

GHA SERIES EXTREME DUTY ABRASIVE G, J, N, R & S HYD SIZE ROTARY GEAR PUMP



The GHA series is designed for applications in the operating ranges noted below. These units are available with head and backhead jackets for temperature control, and packing or carbide mechanical seal options described on the following pages.

This abrasive handling, extreme duty series, provides superior wear resistance. The design also provides superior rotor shaft support and an integral, maintenance-free radial/thrust bearing for reduced deflection and wear. Reduced speeds enable service over extended periods. Information such as percentage, size and hardness of solids present in the liquid are useful to estimate pump life.

FEATURES

*HARDENED, WEAR RESISTANT GEARS,
 HOUSING, HEAD, PIN, AND BUSHING*
*HARD FACE, WEAR RESISTANT
 MECHANICAL SEAL*
OVERSIZED TAPERED SEAL CAVITY
*HEAVY DUTY NEEDLE ROLLER
 BEARING*
*ROTOR END CLEARANCE EXTERNALLY
 ADJUSTABLE*
*FLEXIBLE SEAL DESIGN ALLOWS FOR
 A VARIETY OF INDUSTRY
 STANDARD SEALS OR PACKING*
BALL BEARING THRUST CONTROL

OPERATING RANGE

CAPACITY (GPM): (8 TO 325)
 [LPM] : [25 TO 1020]

PRESSURE (PSI) : [0 TO 200]
 [BAR] : [0 TO 14]

VISCOSITY (SSU) : (28 TO 250,000)
 [cSt] : [1 TO 55,000]

TEMPERATURE (F) : (-60° TO 500°)
 [C] : [-51° TO 260°]

APPLICATIONS

USE WITH ANY LIQUID
 COMPATIBLE WITH
 CAST IRON

- ★ PAINTS
- ★ INKS
- ★ ADHESIVES
- ★ WASTE LIQUIDS
- ★ EMULSIONS
- ★ FILTERING

EXTER- IOR	ROTOR & IDLER	HSG PORTS	IDLER BUSHING	BACKHD BEARING	IDLER PIN	SHAFT	SHAFT SEALING		ROTA- TION	INTERNAL RELIEF VALVE	
							MECHANICAL SEAL ●	PACKING ■		MATERIAL	SETTING
CAST IRON	HARD IRON	90° TAPPED/ FLNG'D	SILICON CARBIDE	① NEEDLE BEARING	TUNGSTEN CARBIDE	HARD. STEEL	SILICON CARB. SILICON CARB. VITON	ARAMID FIBER W/GRAPHITE	C.W.	DUCTILE IRON	75 PSI [5 BAR]

Standard Models

G H A 2 NK 3 - B
 | | | | | | | |
 GEAR DUTY DESIGN PORT SIZE HYDRAULIC SEAL STYLE
 SIZE SIZE

MODEL NUMBER	NOM. CAPACITY-SPEED		MAXIMUM				SHIPPING DATA		
	MAXIMUM		DIFFERENTIAL PRESSURE - PSI [BAR]			TEMP.	② Weight	Volume	
	GPM [LPM]	RPM 60 Hz [50 HZ]	BELOW 38 SSU [4 cSt]	38 TO 100 SSU [21 cSt]	100 TO 250,000 SSU [55,000 cSt]	°F [°C]			LBS [KG]
GHA 1-1/2 GC 3-B ● GHA 1-1/2 GC 4-B ■	8 [25]	870 [720]					● 250 [119]	57 [25,9]	2.9
GHA 1-1/2 GF 3-B ● GHA 1-1/2 GF 4-B ■	11 [36]							57 [25,9]	
GHA 1-1/2 GH 3-B ● GHA 1-1/2 GH 4-B ■	15 [49]							57 [25,9]	
GHA 1-1/2 GJ 3-B ● GHA 1-1/2 GJ 4-B ■	19 [60]							57 [25,9]	
GHA 2 JJ 3-B ● GHA 2 JJ 4-B ■	28 [88]	580 [480]	100 [7]	150 [10]	200 [14]	● 250 [119]	144 [65,5]	144 [65,5]	5.3
GHA 2 JL 3-B ● GHA 2 JL 4-B ■	38 [121]							144 [65,5]	
GHA 2 JP 3-B ● GHA 2 JP 4-B ■	54 [169]							144 [65,5]	
GHA 2 NK 3-B ● GHA 2 NK 4-B ■	60 [188]	80 [251]				■ 500 [260]	180 [81,6]	180 [81,6]	5.3
GHA 3 NK 3-B ● GHA 3 NK 4-B ■								180 [81,6]	
GHA 2 NM 3-B ● GHA 2 NM 4-B ■								180 [81,6]	
GHA 3 NM 3-B ● GHA 3 NM 4-B ■								180 [81,6]	
GHA 2 NP 3-B ● GHA 2 NP 4-B ■	99 [313]						180 [81,6]	180 [81,6]	10.7
GHA 3 NP 3-B ● GHA 3 NP 4-B ■								180 [81,6]	

