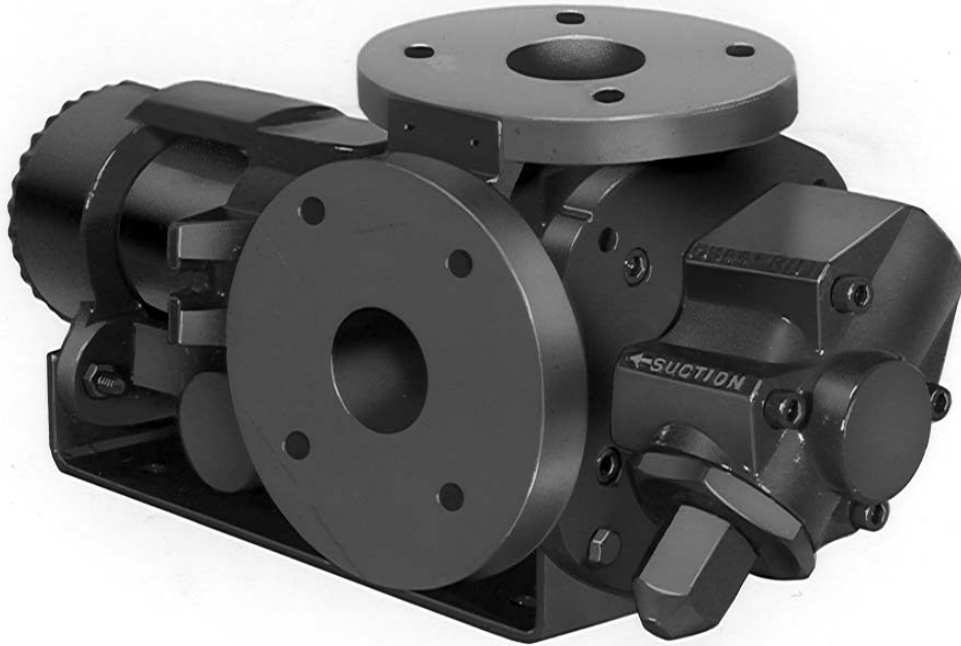


# GHS SERIES Flexible Seal HEAVY DUTY STANDARD STEEL ROTARY GEAR PUMP

This heavy duty series pump is ideal for refining, petrochemical and applications requiring extra strength or shock resistance. The steel construction conforms to ASTM designation A216 Grade WCB. Superior rotor shaft support and an integral, maintenance-free radial/thrust bearing, reduce deflection and wear.



The GHS steel series is designed for applications in the operating ranges noted below. These units are available with head and backhead jackets for temperature control, carbon graphite bushings for low viscosity liquids, silicon carbide bushings for wear resistance, and numerous shaft seal options described on the following pages.

### FEATURES

*400 PSI CAPABILITY*  
*BALL BEARING THRUST CONTROL*  
*ROTOR END CLEARANCE EXTERNALLY ADJUSTABLE*  
*HIGH STRENGTH, COMPUTER PROFILED GEARING FOR QUIET OPERATION*  
*MULTIPLE PORT POSITIONS*  
*FLEXIBLE SEAL DESIGN ALLOWS FOR A VARIETY OF INDUSTRIAL STANDARD SEALS OR PACKING*  
*INTERNAL SEAL VENT*

### OPERATING RANGE

CAPACITY (GPM) : (3 TO 295)  
 [LPM] : [11 TO 1116]  
 PRESSURE (PSI) : [0 TO 300]  
 [BAR] : [0 TO 21]  
 VISCOSITY (SSU) : (28 TO 2,000,000)  
 [cSt] : [1 TO 440,000]  
 TEMPERATURE (F) : (-20° TO 675°)  
 [C] : [-29° TO 358°]

### APPLICATIONS

USE WITH ANY CLEAN LIQUID COMPATIBLE WITH IRON/STEEL

- ★ BOOSTER SERVICE
- ★ CIRCULATING
- ★ FILTERING
- ★ LUBRICATING
- ★ TRANSFERRING

EXTERIOR	BACKHD	ROTOR & IDLER	HOUSING PORTS	BUSHING	IDLER PIN	SHAFT	SHAFT SEALING		ROTA-TION	INTERNAL RELIEF VALVE	
							MECH. SEAL ●	PACKING ■		MATERIAL	SETTING
STEEL ③	DUCTILE IRON	HIGH STRENGTH IRON	150# FLG GHC 180° GHS 90°	BRONZE	HARD STEEL	STEEL	VITON	CARBON FIBER	C.W.	STEEL	75 PSI [5 BAR]

