RP

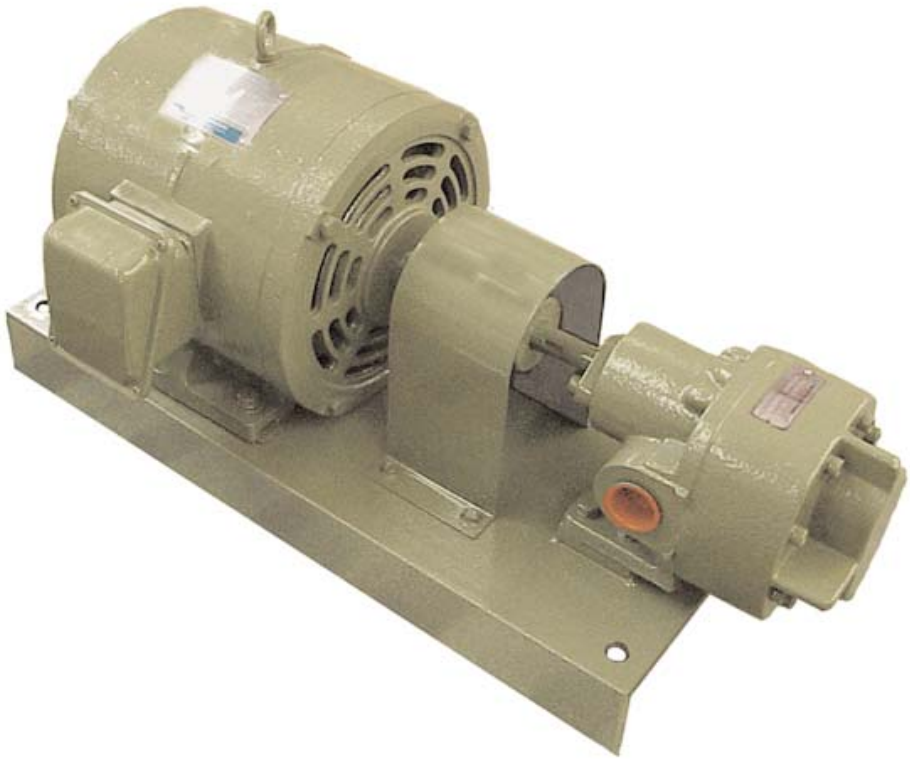
Oil Pump and Motor Sets

Features

- Available with ODP or TEFC motors
- Factory assembled
- Capacities to 3200 gph

Benefits

- Quiet operation
- Long service life



Hauck's RP series pump and motor sets are factory assembled units designed to meet your specific volume, viscosity, and discharge pressure requirements. Each set combines a positive displacement rotary gear pump with a suitable 'T' frame industrial electric motor mounted on a steel base. The motor and pump are matched to ensure that the requirements of the application are met with maximum efficiency.

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Combustion Excellence Since 1888

Hauck Manufacturing Company

RP

Oil Pump and Motor Sets

ADVANTAGES OF THE RP

Factory Assembled

Quiet Operation

Long Service Life

Construction

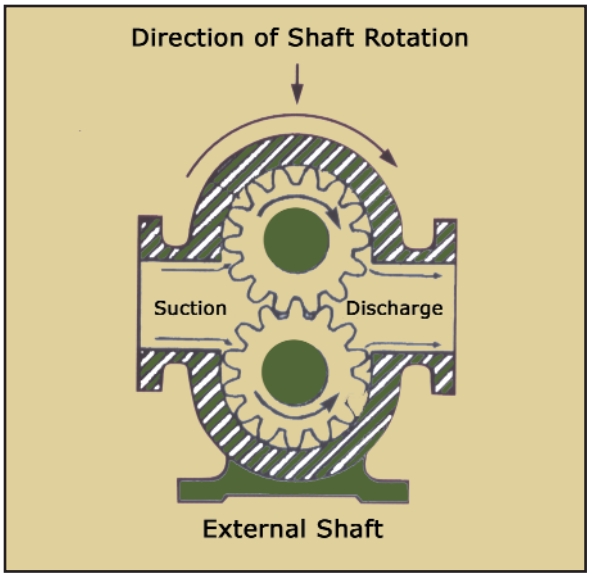
RP pump units consist of a pump, motor, direct coupling, and shaft and coupling guard (as required by OSHA standards) - all preassembled and mounted on a steel base.

The pump's helical herringbone gears are fabricated of high-alloy steel to provide quiet, pulse-free flow and prevent the trapping of liquids. All internal bearings are force-fed lubricated by the liquid passing through the pump. The drive shafts are made from hardened steel and ground to meet high quality control standards.

The electric motors are furnished by leading industrial motor manufacturers who maintain stringent inspection procedures to ensure long service life. The motors are available in two models; open, drip proof (ODP) and totally enclosed, fan cooled (TEFC).