STANDARD MODELS CONT.

① EXCEPT "S" SIZE AND 4-B MODELS (SILICON CARBIDE BUSHING).

② FOR 4-B UNIT WEIGHT, REFER TO GHS SECTION

● MECHANICAL SEAL
■ PACKING

THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO
GORMAN-RUPP OF CANADA LIMITED • ST. THOMAS, ONTARIO, CANADA

MODEL NUMBER	NOM. CAPACITY-SPEED		MAXIMUM				SHIPPING DATA		
	MAXIMUM		DIFFERENTIAL PRESSURE - PSI [BAR]			TEMP.	Weight	Volume	
	GPM [LPM]	RPM 60 Hz [50 HZ]	BELOW 38 SSU [4 cSt]	38 TO 100 SSU [21 cSt]	100 TO 250,000 SSU [55,000 cSt]	°F [°C]	LBS [KG]	CU. FT.	
GHA 2 RM 3-B ● GHA 2 RM 4-B ■	85 [271]	350 [290]	100 [7]	150 [10]	200 [14]	● 250 [119] ■ 500 [260]	357 [162]	10.7	
GHA 2-1/2 RM 3-B ● GHA 2-1/2 RM 4-B ■							357 [162]		
GHA 3 RM 3-B ● GHA 3 RM 4-B ■							357 [162]		
GHA 3 RP 3-B ● GHA 3 RP 4-B ■							105 [339]		357 [162]
GHA 3 RR 3-B ● GHA 3 RR 4-B ■							125 [402]		357 [162]
GHA 3 RS 3-B ● GHA 3 RS 4-B ■							146 [465]		357 [162]
GHA 4 RS 3-B ● GHA 4 RS 4-B ■							146 [465]		357 [162]
GHA 3 SR 3-B ● GHA 3 SR 4-B ■	210 [660]	350 [290]	100 [7]	150 [10]	200 [14]	● 400 [204] ■ 500 [260]	530 [240]	17.3	
GHA 4 SR 3-B ● GHA 4 SR 4-B ■							530 [240]		
GHA 3 SU 3-B ● GHA 3 SU 4-B ■							325 [1020]		530 [240]
GHA 4 SU 3-B ● GHA 4 SU 4-B ■									530 [240]

PORTS ARE COMPATIBLE WITH 125# ANSI CAST IRON FLANGES. ALL OTHER PORTS ARE TAPPED NPT FOR ANSI PIPE.

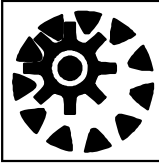
NOTE: PROPER PUMP APPLICATION REQUIRES CONSIDERATION OF ADDITIONAL FACTORS. PLEASE REVIEW APPLICATION GUIDE IN SECTION 500 OR CONSULT THE FACTORY.