## Standard Models

**G H C 3 JG 32 - B**  
**G H S 3 JG 32 - B**  
 | | | | | | | | | | | |  
 GEAR DUTY DESIGN PORT SIZE HYDRAULIC SEAL STYLE

MODEL NUMBER		NOM. CAPACITY - SPEED				MAXIMUM				SHIPPING DATA		
		MAXIMUM		ALTERNATIVE		DIFF. PRESSURE - PSI [BAR]			TEMP	Wt.	Vol.	
		GPM [LPM]	RPM 60 Hz [50 HZ]	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]			
GHC	GHS							LBS [KG]	CU. FT.			
GHC 1 DC32-B ① ● †		9 [28]		6 [19]						39 [17,7]	0.6	
GHC 1 DE32-B ① ● †		11 [35]		7 [22]						39 [17,7]	0.6	
GHC 1-1/2 GC32-B ● †	GHS 1-1/2 GC32-B ● † GHS 1-1/2 GC38-B ■ †	16 [50]	1750 [1460]	10 [32]	1150 [960]			300 [21]	GHC ●	71 [32,2]	2.9	
GHC 1-1/2 GF32-B ● †	GHS 1-1/2 GF32-B ● † GHS 1-1/2 GF38-B ■ †	23 [73]		15 [47]						350 [177]	71 [32,2]	2.9
GHC 1-1/2 GH32-B ● †	GHS 1-1/2 GH32-B ● † GHS 1-1/2 GH38-B ■ †	31 [98]		20 [63]						GHS ●	71 [32,2]	2.9
GHC 1-1/2 GJ32-B ② ● †	GHS 1-1/2 GJ32-B ② ● † GHS 1-1/2 GJ38-B ② ■ †	38 [120]		25 [79]				100 [7]	150 [10]	400 [204]	71 [32,2]	2.9
GHC 3 JG32-B ● †	GHS 3 JG32-B ● † GHS 3 JG38-B ■ †	40 [126]	1150 [960]	30 [95]	870 [725]				500 [260]	154 [69,8]	5.3	
GHC 3 JJ32-B ● †	GHS 3 JJ32-B ● † GHS 3 JJ38-B ■ †	56 [177]		36 [114]						300 [21]	154 [69,8]	5.3
GHC 3 JL32-B ● †	GHS 3 JL32-B ● † GHS 3 JL38-B ■ †	77 [243]		58 [183]							154 [69,8]	5.3
GHC 3 JP32-B ② ● †	GHS 3 JP32-B ② ● † GHS 3 JP38-B ② ■ †	107 [338]		81 [256]						200 [14]	154 [69,8]	5.3

STANDARD MODELS  
CONTINUED

NOTE: RECOMMENDED PORT SIZES ARE SHOWN IN **BOLDFACE**. EXAMPLE: **GHC 3 JG32-B, GHS 3 JG32-B**

- MECHANICAL SEAL
- LIPSEAL/PACKING
- † PORTS ARE COMPATIBLE WITH 150# ANSI FLANGES. ALL OTHER PORTS ARE TAPPED NPT FOR ANSI PIPE. OPTIONAL [DIN] FLANGES OR TAPPED [BSP] PORTS AVAILABLE FOR EXPORT MARKET.

- ① 3450 [2875] RPM PERMISSIBLE TO 1,000 SSU [220 cSt] AND 100 PSI [7 BAR]
- ② PUMP LIMITED TO 200 PSI MAXIMUM PRESSURE.
- ③ REFER TO REFERENCE SECTION FOR SPECIFIC CONSTRUCTION DETAILS.

