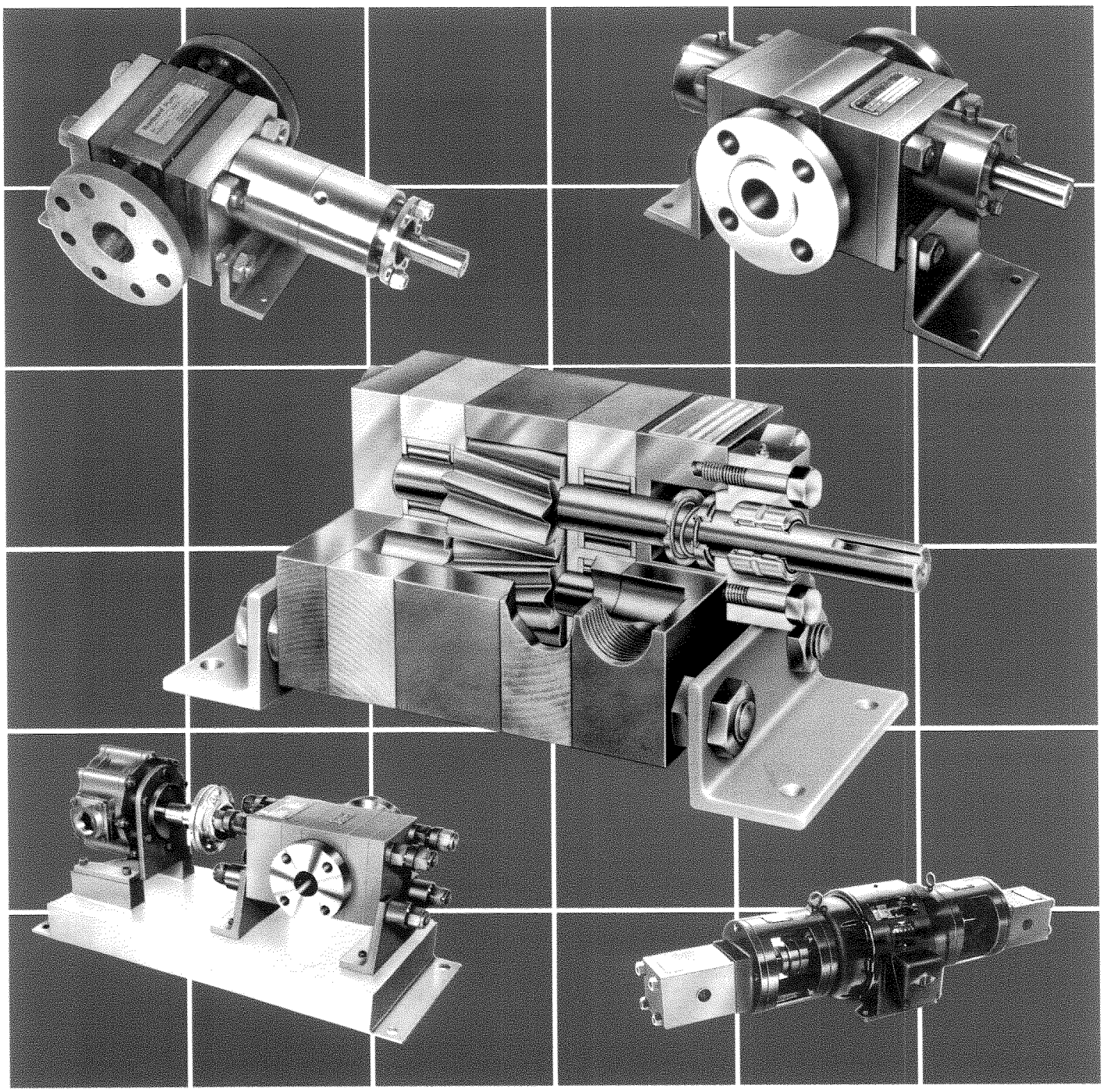
NORTHERN® PUMP

Heavy Duty Gear Pumps/Engineering Data



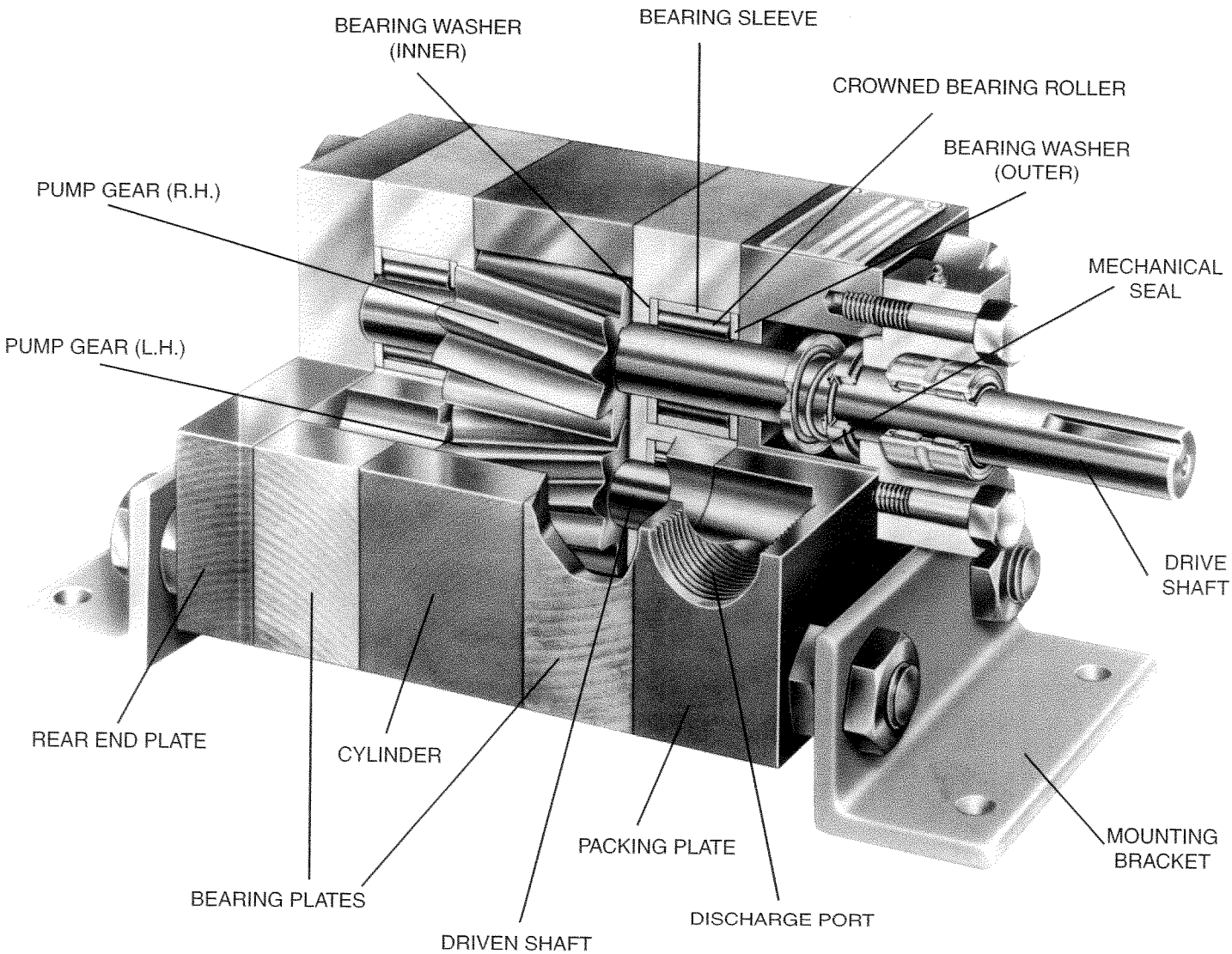
Catalog No. 39
Sept 2006

Heavy duty gear pumps factory-engineered for your application –

VISCOSITY RANGE: 0.5 TO 1,500,000 cP
TEMPERATURE RANGE: - 65° F TO 850° F
INLET CAPACITY: 28" Hg lift to 1200 psig

Northern gear pumps described in this catalog are positive displacement rotary gear pumps. They are designed for nearly any liquid transfer application, particularly those involving extremes of temperature, viscosity, pressure and inlet conditions. The exceptions are liquids containing high concentrations of abrasives, liquids which have poor lubricity such as water, and liquids that are corrosive.

As with any gear pump, the life of a Northern gear pump applied to fluid

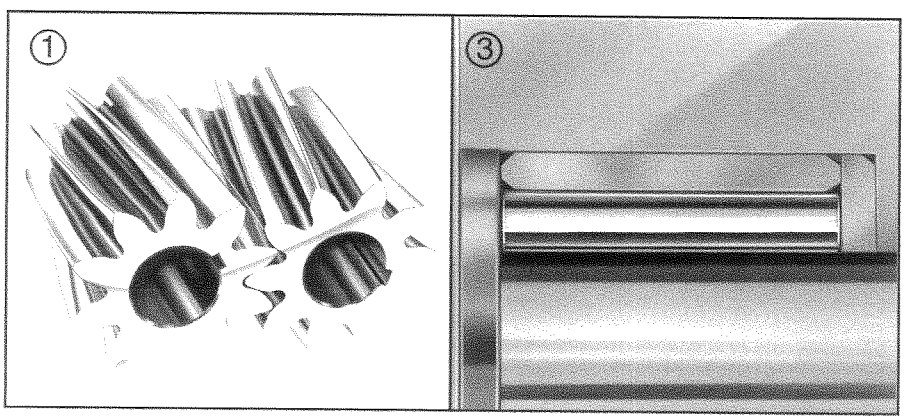


transfer is dependent on the lubricity of the liquid. Indeed, the degree to which a Northern gear pump will tolerate liquids with limited lubricity is often a key factor in its selection over other gear pumps. This tolerance is achieved by careful choice of materials, precision machining, and when required, custom designing to best suit the application. Beyond this, prior to shipment every Northern gear pump is tested under conditions simulated to match the conditions of the intended application. This includes viscosity, speed, discharge pressure and inlet conditions. Then, GPM delivered and horsepower required are verified.

You'll find Northern gear pumps built to meet exacting requirements in nearly every industry, pumping diverse materials such as tar, molten lead, peanut butter, adhesives and hot polymers. When you need a heavy duty gear pump, call Northern for solutions to your pumping problems.

BASIC FEATURES

1. GEARS – Carburized steel or ntirided, ground after heat treating to achieve a precision gear tooth form. Case hardened for resistance to wear when pumping liquids with low lubricity. Helical configuration assures smooth, quiet performance.
2. SHAFTS – Carburized steel or nitrided, hardened and ground. Through-shaft available for hydraulic balancing of high inlet pressures or for driving a second pump.
3. BEARINGS – Large, full complement contour roller-type bearings assure even distribution of bearing load. Optional sleeve bearings are available in carbon graphite, nitrided steel, bronze, and other special materials.
