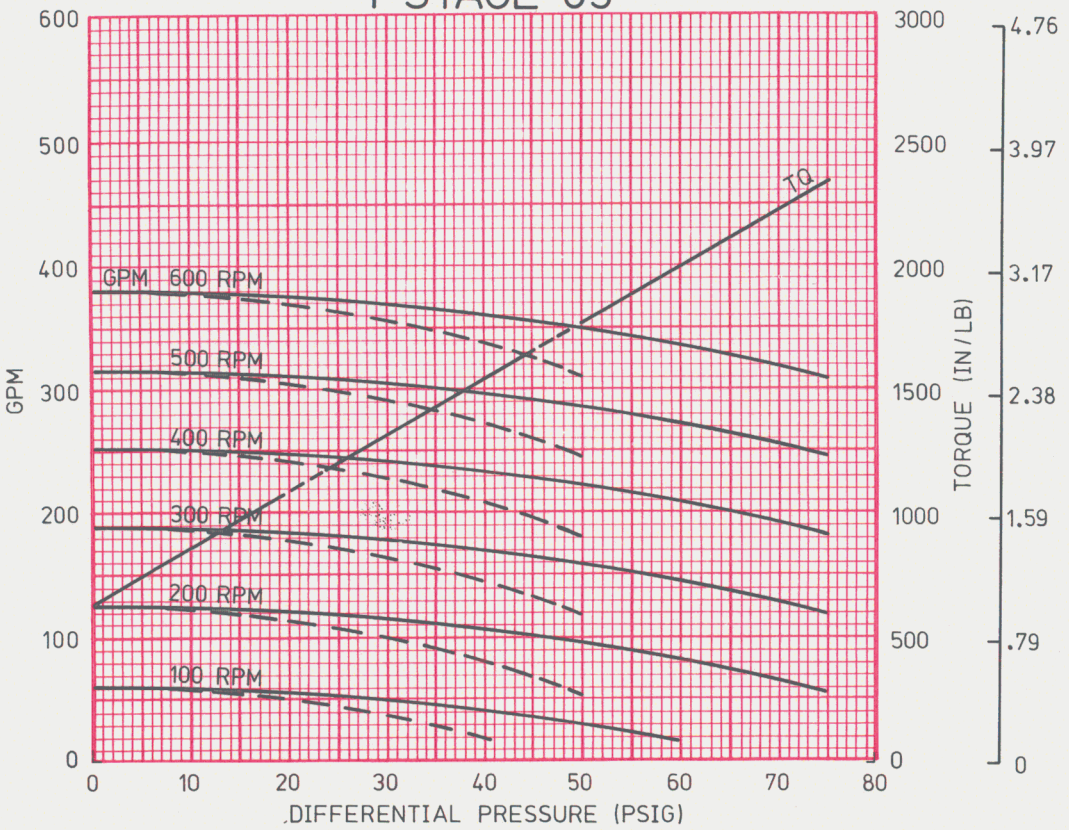
1 STAGE 65



RPM	NPSHR (FT)
100	1.4
200	2.8
300	4.6
400	8.1
500	11.5
600	15

STARTING TORQUE 2112 IN/LB
SEE GENERAL INSTRUCTIONS
CURVE BASED ON 70°F WATER
— 70 DUROMETER --50 DUROMETER

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

TABLE A ABRASIVE CONDITIONS MAX. PRESSURE & SPEED

ABRASION	NONE	LIGHT	MEDIUM	HEAVY
MAX. PRESS	75	60	35	15
MAX. SPEED	600	450	300	150

TABLE B APPARENT VISCOSITY - TORQUE ADDITIVE (IN/LB) & MAX. SPEED

CPS	100	1000	2500	5000	10,000	50,000	100,000	150,000	200,000
TQ	307	880	1345	1850	2520	5120	7200	8650	9850
RPM	600	600	600	600	320	80	40	30	25

TABLE C WATER BASE SLURRY TORQUE ADDITIVE (IN/LB)

NOTE: MAXIMUM PARTICLE SIZE 1.0 INCH			
SIZE / %	FINE .01" TO .04"	MEDIUM .04" TO .08"	COARSE .08" & LARGER
10	351	372	522
30	1053	1117	1566
50	1755	1862	2609

TABLE D STARTING TORQUE MULTIPLIERS (IN/LB) FOR TEMPERATURE

°F / ROTOR	70	100	125	150	175	200	230	250	275	300	350
STD	1.0	1.1	1.3	1.6	1.8						
SGL U/S					1.1	1.3	1.6	1.8	2.0		
DBL U/S							1.0	1.1	1.3	1.6	1.8