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MODEL NUMBER		NOM. CAPACITY - SPEED				MAXIMUM				SHIPPING DATA		
		MAXIMUM		ALTERNATIVE		DIFF. PRESSURE - PSI [BAR]			TEMP.	Wt. LBS [KG]	Vol. CU. FT.	
		GPM [LPM]	RPM 60 Hz [50 HZ]	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]			
GHC	GHS											
	GHS 2 NK32-B ● † GHS 2 NK38-B ■ †	99 [375]	960 [960]	60 [189]	580 [480]			300 [21]		200 [90,7]	5.3	
	GHS 3 NK32-B ● † GHS 3 NK38-B ■ †									200 [90,7]		
	GHS 2 NM32-B ● † GHS 2 NM38-B ■ †	132 [500]	960 [960]	80 [252]	580 [480]			300 [21]		200 [90,7]	5.3	
	GHS 3 NM32-B ● † GHS 3 NM38-B ■ †									200 [90,7]		
	GHS 3 NP32-B ① ● † GHS 3 NP38-B ① ■ †	165 [624]	960 [960]	99 [312]	580 [480]			300 [21]		200 [90,7]	5.3	
	GHS 2-1/2 RM32-B ● † GHS 2-1/2 RM38-B ■ †	172 [542]		720 [600]						143 [451]		480 [400]
	GHS 3 RM32-B ● † GHS 3 RM38-B ■ †		302 [136,9]									