Operation

The specific operational characteristics of each assembly will depend on the pump and motor selected. However, a pressure relief valve must be installed immediately downstream of the pump. This pressure relief valve (bypass valve) should be designed and adjusted to control and maintain the required pump discharge pressure of either 50, 100, or 150 psig.



Schematic representation of the pump showing the oil flow path.

Required Suction Head

A characteristic of each pump, determined by test or computation, is the required N.P.S.H (net positive suction head). It is the maximum amount of suction pressure* the pump can develop without cavitation to pull the oil into the pump. In other words, it is the maximum amount of suction pressure available to lift the oil, if required, and overcome pressure losses in the inlet piping to the pump.

The required N.P.S.H. varies with the pump design and pump size. The values listed in the table below refer to the pump sizes listed in the RP-2 (Capacities) product literature.

* In absolute pressure

Required N.P.S.H

PUMP SIZE	VISCOSITY					
	40 SSU	90 SSU	400 SSU	2000 SSU	3000 SSU	10,000 SSU
1	6.3	6.5	6.8	7.5	7.8	8.8
2	6.5	6.8	7.3	8.0	8.0	9.5
3	7.5	7.8	9.0	10.0	10.3	12.0
4	7.5	7.8	9.0	10.0	10.3	12.0
5	8.5	8.8	9.5	10.8	11.5	15.0
6	8.5	8.8	9.5	10.8	11.5	15.0

RP OIL PUMP AND MOTOR SETS

SELECTION TABLES*

TABLE 1 40 SSU - - VISCOSITY				TABLE 2 90 SSU - - VISCOSITY			
50 PSIG DISCHARGE PRESSURE		100 PSIG DISCHARGE PRESSURE		50 PSIG DISCHARGE PRESSURE		100 PSIG DISCHARGE PRESSURE	
GPH	MODEL NO.	GPH	MODEL NO.	GPH	MODEL NO.	GPH	MODEL NO.
132	RP1-56-½-1200	102	RP1-56-½-1200	168	RP1-56-½-1200	138	RP1-56-½-1200
204	RP1-56-½-1800	168	RP2-143-¾-1200	252	RP1-56-½-1800	222	RP1-56-½-1800
240	RP2-56-½-1200	174	RP1-56-½-1800	354	RP2-56-½-1200	330	RP2-143-¾-1200
384	RP2-56-½-1800	336	RP2-143-1-1800	528	RP2-56-½-1800	504	RP2-143-1-1800
582	RP3-143-¾-1200	450	RP3-182-1½-1200	636	RP3-143-¾-1200	570	RP3-145-1-1200
828	RP4-145-1-1200	756	RP4-184-2-1200	918	RP4-145-1-1200	846	RP4-182-1½-1200
948	RP3-145-1½-1800	840	RP3-145-2-1800	996	RP3-145-1½-1800	930	RP3-145-2-1800
1272	RP5-184-2-1200	1020	RP5-213-3-1200	1416	RP5-184-2-1200	1266	RP3-213-3-1200
1416	RP4-145-1½-1800	1302	RP4-182-3-1800	1512	RP4-145-2-1800	1428	RP4-182-3-1800
1920	RP6-184-2-1200	1680	RP6-213-3-1200	2010	RP6-213-3-1200	1812	RP6-215-5-1200
2100	RP5-182-3-1800	1920	RP5-184-5-1800	2220	RP5-182-3-1800	2088	RP5-184-5-1800
3060	RP6-184-5-1800	2808	RP6-184-5-1800	3192	RP6-184-5-1800	2988	RP6-213-7½-1800

TABLE 3 2000 SSU - - VISCOSITY					
50 PSIG DISCHARGE PRESSURE		100 PSIG DISCHARGE PRESSURE		150 PSIG DISCHARGE PRESSURE	
GPH	MODEL NO.	GPH	MODEL NO.	GPH	MODEL NO.
174	RP1-56-½-1200	162	RP1-56-½-1200	150	RP1-56-½-1200
276	RP1-56-½-1800	258	RP1-56-½-1800	240	RP1-56-¾-1800
360	RP2-56-½-1200	348	RP2-143-¾-1200	336	RP2-145-1-1200
588	RP2-143-1-1800	576	RP2-145-1½-1800	552	RP2-145-1½-1800
678	RP3-145-1-1200	660	RP3-182-1½-1200	648	RP3-184-2-1200
1050	RP4-182-1½-1200	1020	RP4-184-2-1200	960	RP4-213-3-1200
1050	RP3-145-2-1800	1020	RP3-182-3-1800	966	RP3-145-3-1800
1500	RP5-213-3-1200	1422	RP5-215-5-1200	1350	RP5-215-5-1200
1620	RP4-182-3-1800	1572	RP4-184-5-1800	1530	RP4-184-5-1800
2172	RP6-215-5-1200	2052	RP6-215-5-1200	1980	RP6-254-7½-1200
2322	RP5-184-5-1800	2250	RP5-213-7½-1800	2172	RP5-213-7½-1800
3270	RP6-213-7½-1800	3180	RP6-213-7½-1800	3090	RP6-215-10-1800

*All calculations are based on a 60 Hertz motor of 1200 or 1800 RPM. Horsepowers shown reflect recommended motor sizes and not actual horsepower consumed. Detailed pump/motor graphs are available on request.