4. MECHANICAL SEALS – Standard pumps offer mechanical seals for inlet pressures from vacuum to 25 psig. Optional mechanical seal configurations are available for inlet pressures to 1200 psig. Packings are available for applications not suited to mechanical seals.
5. PLATES – Cast iron bearing plates, and steel end and packing plates are standard. All plates have mating surfaces precision machined to seal without conventional gaskets. Steel bearing plates with inlays of bronze, iron or other special materials are available.
6. CYLINDER – Cast iron cylinder is standard. When an all-steel housing is required, a steel cylinder with cast iron liner or bronze inlay is available.
7. SUCTION AND DISCHARGE PORTS – Choice of screwed pipe threads or flanged openings (see Dimension Data, pages 23-25).
8. MOUNTING BRACKETS – Angle brackets illustrated at left are standard (see Dimensional Data, pages 23-24). Special brackets for elevation to driver shaft, and flanges for horizontal or vertical mounting are available. Mounting holes may also be tapped directly into pump case to eliminate brackets.
9. MAINTENANCE – Northern gear pumps can usually be serviced in your plant. Modular design lends itself to easy disassembly and reassembly when and if any parts need replacing.



CONTENTS

This catalog contains performance tables with horsepower requirements for Northern gear pumps when handling liquids in three broad ranges of viscosity: 30 to 80 SSU or .000002 to .000016m^2/s (fuel oils); 300 to 800 SSU or .000066 to .000176m^2/s (lubricating liquids); and 5000 SSU or .0011m^2/s (viscous liquids).

From these tables, and the appropriate graphs preceding the performance data, the pump size and driver requirements can be determined for normal applications. However, in many cases the pump requirements are unique. In every case, we recommend submitting the following basic information directly to Northern to assure proper selection.

1. Capacity
2. Inlet pressure or vacuum
3. Discharge pressure
4. Temperature
5. Duty-continuous/intermittent
6. Viscosity
7. Specific gravity
8. Cleanliness of liquid (abrasive content)
9. Identity of liquid
10. Vapor pressure of liquid
11. Lubricating qualities of liquid

Northern engineers will review your application data in detail and confirm your selection of pump size and construction. A recommendation may also be given for custom engineering to some degree if the application deals with an extreme of temperature, pressure, viscosity, or other characteristics not suited to the standard pump configuration.

