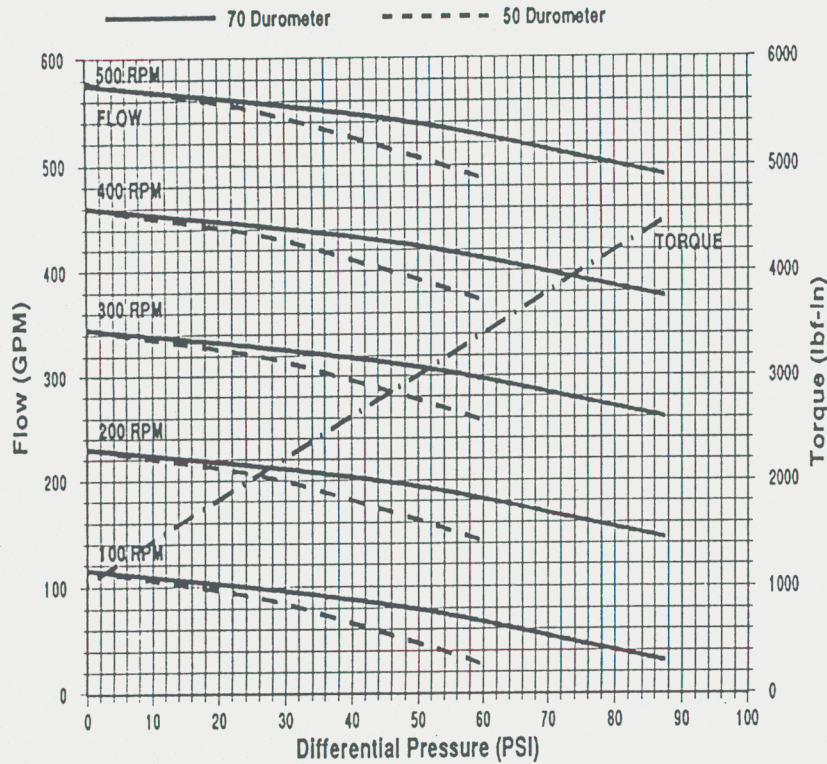


1 STAGE 115



Starting torque 2501 lbf-in.

See General Instructions for Performance Data.

Curve based on 70°F water and 14.7 PSIA at pump inlet.

$$HP = \frac{(TQ) (RPM)}{63025}$$

RPM	100	200	300	400	500		
NPSHR (ft)	1.5	3.1	5.7	9.6	13.4		

Table A Abrasive Conditions - Maximum Pressure and Speed

Abrasion	None	Light	Medium	Heavy
Max. Pressure	87	70	40	15
Max. Speed	450	350	225	125

Table B Apparent Viscosity - Torque Additive (lbf-in.) and Max. Speed

cPs	100	1000	2500	5000	10,000	50,000	100,000	150,000	200,000
TQ	490	1433	2206	3025	4160	8824	12,605	14,496	16,912
RPM	450	450	450	450	320	80	40	30	25