SELECTION

The proper selection of a pump and motor assembly requires the consideration of many factors. Chief among these are:

1. desired discharge pressure
2. required peak capacity, and
3. the viscosity of the oil to be pumped.

The final factor, the most important from a selection point of view, is often misunderstood or completely overlooked. It is a common misconception that "temperature" can be substituted for viscosity. To see why this is not the case, viscosity will be discussed in some detail.

The viscosity of a fluid is a measure of its internal resistance to flow. Seconds, Saybolt Universal (SSU) is a commonly used measure of viscosity. Using this scale, viscosity is expressed in terms of the number of seconds required for a specific amount of oil to flow through an orifice; hence, the larger the number in seconds (SSU), the higher the viscosity. The higher the viscosity, the more the oil approaches the solid state. The lower the viscosity, the more easily the oil flows. The viscosity of an oil can be altered by heating. Viscosity decreases with increases in temperature. When heavy oils are used, it is necessary to reduce the viscosity of the oil by raising the oil temperature.

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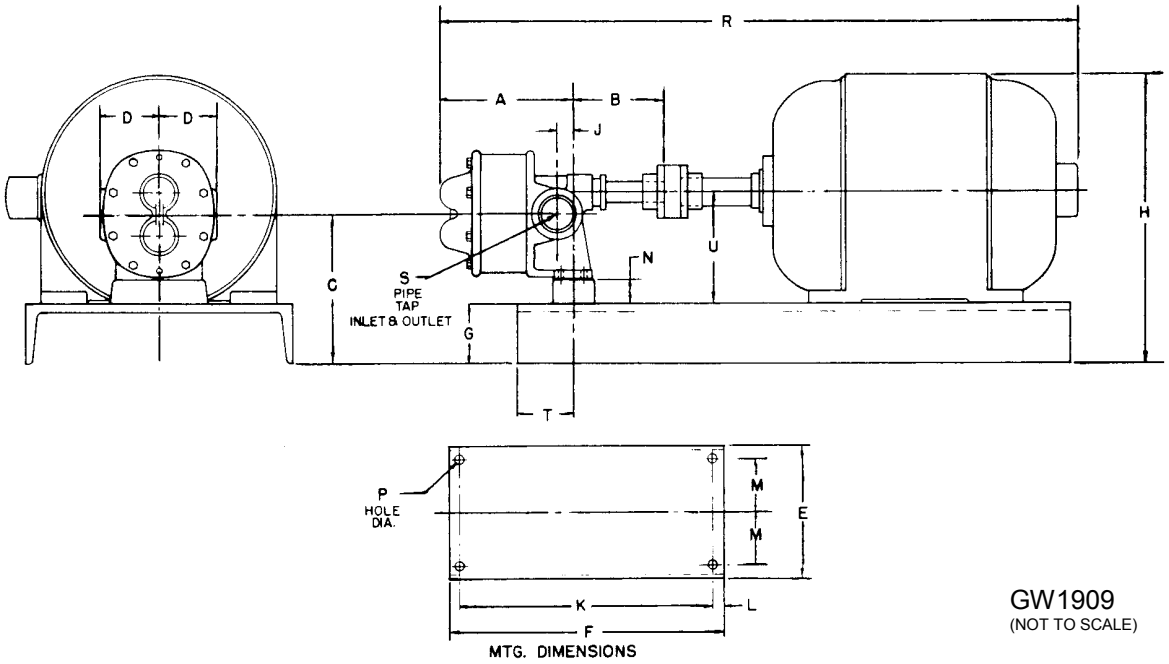
When heating oil, *even of the same grade,* widely varying viscosities are obtained at the same temperature. For example, heating No. 6 oil to 125° will yield a viscosity in the range of 650 to 1250 SSU. This means that two samples of No. 6 oil (in two different deliveries for example) can vary in viscosity, at 125°, by 600 SSU – or more. Obviously, stating the grade of oil and its temperature is not enough to determine the viscosity, and viscosity is critical to the proper selection of a pump assembly. A viscometer or other suitable device should be used to determine the viscosity of the oil at the pump suction opening.

If oil temperature at the pump is expected to exceed 200°F, a high temperature seal is recommended. Please specify this requirement at time of ordering.