In designing your pump system, remember that liquid cleanliness is essential to long life in a gear pump. Whenever liquids containing abrasive particles are encountered, suction line strainers or filters are recommended. Pressure drop across the strainer or filter should be kept to a minimum. If it is impossible to rid the liquid of abrasives, it might still be advantageous to use a Northern gear pump if the resulting decrease in pump life can be tolerated. When pumping significantly abrasive liquids, Northern T-pumps utilizing externally lubricated bearings and timing gears are recommended.

When designing the inlet piping for the pump, it is best to keep the pipe as short and direct as possible. Remember that all piping friction losses and pressure drops through strainers, filters, valves and fittings must be added to any static lifts when calculating the inlet pressure condition for the pump. To minimize pressure drop through the inlet pipe, valves and fittings, it is best to keep the liquid velocity below 5 ft./sec. (1.5 m/s).

For a pump installed at sea level, the inlet vacuum at the pump inlet port should not exceed 15 inches (380 mm) of mercury. An allowance must be made for the reduction in barometric pressure when the pump is installed above sea level or if the liquid has a high vapor pressure.

If you have any questions before submitting your application data before for a quotation, please write directly to Northern Pump, 340W. Benson Avenue, Grantsburg, WI 54840 or call (715) 463-5177 or (800) 366-1410 or Fax (715) 763-5174.

When Ordering Drivers:

Motor-pump units featuring heavy steel channel bases with precision machined mounting surfaces, flexible shaft couplings and coupling guards are available as completely assembled packages.

In order to make the proper motor selection, Northern should be advised of the electrical service available (voltage, phase and frequency) and the motor enclosure requirements. Other types of drives such as air motors and steam turbines can be supplied if similar application data is provided.

USEFUL FORMULAS

The following formulas do not consider mechanical and volumetric losses which must be evaluated in determining actual input horsepower and output flow.

$$\text{Hydraulic Horsepower} = \frac{\triangle P \times CIR \times RPM}{396{,}000}$$

$$\text{Hydraulic Horsepower} = \frac{\triangle P \times GPM}{1714}$$

$$\text{Mechanical Horsepower} = \frac{T \times RPM}{63{,}000}$$

$$\text{Centipoise to S.S.U. .....} \quad 2.273 \left[\frac{CP}{SG} + \sqrt{\left(\frac{CP}{SG}\right)^2 + 158.4} \right] = \text{Viscosity in SSU}$$

$$\text{S.S.U. to Centipoise .....} \quad SG \left(.22\ SSU - \frac{180}{SSU} \right) = \text{Viscosity in SSU}$$

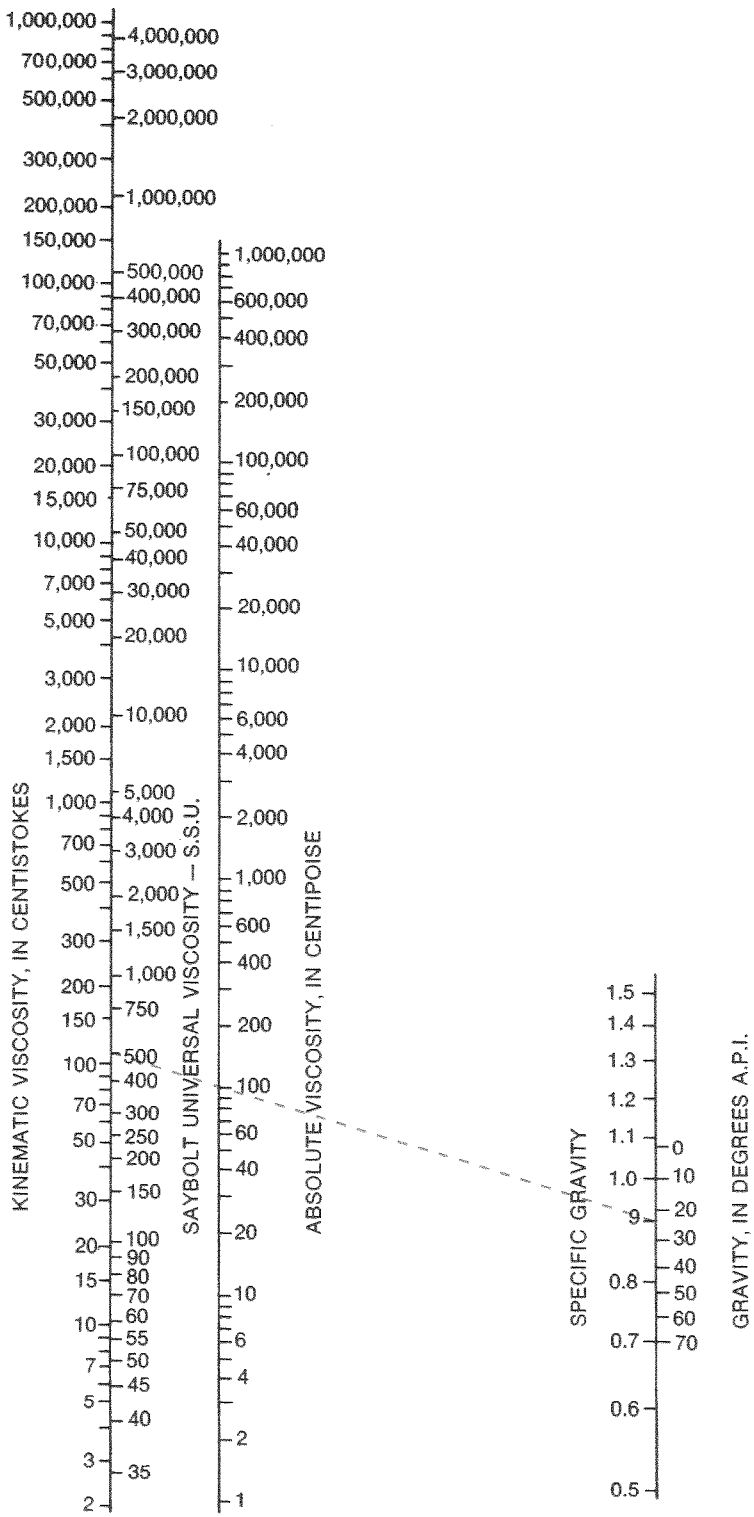
Where
- CP = Viscosity in Centipoise
- SSU = Viscosity in SSU (seconds Saybolt Universal)
- SG = Specific Gravity
- $\triangle P$ = Differential Pressure (pounds/sq. in.)
- CIR = Pump Displacement (cu. in./rev.)
- T = Torque (in. lbs.)