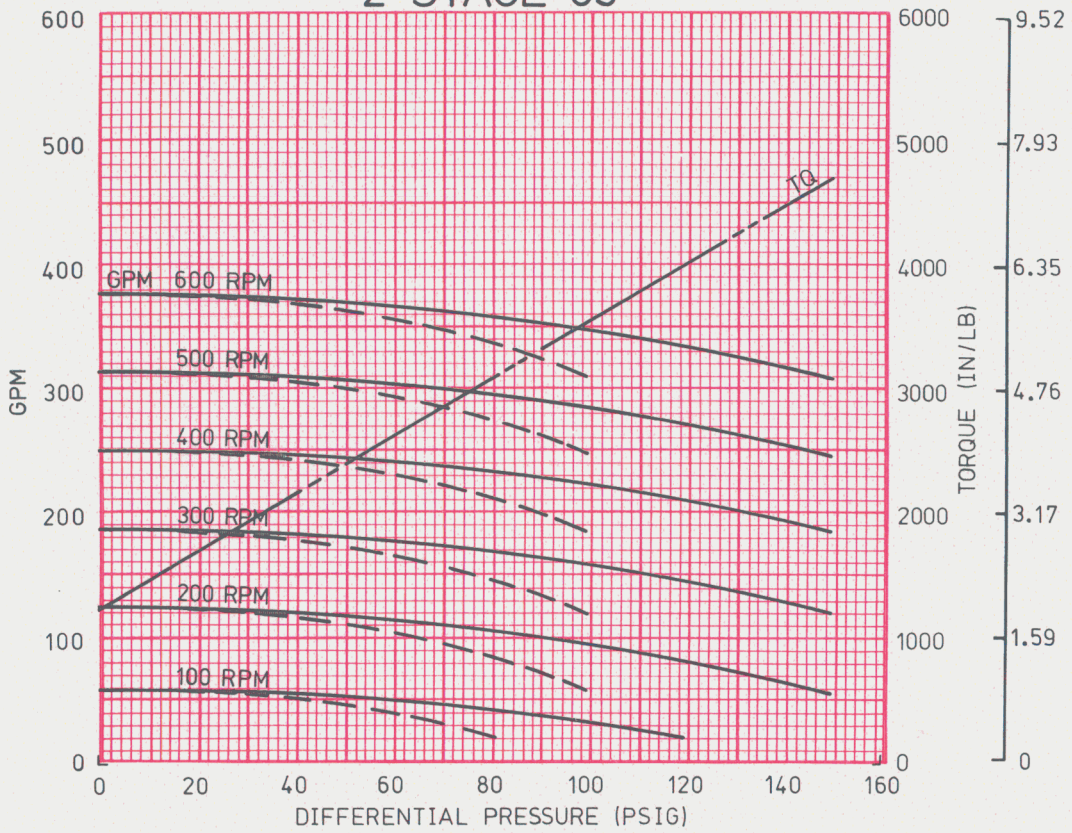
1) DETERMINE WHICH TABLE (B OR C) APPLIES TO YOUR FLUID AND FIND THE APPROPRIATE CHARACTERISTICS. DETERMINE THE TORQUE ADDITIVE AND ADD IT TO THE TORQUE FOUND FOR WATER ON THE CURVE. IF YOUR FLUID IS A COMBINATION OF BOTH SLURRY AND VISCOUS MATERIAL. DETERMINE THE APPROPRIATE TORQUE ADDITIVE FROM BOTH 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.

71X65

2 STAGE 65



RPM	NPSHR (FT)
100	1.4
200	2.8
300	4.6
400	8.1
500	11.5
600	15

STARTING TORQUE 3696 IN/LB
SEE GENERAL INSTRUCTIONS
CURVE BASED ON 70°F WATER
— 70 DUROMETER --50 DUROMETER

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

TABLE A ABRASIVE CONDITIONS MAX. PRESSURE & SPEED

ABRASION	NONE	LIGHT	MEDIUM	HEAVY
MAX. PRESS	150	120	70	30
MAX. SPEED	600	450	300	150

TABLE B APPARENT VISCOSITY - TORQUE ADDITIVE (IN/LB) & MAX. SPEED

CPS	100	1000	2500	5000	10,000	50,000	100,000	150,000	200,000
TQ	614	1760	2690	3700	5040	10,240	14,400	17,300	19,700
RPM	600	600	600	600	320	80	40	30	25

TABLE C WATER BASE SLURRY TORQUE ADDITIVE (IN/LB)

NOTE: MAXIMUM PARTICLE SIZE 1.0 INCH			
SIZE / %	FINE .01" TO .04"	MEDIUM .04" TO .08"	COARSE .08" & LARGER
10	463	491	689
30	1390	1474	2066
50	2316	2457	3443