GHA

**FOR GHA DRIVE OPTIONS
AND DIMENSIONS**

SEE

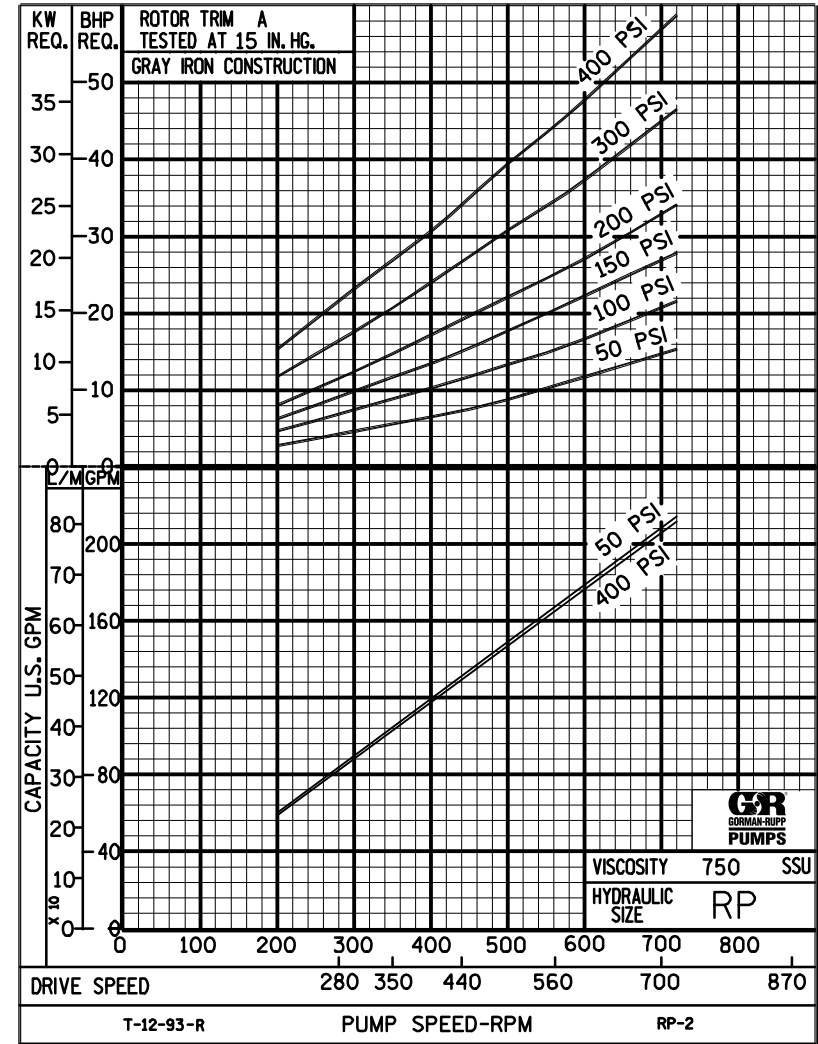
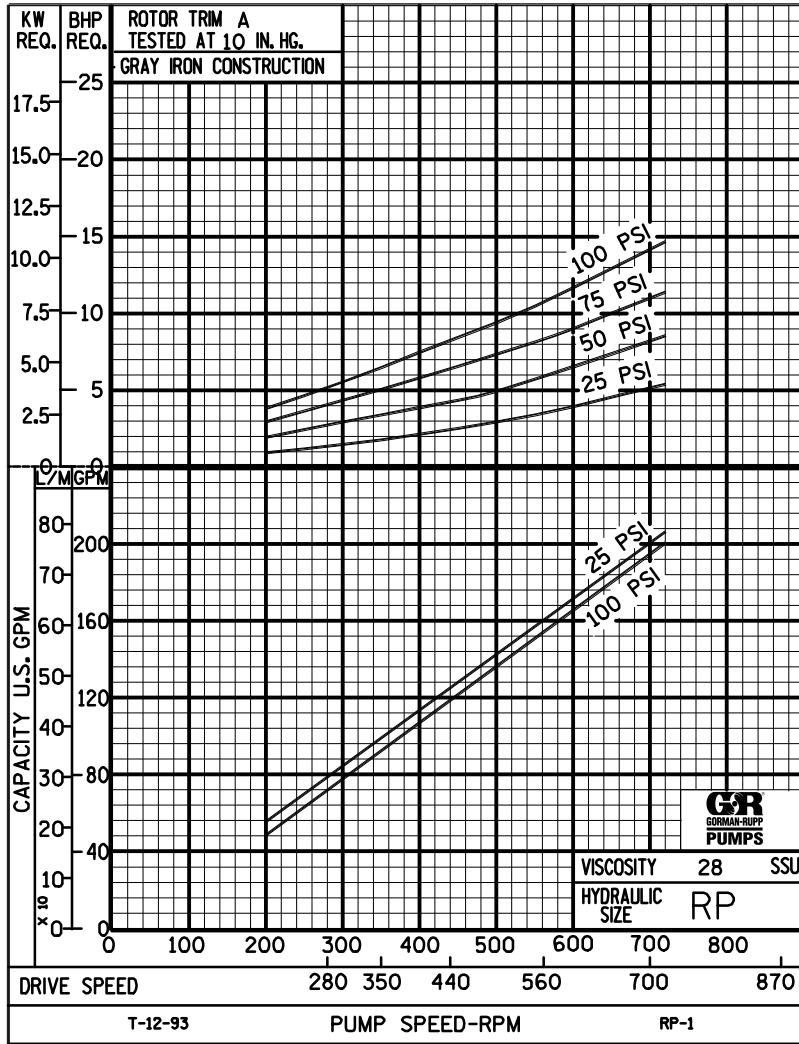
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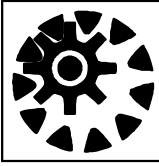
PERFORMANCE CURVES