	GHS 4 RM32-B ● † GHS 4 RM38-B ■ †	215 [678]	720 [600]	143 [451]	480 [400]	100 [7]	150 [10]	300 [21]		302 [136,9]	10.7	
	GHS 2-1/2 RP32-B ● † GHS 2-1/2 RP38-B ■ †									302 [136,9]		
	GHS 3 RP32-B ● † GHS 3 RP38-B ■ †	255 [804]	720 [600]	170 [536]	480 [400]	100 [7]	150 [10]	300 [21]		302 [136,9]	10.7	
	GHS 4 RP32-B ● † GHS 4 RP38-B ■ †									302 [136,9]		
	GHS 3 RR32-B ● † GHS 3 RR38-B ■ †	295 [930]	720 [600]	196 [618]	480 [400]	100 [7]	150 [10]	300 [21]		302 [136,9]	10.7	
	GHS 4 RR32-B ● † GHS 4 RR38-B ■ †									302 [136,9]		
	GHS 3 RS32-B ① ● † GHS 3 RS38-B ① ■ †	295 [930]	720 [600]	196 [618]	480 [400]	100 [7]	150 [10]	300 [21]		302 [136,9]	10.7	
	GHS 4 RS32-B ① ● † GHS 4 RS38-B ① ■ †									302 [136,9]		

STANDARD MODELS CONTINUED

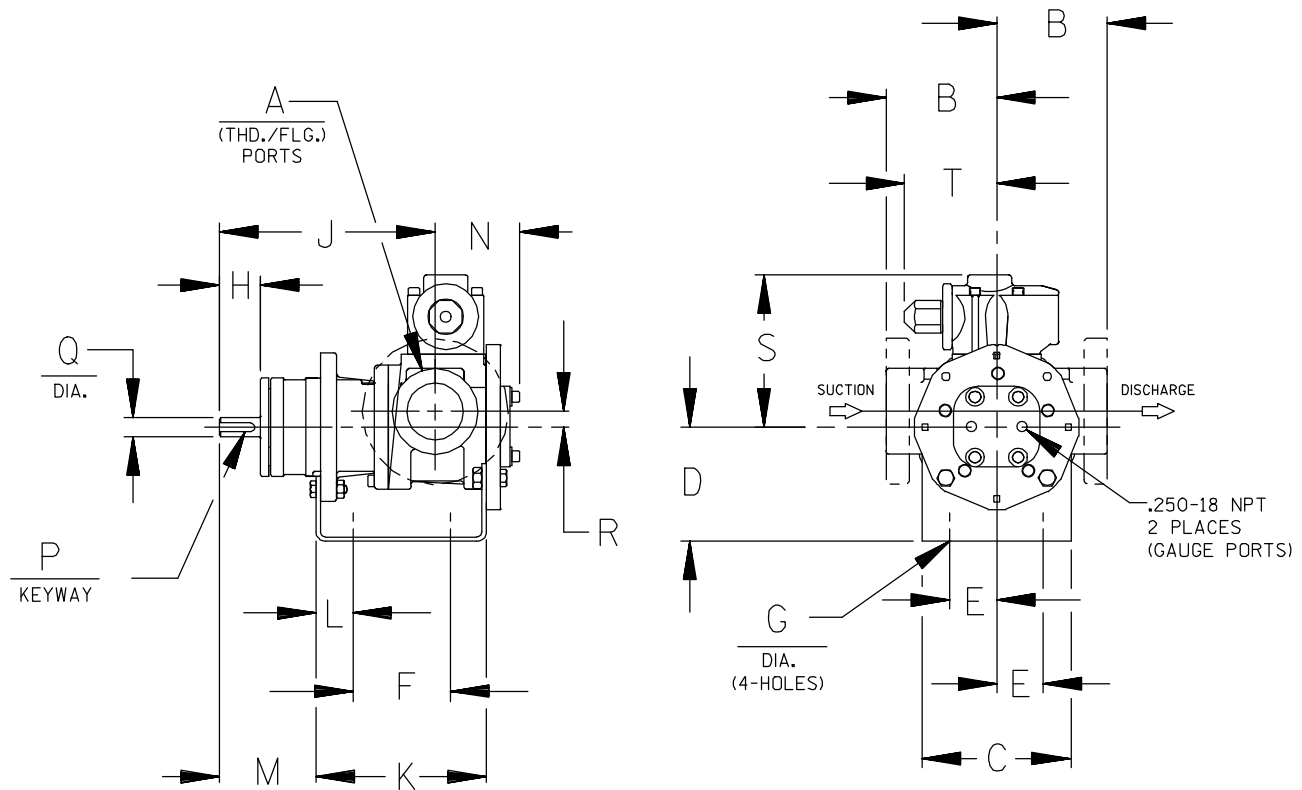
- MECHANICAL SEAL
- LIPSEAL/PACKING
- † PORTS ARE COMPATIBLE WITH 150# ANSI FLANGES. ALL OTHER PORTS ARE TAPPED NPT FOR ANSI PIPE. OPTIONAL [DIN] FLANGES OR TAPPED [BSP] PORTS AVAILABLE FOR EXPORT MARKET.