Table C Water Base Slurry Torque (lbf-in.) Additive

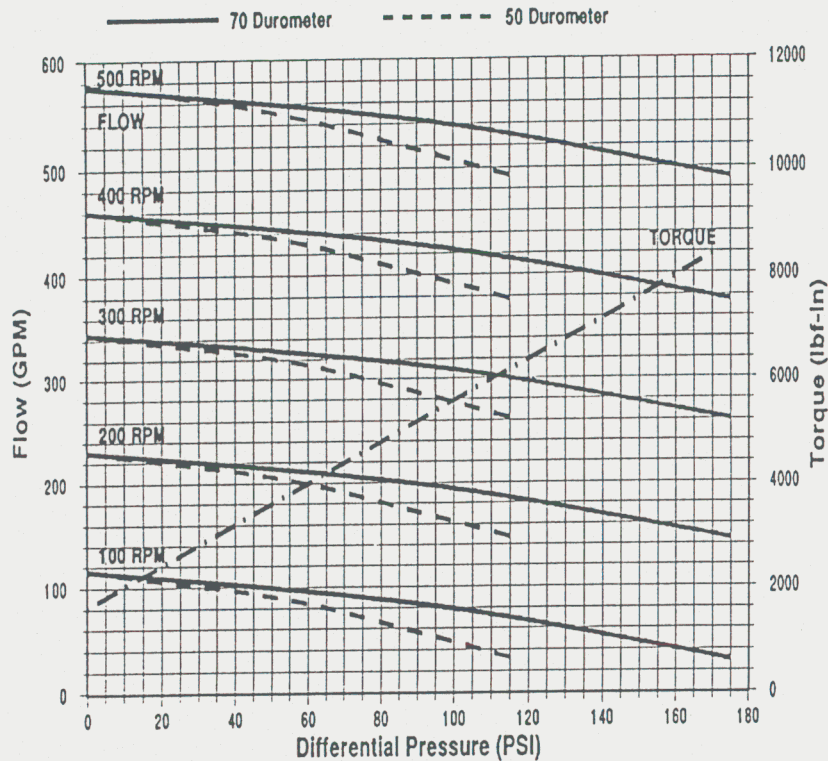
Note: Maximum particle size 1.5 Inches			
Size	Fine	Medium	Coarse
Concentration	(.04" & smaller)	(.04" to .08")	(.08" to .19")
10 %	498	605	1021
30 %	1487	1803	3069
50 %	2477	3006	5105

Table D Starting Torque Multipliers for Temperature

°F	70	100	125	150	175	200	230	250	275	300	350
Standard size rotor	1.0	1.1	1.3	1.6	1.8						
Single Undersize rotor					1.1	1.3	1.6	1.8	2.0		
Double Undersize rotor							1.0	1.1	1.3	1.6	1.8

- Determine which table (B or C) applies to your fluid and find the appropriate characteristics. Determine the torque additive and add it to the torque found for water on the curve. If your fluid is a combination of both slurry and viscous material, determine the appropriate torque additive from both tables and only use the greater of the two to add to the torque found for water.
 - Find the factor from Table D that corresponds to the temperature of your fluid and style of rotor. Multiply the starting torque shown by this factor to obtain the corrected starting torque.
- Compare the results from steps 1 and 2. The required torque will be the greater of the two.

2 STAGE 115



Starting torque 3152 lbf-in.

See General Instructions for Performance Data.

Curve based on 70°F water and 14.7 PSIA at pump inlet.

$$HP = \frac{(TQ) (RPM)}{63025}$$

RPM	100	200	300	400	500		
NPSHR (ft)	1.5	3.1	5.7	9.6	13.4		

Table A Abrasive Conditions - Maximum Pressure and Speed

Abrasion	None	Light	Medium	Heavy
Max. Pressure	175	140	80	30
Max. Speed	450	350	225	125

Table B Apparent Viscosity - Torque Additive (lbf-in.) and Max. Speed

cPs	100	1000	2500	5000	10,000	50,000	100,000	150,000	200,000
TQ	980	2866	4412	6050	8320	17,648	25,210	28,992	33,824
RPM	450	450	450	450	320	80	40	30	25

Table C Water Base Slurry Torque (lbf-in.) Additive

Note: Maximum particle size 1.5 inches			
Size	Fine	Medium	Coarse
Concentration	(.04" & smaller)	(.04" to .08")	(.08" to .19")
10 %	643	782	1324
30 %	1929	2345	3971
50 %	3214	3908	6618