SPEED VS. CAPACITY/HORSEPOWER

RP Hydraulic Size



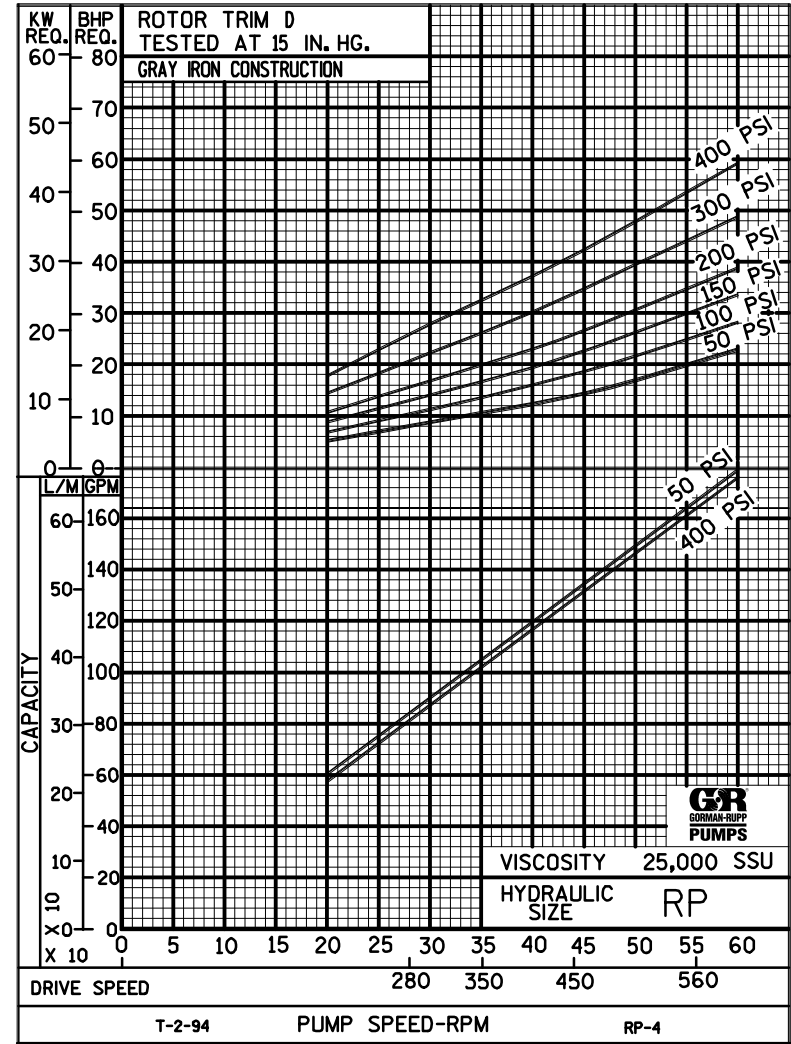
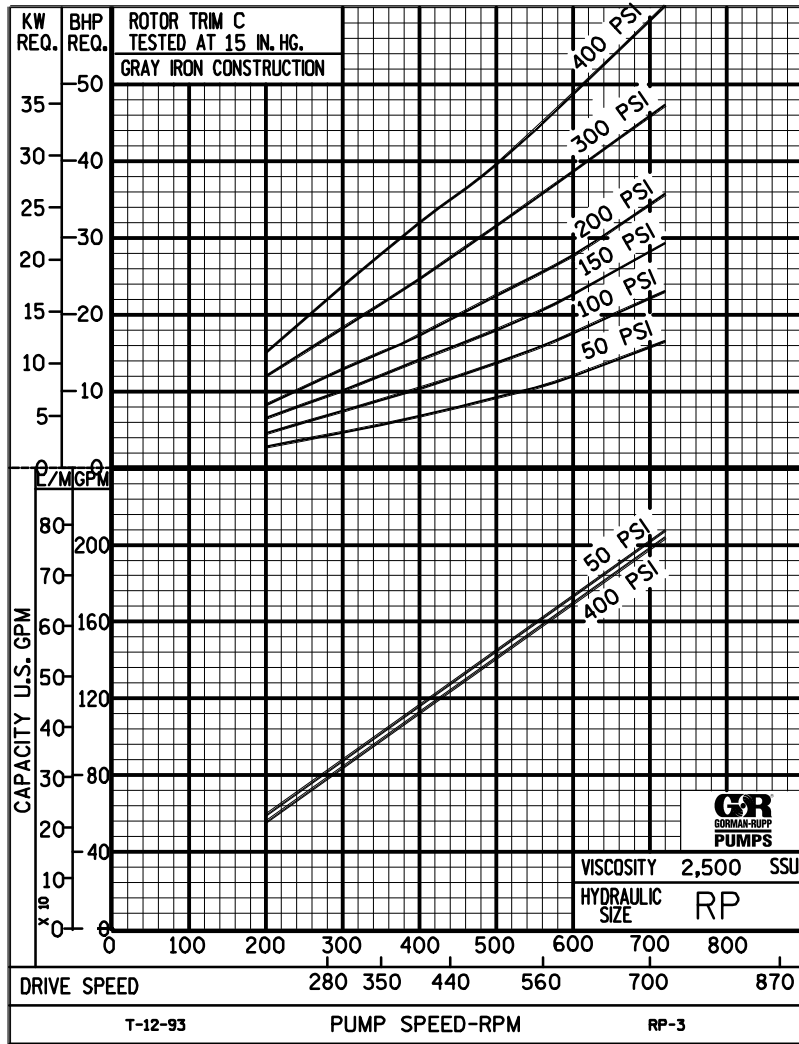
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PERFORMANCE CURVES