CONVERSION FACTORS

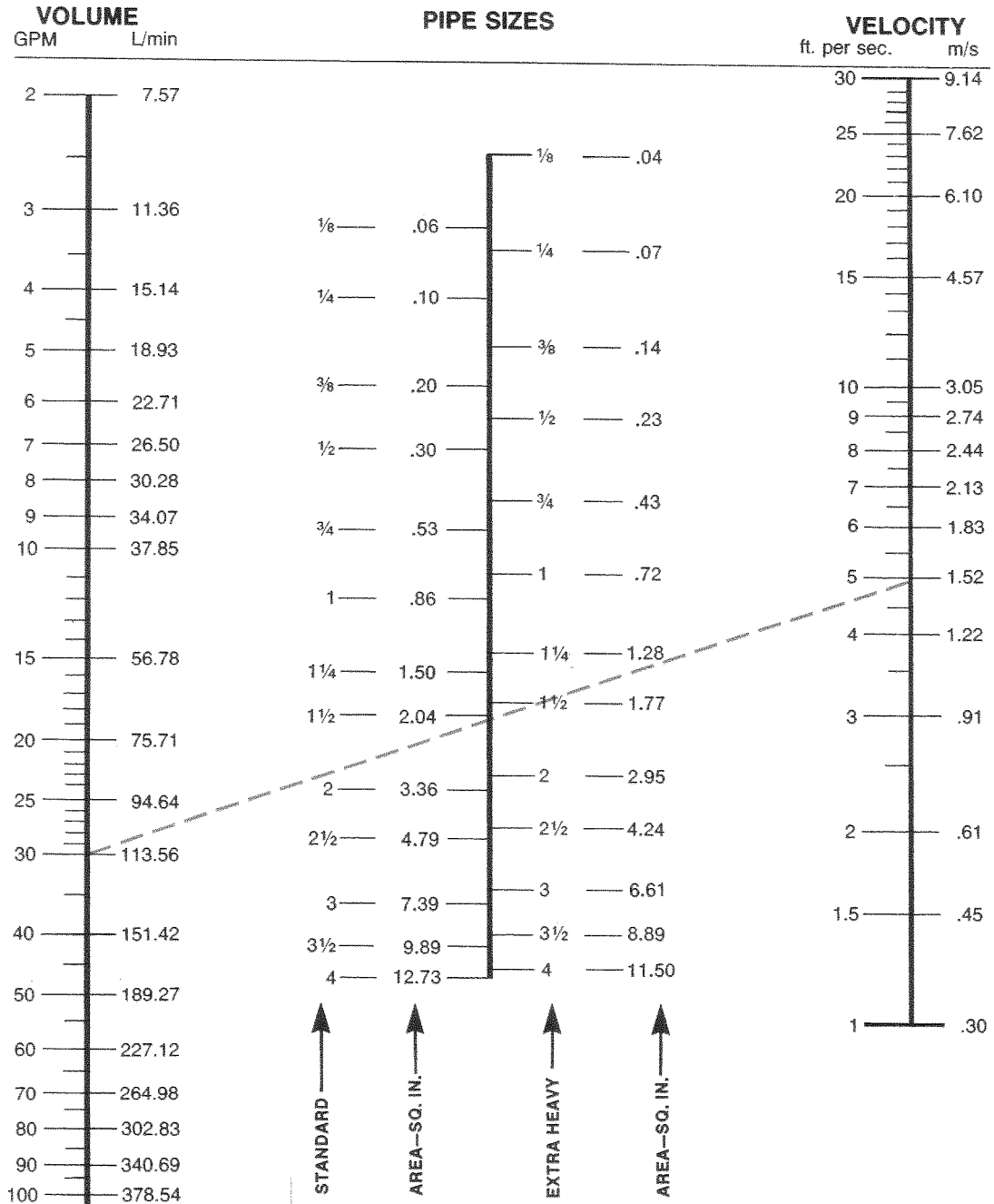
MULTIPLY	BY	TO OBTAIN
Atmospheres	33.93	Feet of Water
Atmospheres	29.92	Inches of Mercury
Atmospheres	1.0332	Kilograms/Sq. Centimeter
Atmospheres	760	Millimeters of Mercury
Atmospheres	14.7	Pounds/Sq. Inch
Barrels (oil)	42.0	U.S. Gallons
Barrels (U.S., Liquid)	31.5	U.S. Gallons
Bars	0.9869	Atmospheres
Bars	$1x10^6$	Dynes/Sq. Centimeter
Bars	750.1	Millimeters of Mercury
Bars	14.5	Pounds/Sq. Inch
B.T.U.	778.2	Foot Pounds
B.T.U./second	1055	Watts
Centimeters	0.3937	Inches
Centipoise	0.001	Pascal Seconds
Centipoise	0.01	Poise
Centistokes	Sp. Gr.	Centipoise
Centistokes	0.01	Stokes
Centistokes	0.000001	Sq. Meters/Second
Cubic Centimeters	0.06102	Cubic Inches
Cubic Centimeters	1.0	Milliliters
Cubic Centimeters	0.000264	U.S. Gallons
Cubic Feet	1728	Cubic Inches
Cubic Feet	28.32	Liters
Cubic Feet	7.481	U.S. Gallons
Cubic Feet of Water	62.4	Pounds of Water
Cubic Feet/Minute	0.1247	U.S. Gallons/Minute
Cubic Inches	16.39	Cubic Centimeters
Cubic Inches	$5.787x10^{-4}$	Cubic Feet
Cubic Inches	$1.639x10^{-5}$	Cubic Meters
Cubic Inches	0.01639	Liters
Cubic Inches	0.004329	U.S. Gallons
Cubic Meters	35.31	Cubic Feet
Cubic Meters	264	U.S. Gallons
Degrees (Celsius)	$(C^\circ x \frac{9}{5}) + 32$	Degrees (Fahrenheit)
Degrees (Fahrenheit)	$(F^\circ - 32)\frac{5}{9}$	Degrees (Celsius)
Dynes	$2.248x10^{-6}$	Pounds
Dynes/Sq. Centimeter	$1.45x10^{-5}$	Pounds/Sq. Inch
Feet of Water	0.8819	Inches of Mercury
Feet of Water	304.5	Kilograms/Sq. Meter
Feet of Water	0.4331	Pounds/Sq. Inch
Foot Pounds	$1.356x10^7$	Dyne Centimeters
Foot Pounds	$1.383x10^4$	Gram Centimeters
Gallons (Imperial)	277.4	Cubic Inches
Gallons (Imperial)	1.2	Gallons (U.S.)
Gallons (U.S.)	231	Cubic Inches
Gallons (U.S.)	0.003785	Cubic Meters
Gallons (U.S.)	0.833	Gallons (Imperial)
Gallons (U.S.)	3.785	Liters
Gallons (U.S.)	128	Ounces (Fluid)
Gallons (U.S.) of Water	8.337	Pounds of Water
Horsepower	42.4	B.T.U./Minute