① PUMP LIMITED TO 200 PSI MAXIMUM PRESSURE.

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<b>APPLICATION RECOMMENDATIONS:</b>		
<b>APPLICATION</b>	<b>OPTIONS REQUIRED (Select One From Each Row)</b>	<b>OPERATING LIMITATIONS</b>
GHS ONLY HIGH TEMPERATURE	25U, 25V, OR 25W 35J – 35M (AS REQ'D) 40M, 40W 61H, OR 65Q 70K	TEMPERATURE: 675° F MAX. PRESSURE: 200 PSI MAX.
ASPHALT	35J–35M (AS REQ'D) 40M, 40W, 40G 41R, 41W 65S 70, 70K, 71K	TEMPERATURE:500° MAX.
JACKETED	40G, 40J, 40K, 40W, 41U, 41W	LIMIT JACKET PRESSURE TO 150 PSIG

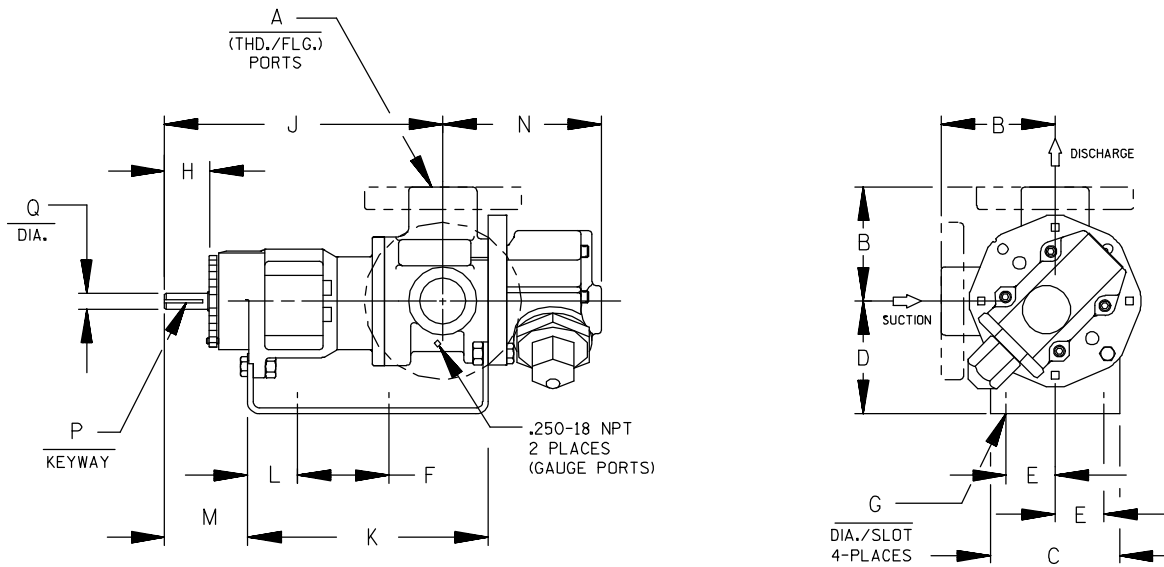
NOTE: PROPER PUMP APPLICATION REQUIRES CONSIDERATION OF ADDITIONAL FACTORS. PLEASE REVIEW APPLICATION GUIDE IN SECTION 500 OR CONSULT THE FACTORY.