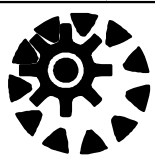
SPEED VS. CAPACITY/HORSEPOWER

RP Hydraulic Size



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RP

PUMP HYDRAULIC SIZE CHART

SEC. 500

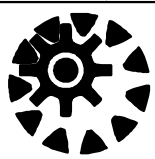
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**215 GPM
720 RPM**

NOMINAL		ROTOR TRIM	VISCOSITY (SSU)	N.I.P.R. (PSIA)	FRICTION PIPE LOSS (PSI/FT) <small>(Based on Sch 40 Steel Pipe)</small>					FULL BYPASS RELIEF VALVE PRESSURE (PSI)					CAPACITY (GPM) / H.P. REQUIRED									
CAP. GPM	SPEED RPM				PIPE DIAMETER					CRACKING PRESS. (PSI)					DIFFERENTIAL PRESSURE (PSI)									
					2"	2 1/2"	3"	4"	6"	LOW PRES R/V			HI PRES R/V		HEAVY DUTY									
							50	75	100	150	200	25	50	75	100	150	200	300	400					
215	720	STD	28	4.0	.31	.13	.04	.01	-	62	87	123	185		206	204	202	200						
			32		.33	.13	.04	.01	-						5.9	8.1	12	15						
			38	4.0	.35	.14	.05	.01	-	64	90	126	187		208	206	204	202	196					
			50		.38	.16	.05	.01	-						7.3	9.3	13	16	23					
			70	4.0	.42	.18	.06	.02	-	69	95	130	192	251	210	208	208	206	202	198				
			100		.46	.20	.07	.02	-						9.3	12	15	18	25	30				
			150	4.0	.51	.22	.08	.02	-	74	99	134	196	258	212	212	210	210	208	204	202	200		
			200		.55	.24	.08	.02	-						11	13	17	20	26	32	45	58		
			300	4.0	.61	.27	.10	.03	-	80	105	140	202	267	214	212	212	212	210	208	206	206		
			500		.72	.31	.11	.02	-						12	15	18	21	28	34	46	59		
		750	4.0	.51	.25	.10	.04	.01	84	110	144	206	274	214	214	214	214	214	212	212	212			
		1,000		.68	.33	.14	.05	.01						13	16	19	22	29	35	47	60			
		2,000	4.3	1.35	.66	.28	.09	.02	92	118	151	213	287	208	208	208	206	206	206	206	204			
		3,500		2.37	1.16	.49	.16	.03						15	17	20	24	30	36	48	61			
		5,000	4.7	3.38	1.66	.70	.24	.05	97	123	156	218	294	208	208	208	208	206	206	206	204			
		7,500		5.08	2.49	1.05	.35	.07						16	19	22	25	32	39	50	63			
		10,000	5.2	6.77	3.32	1.39	.47	.09	102	127	160	222	301	210	208	208	208	208	208	206	206			
		15,000		10.2	4.99	2.09	.71	.14						18	20	24	28	34	41	53	66			
		20,000																						
		25,000																						
50,000																								
75,000																								
100,000																								
150,000																								
200,000																								
250,000																								