TABLE D STARTING TORQUE MULTIPLIERS (IN/LB) FOR TEMPERATURE

°F / ROTOR	70	100	125	150	175	200	230	250	275	300	350
STD	1.0	1.1	1.3	1.6	1.8						
SGL U/S					1.1	1.3	1.6	1.8	2.0		
DBL U/S							1.0	1.1	1.3	1.6	1.8

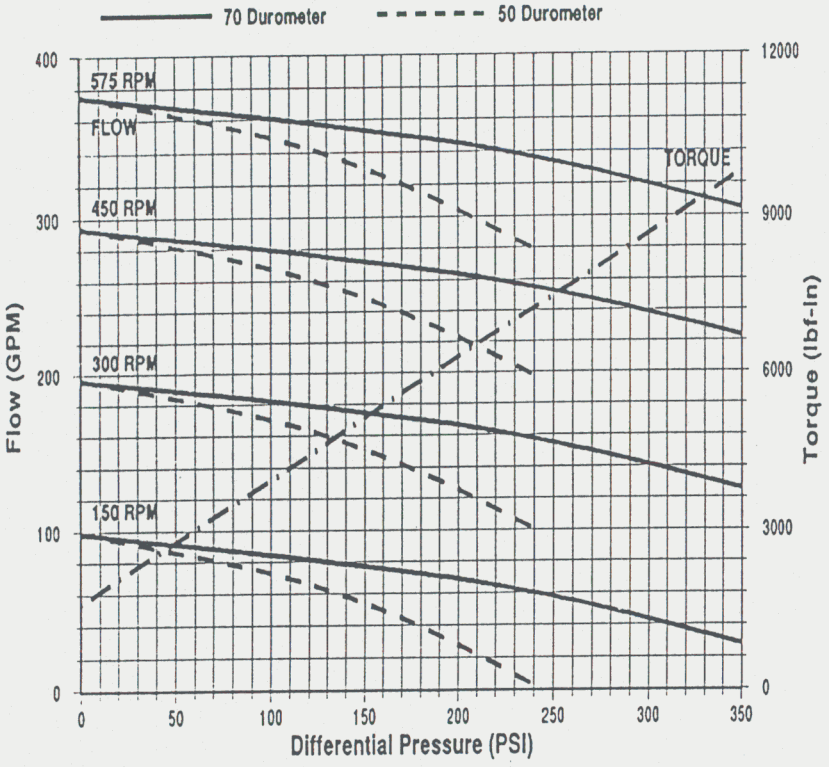
1) DETERMINE WHICH TABLE (B OR C) APPLIES TO YOUR FLUID AND FIND THE APPROPRIATE CHARACTERISTICS. DETERMINE THE TORQUE ADDITIVE AND ADD IT TO THE TORQUE FOUND FOR WATER ON THE CURVE. IF YOUR FLUID IS A COMBINATION OF BOTH SLURRY AND VISCOUS MATERIAL. DETERMINE THE APPROPRIATE TORQUE ADDITIVE FROM BOTH 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.

72X65

4 STAGE 065



Starting torque 3799 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	150	300	450	575			
NPSHR (ft)	1.9	3.8	8.3	12.2			

Table A Abrasive Conditions - Maximum Pressure and Speed

Abrasion	None	Light	Medium	Heavy
Max. Pressure	350	280	160	60
Max. Speed	600	450	300	150

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	1196	3432	5296	7060	9832	20,420	28,488	34,032	38,796
RPM	600	600	600	600	320	80	40	30	25

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

Note: Maximum particle size 1.4 inches			
Size / Concentration	Fine (.04" & smaller)	Medium (.04" to .08")	Coarse (.08" to .19")
10 %	643	788	1342
30 %	1947	2370	4034
50 %	3246	3971	6681

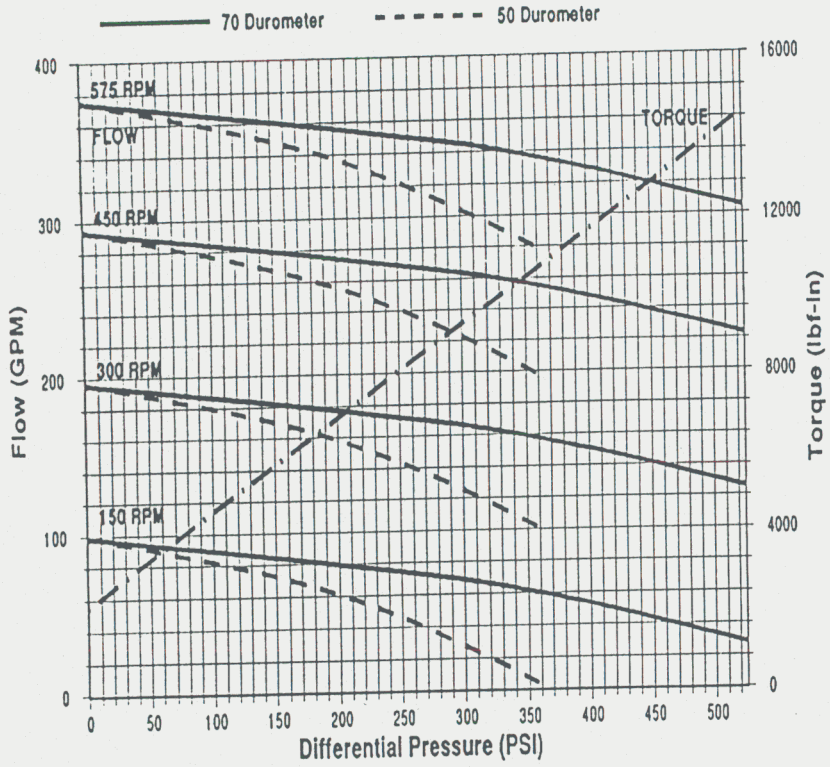
Table D Starting Torque Multipliers for Temperature