The SELECTION TABLES on the previous page offer pump assemblies having a wide range of flow capacities, discharge pressures, and viscosity-handling capabilities. Tables 1-3 present various combinations of these 3 elements and the model number associated with each combination. If the table entries do not cover your particular application requirements, or if additional information is needed, detailed graphs of each pump are available upon request. Consult your local Hauck representative.

RP OIL PUMP AND MOTOR SETS



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MODEL NO.	RP1-56	RP1-143	RP2-56	RP2-143	RP2-145	RP2-182	RP3-143 & 4-143	RP3-145 & 4-145	RP3-182 & 4-182	RP3-184 & 4-184	RP3-213 & 4-213	RP3-215 & 4-215	RP5-182 & 6-182	RP5-184 & 6-184	RP5-213 & 6-213	RP5-215 & 6-215	RP5-254 & 6-254	RP5-256 & 6-256
SIZE PUMP	1-GA.		2-GA.				3 & 4-GA. (SEE NOTE)						5 & 6-GA. (SEE NOTE)					
MOTOR FRAME	K56	143T	56	143T	145T	182T	143T	145T	182T	184T	213T	215T	182T	184T	213T	215T	254T	256T
A	3 7/8	3 7/8	4 11/16	4 11/16	4 11/16	4 11/16	6	6	6	6	6	6	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2
B	3 1/4	3 1/4	3 3/4	3 3/4	3 3/4	3 3/4	4 1/2	→	→	→	→	→	5 1/8	→	→	→	→	→
C	5 5/16	5 5/16	5 7/32	5 7/32	5 7/32	6 19/32	5 1/2	5 1/2	6 1/4	6 1/4	7 3/8	7 3/8	6 3/16	6 3/16	7 3/16	7 3/16	8 11/16	8 11/16
D	1 5/8	1 5/8	2 1/8	→	→	→	2 3/4	→	→	→	→	→	3 1/4	→	→	→	→	→
E	8	8	8	8	8	10	10	10	10	10	12	12	10	10	12	12	15	15
F	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	23	23	23	23	23	26	26	23	23	26	26	31	31
G	2 1/4	→	→	→	→	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	3	3	2 5/8	2 5/8	3	3	3 3/8	3 3/8
H	9 1/8	9 1/8	9 1/8	9 1/8	9 1/8	12 1/16	9 3/4	9 3/4	11 15/16	11 15/16	13 7/8	13 7/8	12 1/16	12 1/16	13 7/8	13 7/8	16 7/16	16 7/16
H *	9 9/16	9 3/8	9 9/16	9 3/8	9 3/8	12 3/8	10	10	12 1/4	12 1/4	14	14	12 3/8	12 3/8	14	14	16 17/32	16 17/32
J	11/16	11/16	1/2	→	→	→	1	→	→	→	→	→	7/8	→	→	→	→	→
K	17 3/4	17 3/4	→	→	→	21 1/4	21 1/4	21 1/4	21 1/4	21 1/4	23 1/2	23 1/2	21 1/4	21 1/4	23 1/2	23 1/2	28 1/2	28 1/2
L	7/8	7/8	→	→	→	7/8	7/8	7/8	7/8	7/8	1 1/4	1 1/4	7/8	7/8	1 1/4	1 1/4	1 1/4	1 1/4
M	3	3	3	3	3	4	4	4	4	4	4 3/4	4 3/4	4	4	4 3/4	4 3/4	6	6
N	1 1/4	1 1/4	5/8	5/8	5/8	1 5/8	0	0	3/4	3/4	1 1/2	1 1/2	0	0	5/8	5/8	1 3/4	1 3/4
P	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	1	1	5/8	5/8	1	1	1	1
R	16 11/16	20 5/16	19 1/8	21 5/8	21 5/8	21 11/16	23 11/16	23 11/16	23 3/4	25 1/8	27	28 1/2	25 7/8	27 1/4	29 1/8	30 5/8	34	35 3/4
R**	18 1/16	20 21/32	19 5/16	21 31/32	21 31/32	23 1/4	24 1/32	24 1/32	25 5/16	26 11/16	29	30 1/2	27 7/16	28 13/16	31 1/8	32 5/8	36 5/16	38 1/16
S	1/2	1/2	3/4	3/4	3/4	3/4	1	→	→	→	→	→	1 1/2	→	→	→	→	→
T	1 7/8	1 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	3 1/4	3 1/4	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8
U	3 5/8	3 5/8	3 5/8	3 5/8	3 5/8	4 5/8	3 7/8	3 7/8	4 5/8	4 5/8	5 3/8	5 3/8	4 3/4	4 3/4	5 3/8	5 3/8	6 1/2	6 1/2

NOTE: 3 GA. DIM. "A & R" LESS 5/8"
5 GA. DIM. "A & R" LESS 3/4"

* TEFC

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