CAD FILE NO.: 16458D

MODEL NUMBERS	PUMP DIMENSIONS - INCHES [MILLIMETERS]																	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
GHC D	1"	4.00 † [102]	4.00 [102]	3.50* [89] 4.50 [114] 5.25 [133]	1.62 [41]	3.12 [79]	.41 [10]	1.16 [30]	6.19 [157]	5.04 [128]	.76 [19]	2.62 [66]	2.74 [70]	.12 [3] x .75 [19]	.50 [13]	.62 [16]	5.19 [132]	3.58 [91]
GHC G	1-1/2"	4.00 † [102]	5.88 [149]	3.50* [89] 4.50 [114] 5.25 [133] 6.25 [159]	1.62 [41]	4.00 [102]	.41 [10]	1.62 [41]	8.50 [216]	6.71 [170]	1.06 [27]	3.82 [97]	3.35 [85]	.19 [5] x 1.25 [32]	.75 [19]	.62 [16]	6.00 [152]	3.62 [92]
GHC J	3"	6.00* [152] †  6.31 † [160]	6.88 [175]	4.50 [114] 5.25* [133] 6.25 [159] 7.00 [178] 8.00 [203]	2.88 [73]	4.25 [108]	.44 [11]	2.50 [64]	12.12 [308]	9.75 [248]	1.75 [44]	5.50 [140]	4.66 [118]	.25 [6] x 2.00 [51]	1.00 [25]	1.12 [28]	9.06 [230]	6.75 [171]

\* STANDARD DIMENSION  
 PORTS ARE COMPATIBLE WITH 150# OR 300# ANSISTEEL FLANGES. ALL OTHER PORTS ARE TAPPED NPT  
 † FOR ANSIPIPE. OPTIONAL [DIN FLANGES OR TAPPED [BSP] PORTS AVAILABLE FOR EXPORT MARKET.  
 NPT FOR ANSIPIPE. OPTIONAL (DIN) FLANGES OR TAPPED (BSP) PORTS AVAILABLE FOR EXPORT MARKET.  
 ‡ 90° HOUSING



CAD FILE NO.: 16669F

MODEL NUMBERS	PUMP DIMENSIONS - INCHES [MILLIMETERS]														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
GHS G	1-1/2"	4.00 [102]	4.88 [124]	3.50* [89] 4.50 [114] 5.25 [133] 6.25 [159]	1.62 [41]	8.00 [203]	.41 [10]	1.62 [41]	12.06 [306]	10.72 [272]	1.52 [39]	3.35 [85]	5.70 [145]	.19 [5] x 1.25 [32]	.75 [19]
GHS J	3"	6.00† [152] 6.31 [160]	6.88 [175]	5.25* [133] 6.25 [159] 7.00 [178] 8.00 [203]	2.88 [73]	10.00 [254]	.44 [11]	2.50 [64]	15.68 [398]	14.31 [363]	2.77 [70]	4.48 [114]	8.50 [216]	.25 [6] x 2.00 [51]	1.00 [25]
GHS N	2"	5.25* [133] 5.38 [137]	8.00 [203]	4.50 [114] 5.25* [133] 6.25 [159] 7.00 [178] 8.00 [203]	2.88 [73]	10.00 [254]	.44 [11]	2.58 [66]	16.37 [416]	15.14 [385]	2.69 [68]	4.56 [116]	7.59 [193]	.25 [6] x 2.00 [51]	1.12 [32]
	3"	7.19 [183]											8.72 [221] *		
GHS R	2-1/2"														
	3"	7.19 [183]	10.50 [267]	7.00 [178]	3.75 [95]	13.75 [349]	.52 [13]	2.25 [57]	17.87 [454]	17.36 [441]	1.80 [46]	4.70 [119]	11.31 [287]	.38 [10] x 1.88 [48]	1.44 [37]
	4"														

\* STANDARD DIMENSION

† PORTS ARE COMPATIBLE WITH 150\* OR 300\* ANSISTEEL FLANGES. ALL OTHER PORTS ARE TAPPED NPT FOR ANSIPIPE. OPTIONAL (DIN) FLANGES OR TAPPED (BSP) PORTS AVAILABLE FOR EXPORT MARKET.