(NOTE) For speeds not shown on the pump hydraulic charts, consult factory.



RP

PUMP HYDRAULIC SIZE CHART

SEC. 500

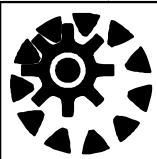
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**190 GPM
640 RPM**

NOMINAL		ROTOR TRIM	VISCOSITY (SSU)	N.I.P.R. (PSIA)	FRICTION PIPE LOSS (PSI/FT) (Based on Sch 40 Steel Pipe)					FULL BYPASS RELIEF VALVE PRESSURE (PSI)					CAPACITY (GPM) / H.P. REQUIRED												
CAP. GPM	SPEED RPM				PIPE DIAMETER					CRACKING PRESS. (PSI)					DIFFERENTIAL PRESSURE (PSI)												
					2"	2 1/2"	3"	4"	6"	LOW PRES R/V		HI PRES R/V			MEDIUM DUTY AND HEAVY DUTY				HEAVY DUTY ONLY								
190	640	STD	28	3.2	.24	.10	.03	.01	-	60	85	122	180		184	181	179	177									
			32		.26	.10	.04	.01	-						4.9	7.3	10	13									
			38	3.2	.27	.11	.04	.01	-	63	88	124	183		185	182	180	179	174								
			50		.30	.13	.04	.01	-						6.2	8.9	12	15	19								
			70	3.2	.33	.14	.05	.01	-	67	92	128	187	248		187	185	183	178	176							
			100		.37	.16	.06	.02	-							7.9	10	13	16	21	28						
			150	3.2	.41	.17	.06	.02	-	71	97	132	191	253		189	187	186	185	183	181	179	176				
			200		.44	.19	.07	.02	-							8.9	12	15	18	22	29	39	50				
			300	3.2	.49	.21	.08	.02	-	77	102	136	196	260		190	189	188	188	187	185	184	183				
			500		.58	.25	.06	.02	-							10	13	16	19	24	30	40	50				
			750	3.2	.45	.22	.09	.03	.01	81	107	140	200	266		191	191	190	190	189	188	188	187				
			1,000		.60	.29	.12	.04	.01							11	13	16	19	24	30	41	51				
		2,000	3.5	1.19	.59	.25	.08	.02	88	114	146	207	276		186	185	185	184	183	183	182	180					
		3,500		2.09	1.03	.43	.15	.03							12	14	18	20	26	31	42	54					
		5,000	3.9	2.98	1.46	.61	.21	.04	93	119	150	211	281		187	186	185	185	184	184	184	181					
		7,500		4.47	2.20	.92	.31	.06							13	16	19	22	28	33	43	57					
		10,000	4.4	5.96	2.93	1.23	.41	.08	97	123	154	215	287		187	186	186	185	185	185	185	182					
		15,000		8.94	4.39	1.84	.62	.12							15	18	21	24	30	35	46	60					
		20,000	5.1	11.9	5.86	2.46	.83	.16	100	126	158	218	292		187	187	186	186	186	186	186	183					
		25,000		14.9	7.32	3.07	1.04	.20							17	20	23	27	32	37	48	63					
		50,000																									
		75,000																									
		100,000																									
		150,000																									
200,000																											
250,000																											