MULTIPLY	BY	TO OBTAIN
Horsepower	33000	Foot Pounds/Minute
Horsepower	550	Foot Pounds/Second
Horsepower	1.014	Horsepower (Metric)
Horsepower	10.7	Kilograms Calories/Minute
Horsepower (Metric)	75	Kilogram Meters/Second
Horsepower	745.7	Watts
Inches	2.54	Centimeters
Inches of Mercury	0.03342	Atmospheres
Inches of Mercury	1.134	Feet of Water
Inches of Mercury	345.3	Kilograms/Sq. Meter
Inches of Mercury	25.4	Millimeters of Mercury
Inches of Mercury	0.4912	Pounds/Sq. Inch
Kilograms	2.205	Pounds
Kilograms/Sq. Centimeter	14.22	Pounds/Sq. Inch
Kilowatts	1.341	Horsepower
Liters	1000	Cubic Centimeters
Liters	0.03531	Cubic Feet
Liters	61.02	Cubic Inches
Liters	0.001	Cubic Meters
Liters	0.220	Gallons (Imperial)
Liters	0.2642	Gallons (U.S.)
Liters	33.81	Ounces (Fluid)
Meters	3.281	Feet
Meters	39.37	Inches
Meters	10^6	Microns
Meters/Second	3.281	Feet/Second
Microns	$3.937x10^{-5}$	Inches
Microns	0.001	Millimeters
Milliliters	0.06102	Cubic Inches
Millimeters of Mercury	1333.22	Dynes/Sq. Centimeter
Millipascal seconds	1.00	Centipoise
Ounces (Fluid)	1.805	Cubic Inches
Ounces (Fluid)	0.02957	Liters
Pounds	453.6	Grams
Pounds/Foot	1.488	Kilograms/Meter
Pounds/Inch	178.6	Grams/Centimeter
Pounds/Sq. Foot	4.882	Kilograms/Sq. Meter
Pounds/Sq. Inch	2.309	Feet of Water
Pounds/Sq. Inch	2.036	Inches of Mercury
Pounds/Sq. Inch	0.07031	Kilograms/Sq. Centimeter
Pounds/Sq. Inch	6.895	Kilo Pascals
Pounds/Cubic Foot	16.02	Kilograms/Cubic Meter
Pounds/Cubic Inch	27680	Kilograms/Cubic Meter
Radians	57.3	Degrees
Radians/Second	0.1592	Revolutions/Second
Square Centimeters	0.155	Square Inches
Square Feet	929	Square Centimeters
Square Inches	6.452	Square Centimeters
Slugs	14.594	Kilograms
Slugs	32.174	Pounds
Tons (Metric)	2205	Pounds
Watts	0.0569	B.T.U./Minute

VISCOSITY CONVERSION



VELOCITY OF OIL IN PIPES



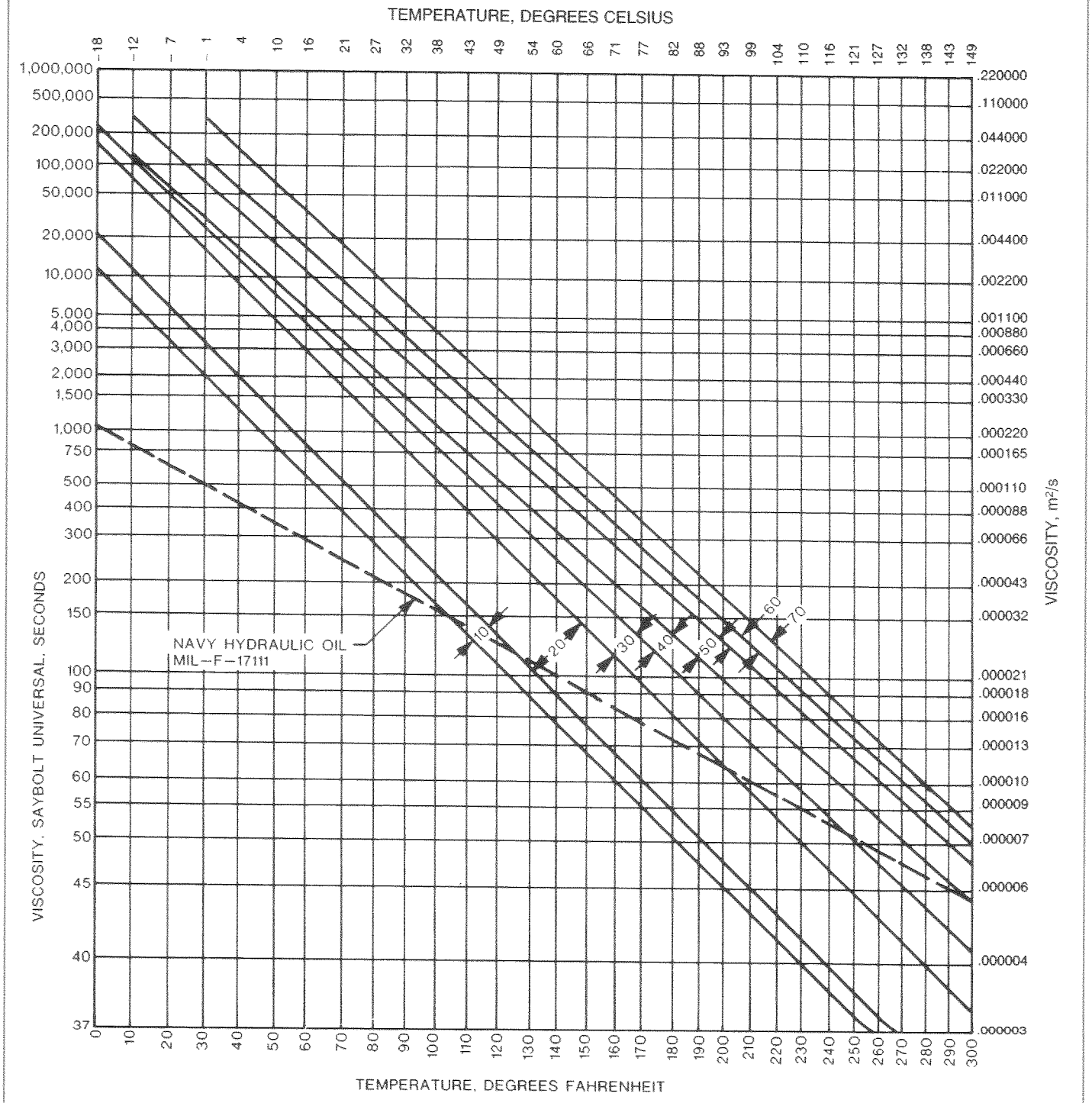
	Per Second Max.
Suction piping	5 ft. or 1.5 m
Discharge piping	
Continuous duty	10 ft. or 3.0 m
Intermittent duty	20 ft. or 6.1 m

Data based on 1,000 SSU (.00022 m^2/sec.) maximum viscosity. Suction and discharge piping may be larger than pipe openings in the pump.