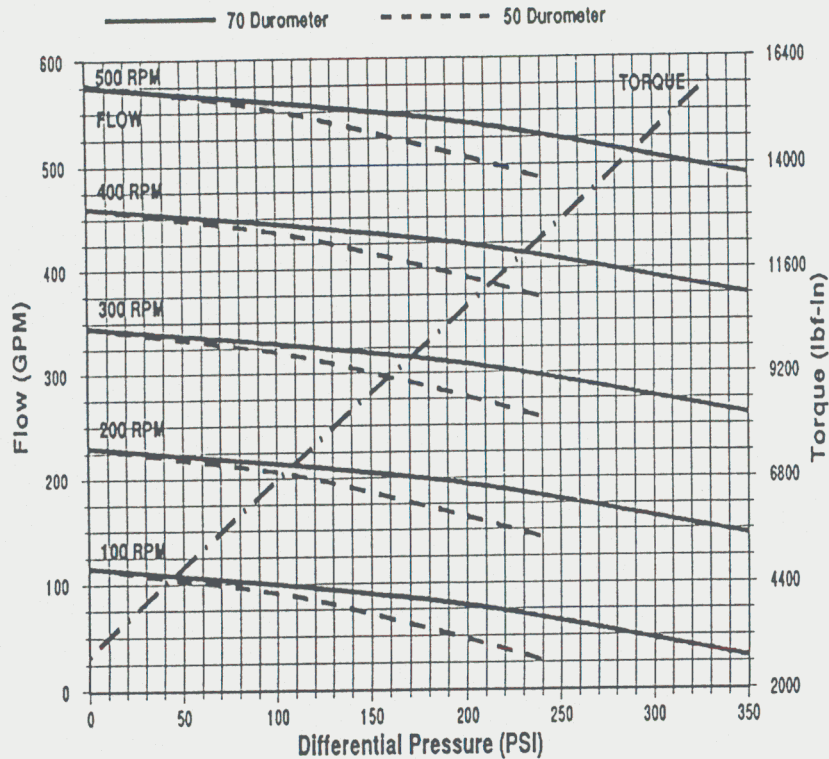
Table D Starting Torque Multipliers for Temperature

°F	70	100	125	150	175	200	230	250	275	300	350
Standard size rotor	1.0	1.1	1.3	1.6	1.8						
Single Undersize rotor					1.1	1.3	1.6	1.8	2.0		
Double Undersize rotor							1.0	1.1	1.3	1.6	1.8

1. Determine which table (B or C) applies to your fluid and find the appropriate characteristics. Determine the torque additive and add it to the torque found for water on the curve. If your fluid is a combination of both slurry and viscous material, determine the appropriate torque additive from both tables and only use the greater of the two to add to the torque found for water.
2. Find the factor from Table D that corresponds to the temperature of your fluid and style of rotor. Multiply the starting torque shown by this factor to obtain the corrected starting torque.

Compare the results from steps 1 and 2. The required torque will be the greater of the two.

4 STAGE 115



Starting torque 4895 lbf-in.

See General Instructions for Performance Data.

Curve based on 70°F water and 14.7 PSIA at pump inlet.

$$HP = \frac{(TQ) (RPM)}{63025}$$

RPM	100	200	300	400	500	
NPSHR (ft)	1.5	3.1	5.7	9.6	13.4	

Table A Abrasive Conditions - Maximum Pressure and Speed

Abrasion	None	Light	Medium	Heavy
Max. Pressure	350	280	160	60
Max. Speed	450	350	225	125

Table B Apparent Viscosity - Torque Additive (lbf-in.) and Max. Speed

cPs	100	1000	2500	5000	10,000	50,000	100,000	150,000	200,000
TQ	1960	5732	8824	12,100	16,640	35,296	50,420	57,984	67,648
RPM	450	450	450	450	320	80	40	30	25

Table C Water Base Slurry Torque (lbf-in.) Additive

Note: Maximum particle size 1.5 Inches			
Size	Fine	Medium	Coarse
Concentration	(.04" & smaller)	(.04" to .08")	(.08" to .19")
10 %	1059	1292	2187
30 %	3183	3870	6555
50 %	5307	6429	10,903

Table D Starting Torque Multipliers for Temperature

°F	70	100	125	150	175	200	230	250	275	300	350
Standard size rotor	1.0	1.1	1.3	1.6	1.8						
Single Undersize rotor					1.1	1.3	1.6	1.8	2.0		
Double Undersize rotor							1.0	1.1	1.3	1.6	1.8

- Determine which table (B or C) applies to your fluid and find the appropriate characteristics. Determine the torque additive and add it to the torque found for water on the curve. If your fluid is a combination of both slurry and viscous material, determine the appropriate torque additive from both tables and only use the greater of the two to add to the torque found for water.
 - Find the factor from Table D that corresponds to the temperature of your fluid and style of rotor. Multiply the starting torque shown by this factor to obtain the corrected starting torque.
- Compare the results from steps 1 and 2. The required torque will be the greater of the two.