† 180° HOUSING

# **GHC/GHS**

**FOR GHC DRIVE OPTIONS**

**AND DIMENSIONS**

**SEE**

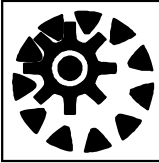
**SECTION 540**

**FOR GHS DRIVE OPTIONS**

**AND DIMENSIONS**

**SEE**

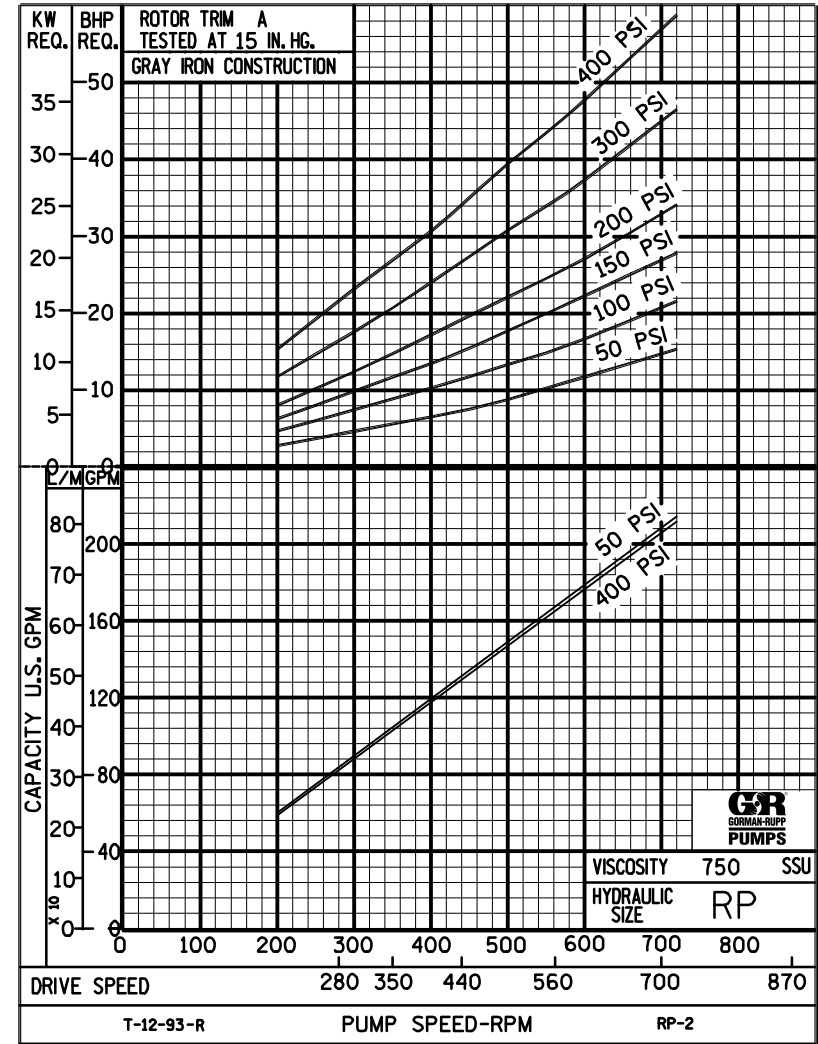
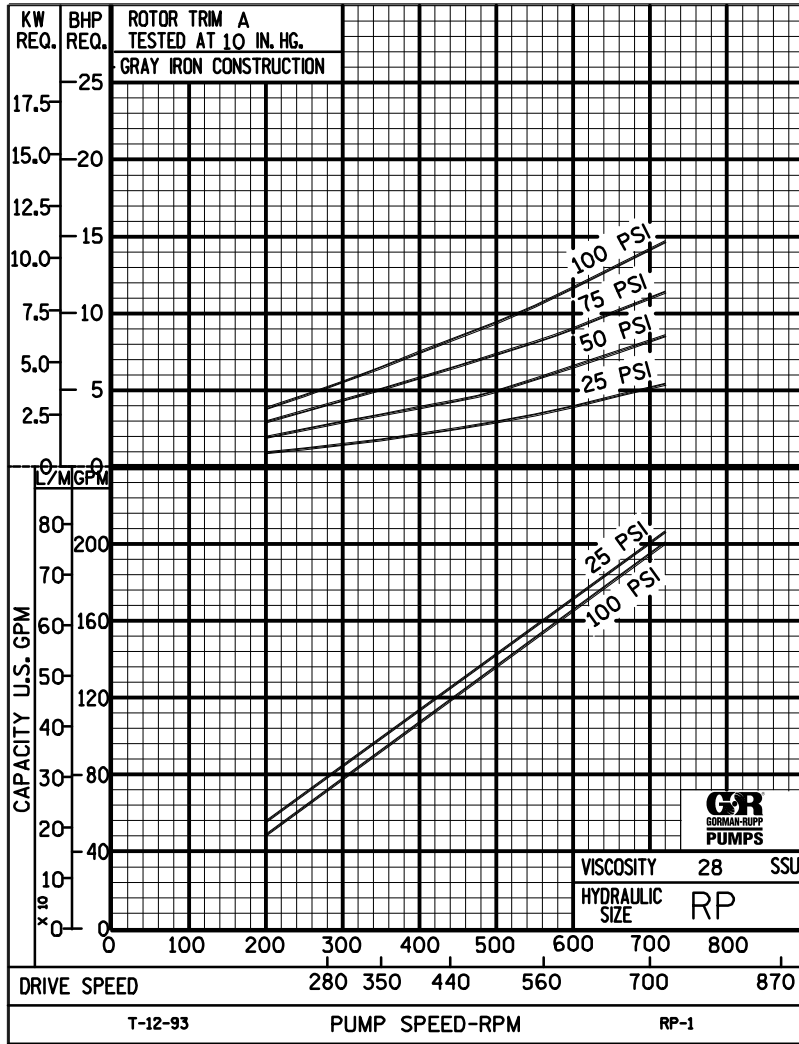
**SECTION 545**