EXAMPLE: Connect 30 GPM on volume scale with 5 ft. per second on velocity scale and read $1^1/_2$ standard pipe on the pipe size scale.

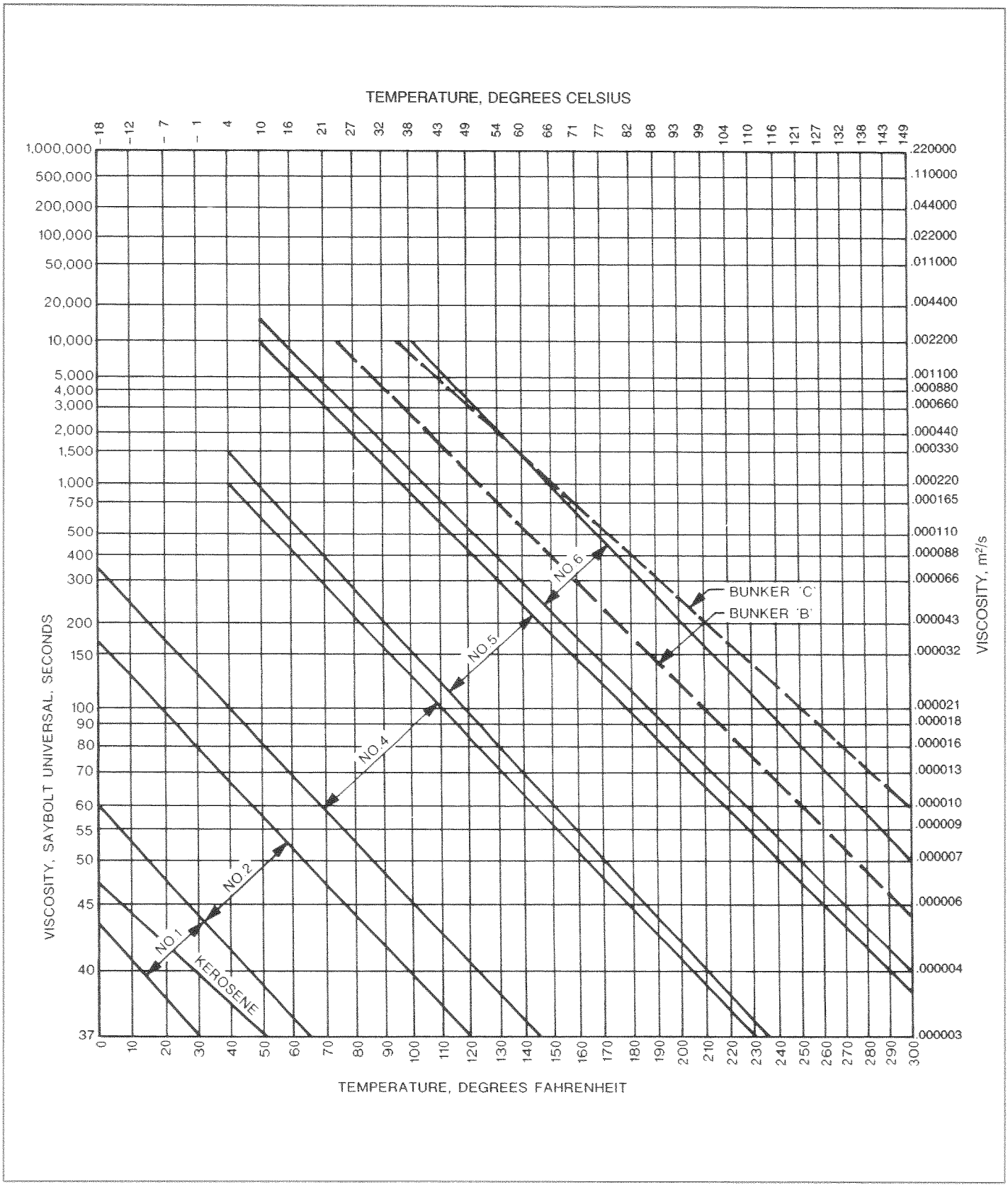
VISCOSITY/TEMPERATURE LIMITS

S.A.E. LUBRICATING OILS, NAVY HYDRAULIC OIL



VISCOSITY/TEMPERATURE LIMITS

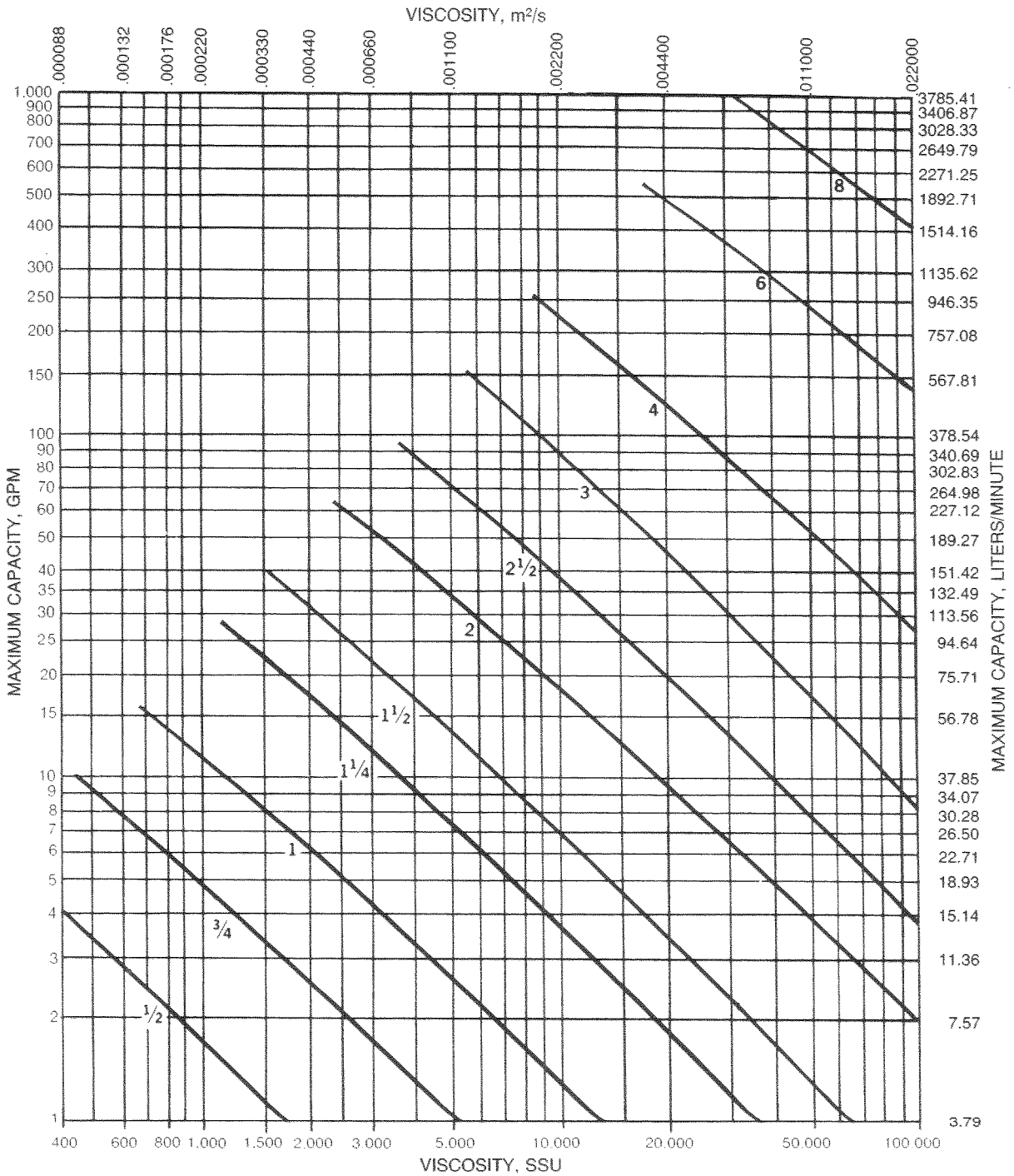
FUEL OILS



SIZE OF SUCTION PIPING

FOR VISCOUS LIQUIDS

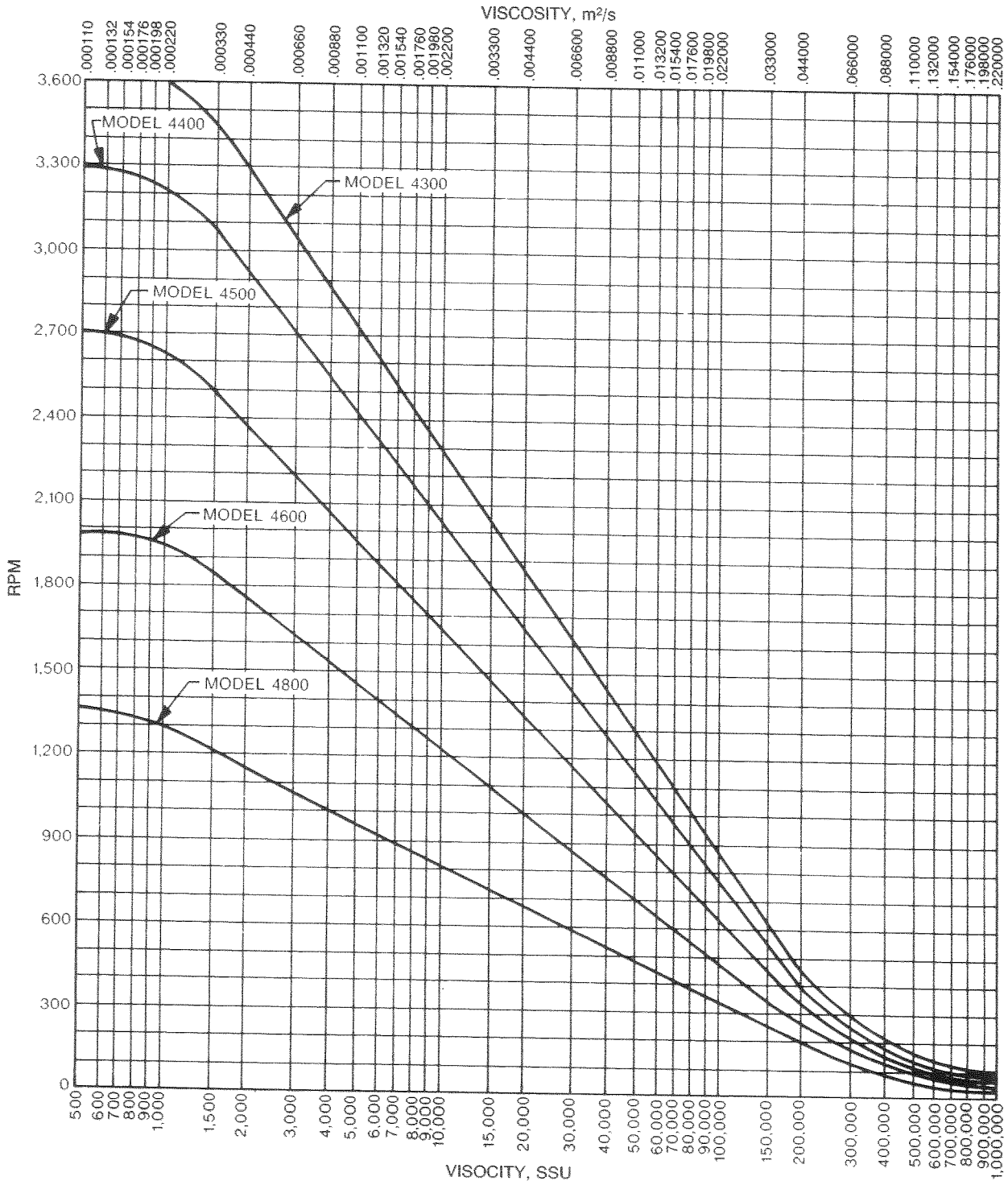
This graph indicates that pipe size, which, at the selected flow rate, will result in a 7.5 PSI (52kPa) friction loss (equivalent to 15" or 381 mm Hg suction lift) in 10 feet (3.05m) of smooth, straight pipe plus two standard elbows and one gate valve. It is assumed that the liquid is non-volatile and Newtonian, has a specific gravity of 1.0, and that there is no static suction lift. For a more detailed treatment of pipe friction loss, please refer to ENGINEERING DATA BOOK published by the Hydraulic Institute.



RPM VS. VISCOSITY

NORTHERN 4000 SERIES PUMPS

This graph indicates the maximum recommended operating speed, RPM, for a given viscosity of liquid. It is assumed that the suction vacuum measured at the pump inlet does not exceed 15 inches of mercury. The pump may be run at speeds slower than indicated. However, for operation at speeds above those shown, please consult the factory for recommendations.



NOTE: Vacuum at pump inlet not to exceed 15" Hg (381 mm). See page 10 to determine suction pipe size.

