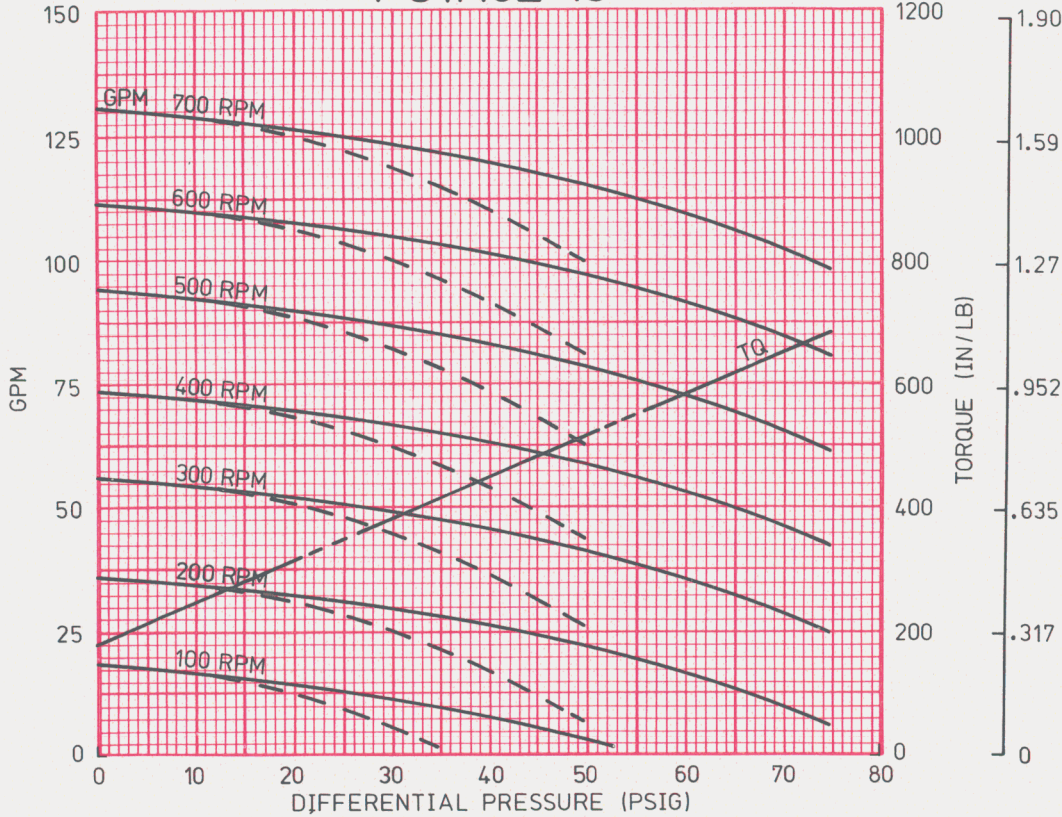


1 STAGE 19



RPM	NPSHR (FT)
100	.9
200	1.7
300	2.6
400	3.5
500	4.9
600	6.9
700	9.1

STARTING TORQUE 624 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	750	565	375	190

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	89	252	383	525	718	1480	2049	2460	3000
RPM	750	750	750	600	320	80	40	30	25

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

NOTE: MAXIMUM PARTICLE SIZE .8 INCH

SIZE %	FINE .01" TO .04"	MEDIUM .04" TO .08"	COARSE .08" & LARGER
10	152	182	266
30	455	545	797
50	758	908	1328

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

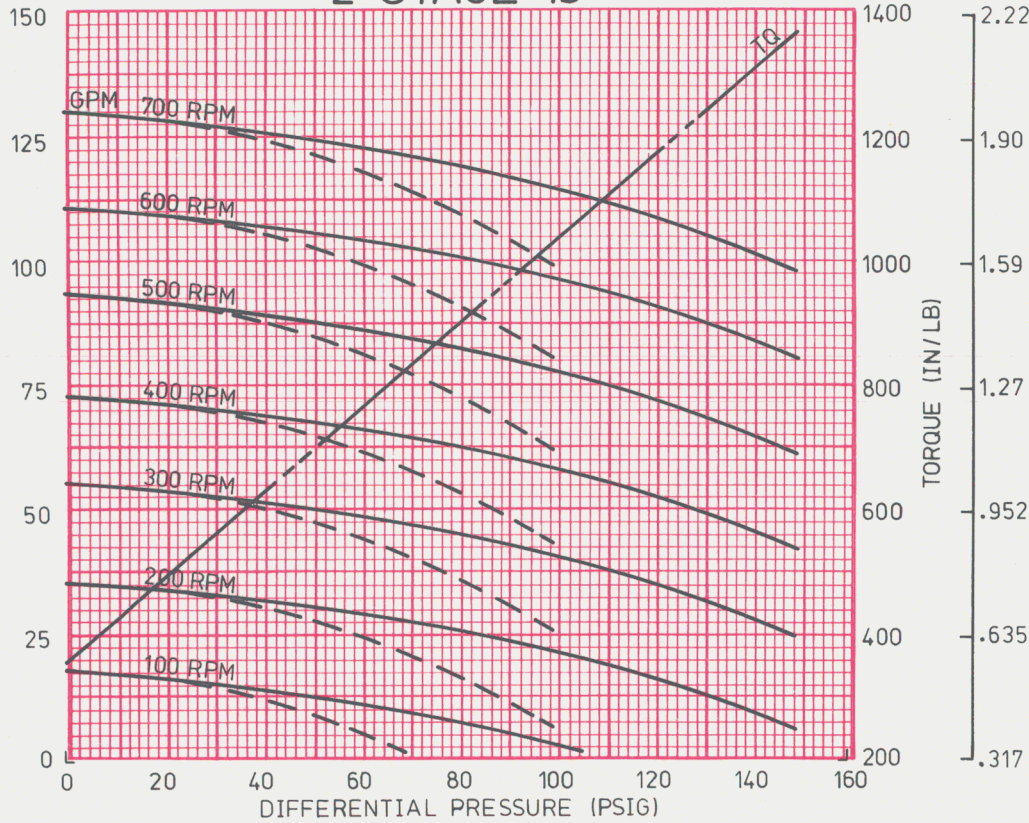
ROTOR °F	70	100	125	150	175	200	230	250	275	300	350
STD	1.0	1.1	1.3	1.6	1.8						
SGL U/S					1.1	1.3	1.6	1.8	2.0		
DBL U/S							1.0	1.1	1.3	1.6	1.8