°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.

6 STAGE 065



Starting torque 5660 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	150	300	450	575			
NPSHR (ft)	1.9	3.8	8.3	12.2			

Table A Abrasive Conditions - Maximum Pressure and Speed

Abrasion	None	Light	Medium	Heavy
Max. Pressure	525	420	240	90
Max. Speed	600	450	300	150

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	1794	5148	7944	10,590	14,748	30,630	42,732	51,048	58,194
RPM	600	600	600	600	320	80	40	30	25

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

Note: Maximum particle size 1.4 inches			
Size / Concentration	Fine (.04" & smaller)	Medium (.04" to .08")	Coarse (.08" to .19")
10 %	1172	1437	2458
30 %	3536	4286	7374
50 %	5924	7185	12,101

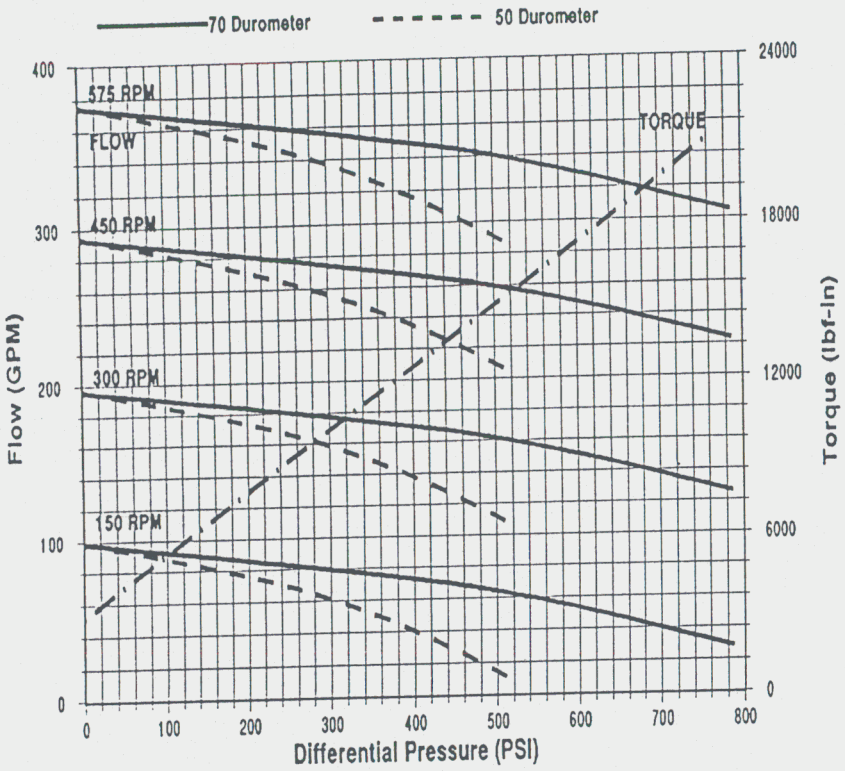
Table D Starting Torque Multipliers for Temperature

°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.

9 STAGE 065



Starting torque 9721 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	150	300	450	575			
NPSHR (ft)	1.9	3.8	8.3	12.2			

Table A Abrasive Conditions - Maximum Pressure and Speed

Abrasion	None	Light	Medium	Heavy
Max. Pressure	787	630	360	135
Max. Speed	600	450	300	150

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	2691	7722	11,916	15,885	22,122	45,945	64,098	76,572	87,291
RPM	600	600	600	600	320	80	40	30	25

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

Note: Maximum particle size 1.4 inches			
Size / Concentration	Fine (.04" & smaller)	Medium (.04" to .08")	Coarse (.08" to .19")
10 %	1342	1639	2817
30 %	4059	4916	8433
50 %	6794	8288	13,935

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