(NOTE) For speeds not shown on the pump hydraulic charts, consult factory.



RP

PUMP HYDRAULIC SIZE CHART

SEC. 500

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155 GPM
520 RPM

NOMINAL		ROTOR TRIM	VISCOSITY (SSU)	N.I.P.R. (PSIA)	FRICTION PIPE LOSS (PSI/FT) <small>(Based on Sch 40 Steel Pipe)</small>					FULL BYPASS RELIEF VALVE PRESSURE (PSI)					CAPACITY (GPM) / H.P. REQUIRED								
CAP. GPM	SPEED RPM				PIPE DIAMETER					CRACKING PRESS. (PSI)					DIFFERENTIAL PRESSURE (PSI)								
					2"	2 1/2"	3"	4"	6"	LOW PRES R/V		HI PRES R/V			MEDIUM DUTY AND HEAVY DUTY				HEAVY DUTY ONLY				
						50	75	100	150	200	25	50	75	100	150	200	300	400					
155	520	STD	28	2.3	.16	.07	.02	.01	-	57	84	120	178		148	145	143	141					
			32		.17	.07	.02	.01	-							3.3	5.3	7.9	10				
			38	2.3	.19	.08	.03	.01	-	60	86	122	180		149	147	145	143	138				
			50		.20	.09	.03	.01	-							4.6	6.7	9.1	11	16			
			70	2.3	.23	.10	.03	.01	-	63	89	124	183	242	151	149	147	146	143	140			
			100		.25	.11	.04	.01	-							5.9	7.9	10	12	17	22		
			150	2.3	.28	.12	.04	.01	-	66	93	127	186	246	153	152	150	150	148	146	144	141	
			200		.31	.13	.05	.01	-							6.7	8.8	11	13	18	22	31	40
			300	2.3	.35	.15	.05	.01	-	72	98	131	190	251	154	153	153	152	151	150	149	148	
			500		.41	.12	.05	.02	-							7.6	9.8	12	14	18	23	32	41
		750	2.3	.36	.18	.07	.03	-	75	101	134	193	254	155	155	154	154	153	153	152	152		
		1,000		.48	.24	.10	.03	.01							7.8	10	12	14	19	23	33	41	
		2,000	2.9	.97	.47	.20	.07	.01	82	110	139	199	260	152	151	151	150	149	149	148	146		
		3,500		1.69	.83	.35	.12	.02							8.6	11	13	16	20	24	34	42	
		5,000	3.3	2.42	1.19	.50	.17	.03	86	112	142	202	264	153	152	152	151	151	150	149	148		
		7,500		3.63	1.78	.75	.25	.05							11	13	14	18	23	27	36	44	
		10,000	3.8	4.83	2.37	1.00	.34	.07	89	115	145	205	268	154	153	153	152	152	151	151	149		
		15,000		7.25	3.56	1.49	.50	.10							14	16	19	20	25	29	38	47	
		20,000	4.3	9.67	4.75	1.99	.67	.13	93	118	148	207	272	155	154	154	153	153	152	152	151		
		25,000		12.1	5.94	2.49	.84	.16							16	18	21	23	28	32	41	49	
50,000	6.1	24.2	11.9	4.98	1.68	.33	98	124	151	212	276	155	154	154	153	153	152	152	151				
75,000		36.3	17.8	7.47	2.52	.49							22	24	27	30	34	39	48	57			
100,000																							
150,000																							
200,000																							
250,000																							

(NOTE) For speeds not shown on the pump hydraulic charts, consult factory.