- 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.

71X19

2 STAGE 19



RPM	NPSHR (FT)
100	.9
200	1.7
300	2.6
400	3.5
500	4.9
600	6.9
700	9.1

STARTING TORQUE 1116 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	750	565	375	190

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	177	504	766	1050	1436	2960	4098	4920	6000
RPM	750	750	750	600	320	80	40	30	25

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

NOTE: MAXIMUM PARTICLE SIZE .8 INCH

SIZE %	FINE .01" TO .04"	MEDIUM .04" TO .08"	COARSE .08" & LARGER
10	200	239	350
30	600	718	1051
50	1000	1197	1752

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

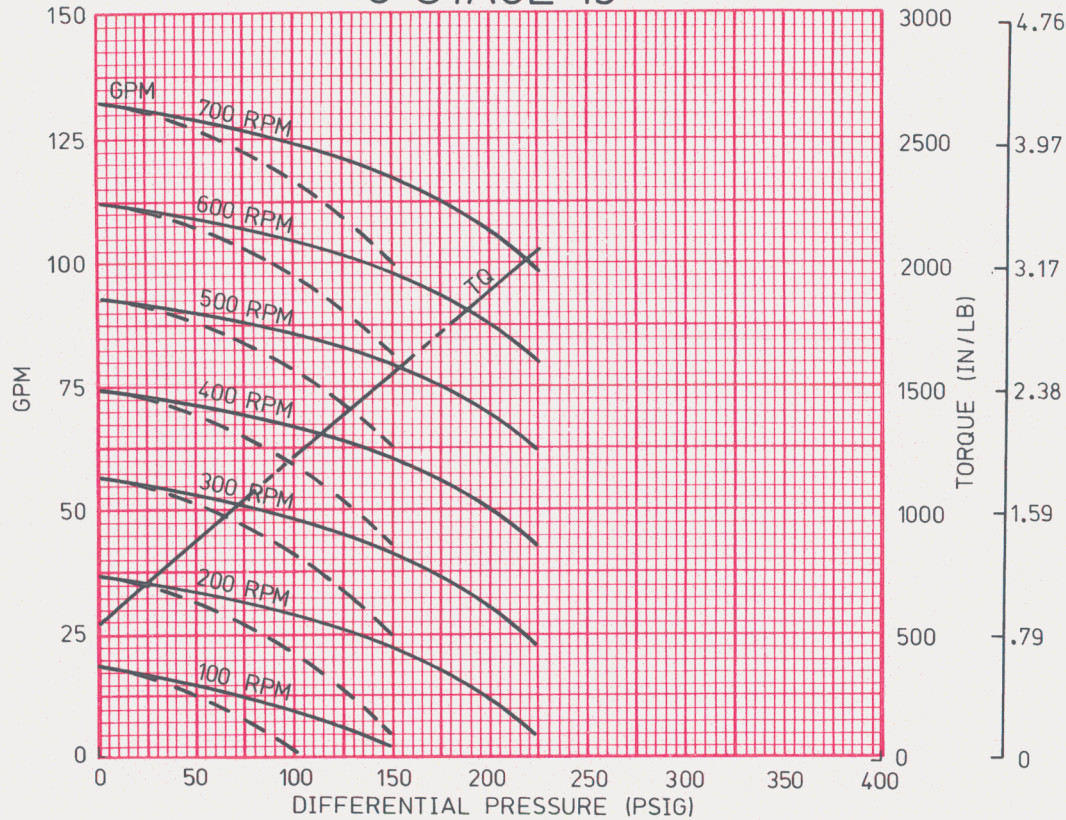
ROTOR °F	70	100	125	150	175	200	230	250	275	300	350
STD	1.0	1.1	1.3	1.6	1.8						
SGL U/S					1.1	1.3	1.6	1.8	2.0		
DBL U/S							1.0	1.1	1.3	1.6	1.8

- 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.

72X19

3 STAGE 19



RPM	NPSHR (FT)
100	.9
200	1.7
300	2.6
400	3.5
500	4.9
600	6.9
700	9.1

STARTING TORQUE 1512 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	225	180	105	45
MAX. SPEED	750	565	375	190

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	266	756	1149	1575	2154	4440	6147	7380	9000
RPM	750	750	750	600	320	80	40	30	25

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

NOTE: MAXIMUM PARTICLE SIZE .8 INCH

SIZE %	FINE .01" TO .04"	MEDIUM .04" TO .08"	COARSE .08" & LARGER
10	235	282	412
30	706	845	1236
50	1177	1408	2061

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

ROTOR °F	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.

73X19