# PERFORMANCE CURVES

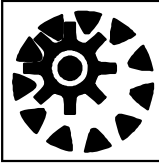
## SPEED VS. CAPACITY/HORSEPOWER

**RP** Hydraulic Size



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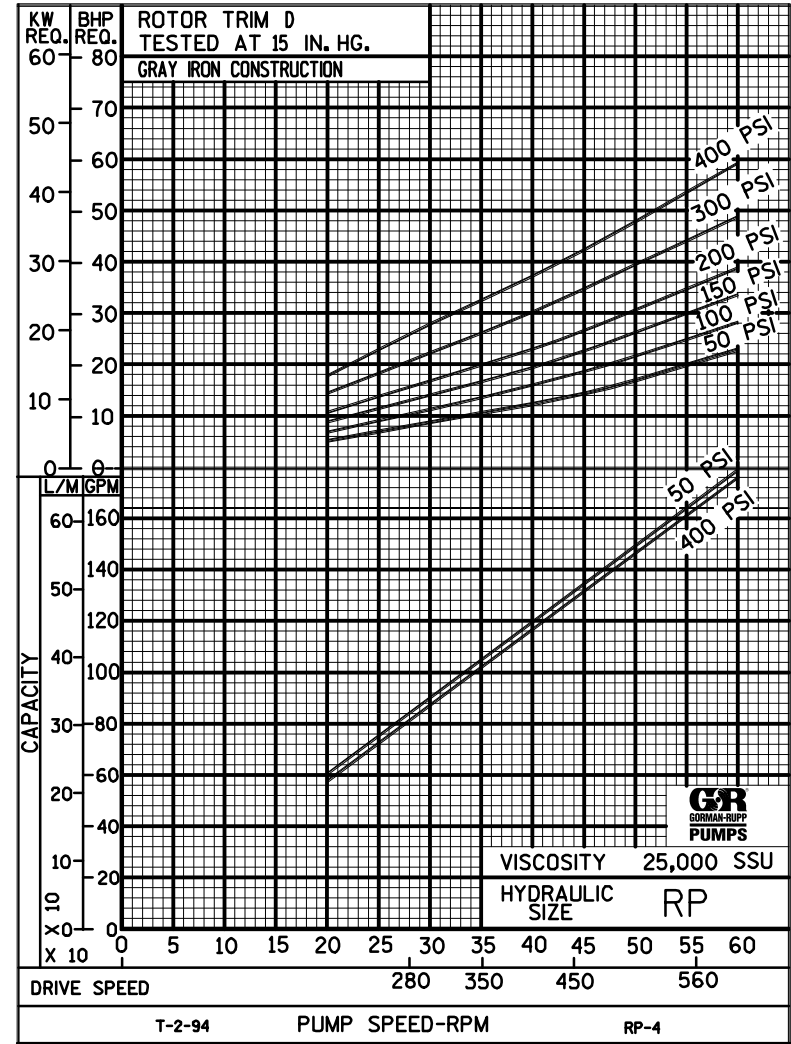
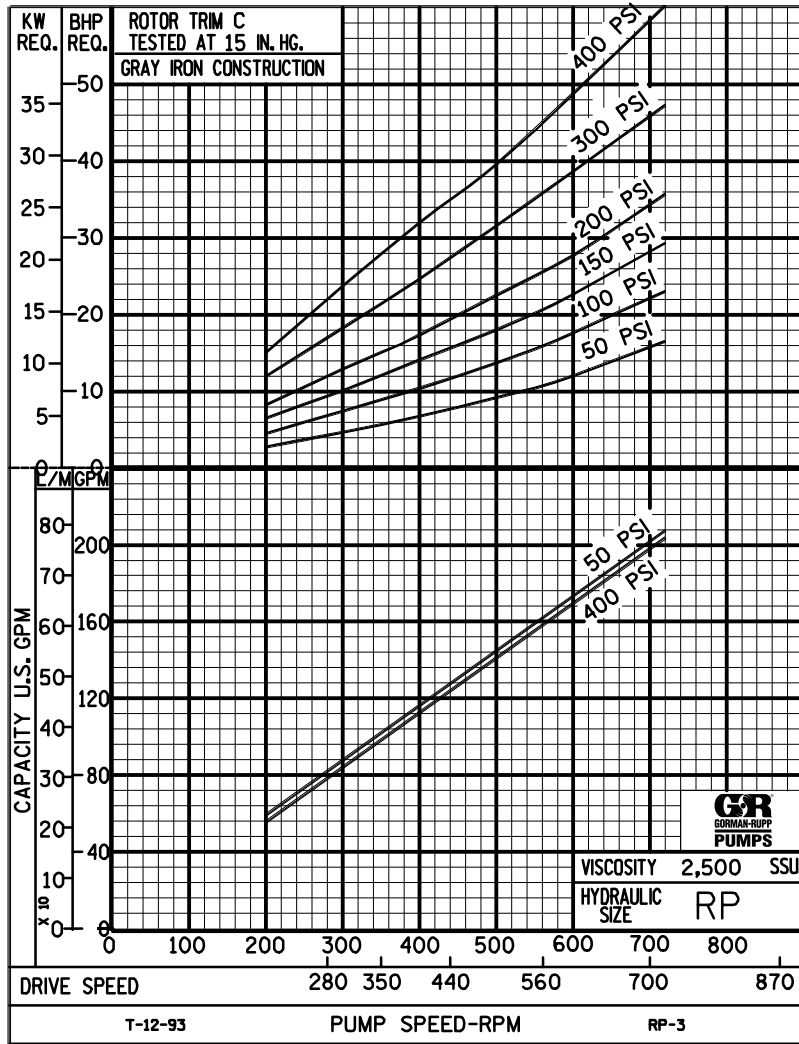




# PERFORMANCE CURVES

## SPEED VS. CAPACITY/HORSEPOWER

**RP** Hydraulic Size



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# RP

## PUMP HYDRAULIC SIZE CHART

SEC. 500

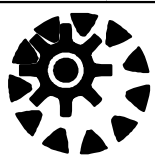
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**215 GPM  
720 RPM**

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

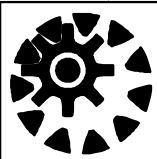
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**190 GPM  
640 RPM**

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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January 2010

**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.