PERFORMANCE DATA - U.S. Customary

FOR STANDARD NORTHERN GEAR PUMPS

BASED ON FUEL OILS (30 to 80 SSU)

MODEL 4300

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI BHP	100 PSI GPM	100 PSI BHP	200 PSI GPM	200 PSI BHP	300 PSI GPM	300 PSI BHP	400 PSI GPM	400 PSI BHP	500 PSI GPM	500 PSI BHP	600 PSI GPM	600 PSI BHP
4300-01	.0211	.0487	1150	.24	.11	.09	.13										
			1750	.36	.17	.21	.20	.06	.22								
			3450	.71	.33	.56	.38	.41	.42	.26	.46	.11	.51				
4300-02	.0338	.0781	1150	.38	.11	.22	.14	.06	.16								
			1750	.58	.17	.42	.21	.26	.25	.10	.28						
			3450	1.15	.33	.99	.40	.83	.47	.67	.54	.51	.61	.35	.68	.19	.74
4300-03	.0507	.117	1150	.57	.12	.41	.16	.25	.19	.09	.23						
			1750	.88	.18	.72	.24	.56	.29	.40	.34	.24	.39	.08	.44		
			3450	1.72	.36	1.56	.47	1.40	.57	1.24	.67	1.08	.77	.92	.88		
4300-04	.0676	.156	1150	.76	.13	.60	.18	.44	.23	.28	.27	.12	.32				
			1750	1.17	.20	1.01	.27	.85	.34	.69	.41	.53	.48				
			3450	2.30	.39	2.14	.53	1.98	.67	1.82	.80	1.66	.94				
4300-06	.1014	.234	1150	1.15	.15	.65	.22	.15	.29								
			1750	1.75	.23	1.25	.44	.75	.55	.25	.65						
			3450	3.45	.45	2.95	.66	2.45	.86	1.95	1.07						
4300-08	.135	.312	1150	1.53	.16	1.03	.26	.53	.35								
			1750	2.32	.24	1.82	.38	1.32	.52								
			3450	4.57	.47	4.07	.75	3.57	1.02								
4300-10	.169	.390	1150	1.92	.18	1.42	.30	.92	.41								
			1750	2.91	.27	2.41	.45	1.91	.62								
4300-12	.203	.469	1150	2.30	.20	1.70	.34										
			1750	3.50	.30	2.90	.51										

MODEL 4400

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI BHP	100 PSI GPM	100 PSI BHP	200 PSI GPM	200 PSI BHP	300 PSI GPM	300 PSI BHP	400 PSI GPM	400 PSI BHP	500 PSI GPM	500 PSI BHP	600 PSI GPM	600 PSI BHP
4400-05	.164	.379	1150	1.86	.21	1.26	.32	.66	.43	.06	.54						
			1750	2.82	.32	2.22	.49	1.62	.66	1.02	.83	.42	.99				
			3450†	5.55	.63	4.95	.97	4.35	1.30	3.75	1.63	3.15	1.96	2.55	2.29	1.95	2.62
4400-07	.247	.571	1150	2.80	.24	2.20	.41	1.60	.58	1.00	.74	.40	.91				
			1750	4.25	.37	3.65	.63	3.05	.88	2.45	1.13	1.85	1.38	1.25	1.64		
			3450†	8.35	.73	7.75	1.23	7.15	1.73	6.55	2.23	5.95	2.72				
4400-10	.329	.760	1150	3.73	.25	3.03	.48	2.33	.70	1.63	.92						
			1750	5.66	.38	4.96	.72	4.26	1.06	3.66	1.39						
4400-15	.493	1.139	1150	5.58	.28	4.68	.62	3.78	.95								
			1750	8.50	.43	7.60	.94	6.70	1.44								

MODEL 4500

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI BHP	100 PSI GPM	100 PSI BHP	200 PSI GPM	200 PSI BHP	300 PSI GPM	300 PSI BHP	400 PSI GPM	400 PSI BHP	500 PSI GPM	500 PSI BHP	600 PSI GPM	600 PSI BHP
4500-05	.257	.594	1150	2.91	.20	2.11	.38	1.31	.55	.51	.72						
			1750	4.43	.31	3.63	.58	2.83	.84	2.03	1.10	1.23	1.36	.43	1.63		
			3450†	8.74	.61	7.94	1.13	7.14	1.65	6.34	2.17	5.54	2.68	4.74	3.20	3.94	3.72
4500-07	.386	.892	1150	4.37	.25	3.37	.51	2.37	.77	1.37	1.03	.37	1.29				
			1750	6.65	.37	5.65	.77	4.65	1.16	3.65	1.56	2.65	1.95	1.65	2.35		
			3450†	13.1	.73	12.1	1.51	11.1	2.29	10.1	3.07	9.1	3.84	8.1	4.62		
4500-10	.515	1.190	850	4.31	.22	3.31	.48	2.31	.74	1.31	.99	.31	1.25				
			1150	5.83	.30	4.83	.65	3.83	1.00	2.83	1.34	1.83	1.69				
			1750	8.87	.45	7.87	.98	6.87	1.51	5.87	2.03	4.87	2.56				
4500-15	.772	1.783	850	6.48	.25	4.48	.64	2.48	1.02	.48	1.40						
			1150	8.73	.34	6.73	.86	4.73	1.38	2.73	1.90						
			1750	13.3	.52	11.3	1.31	9.3	2.10	7.3	2.89						

† Restricted inlet conditions-consult factory

All ratings based on a vacuum of 15" Hg at pump inlet

PERFORMANCE DATA - SI Metric

FOR STANDARD NORTHERN GEAR PUMPS

BASED ON FUEL OILS (.000002 to .000016m²/s)

MODEL 4300

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa		690 kPa		1,380 kPa		2,070 kPa		2,760 kPa		3,450 kPa		4,140 kPa	
			L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW
4300-01	.80	1150	.90	.08	.34	.10										
		1750	1.36	.13	.79	.15	.22	.16								
		3450	2.68	.25	2.11	.28	1.55	.31	.98	.34	.41	.38				
4300-02	1.28	1150	1.43	.08	.83	.10	.22	.12								
		1750	2.19	.13	1.59	.16	.98	.19	.37	.21						
		3450	4.35	.25	3.74	.30	3.14	.35	2.53	.40	1.93	.45	1.32	.51	.71	.55
4300-03	1.92	1150	2.15	.09	1.55	.12	.94	.14	.34	.17						
		1750	3.33	.13	2.72	.18	2.11	.22	1.51	.25	.90	.29	.30	.33		
		3450	6.51	.27	5.90	.35	5.29	.43	4.69	.50	4.08	.57	3.48	.66		
4300-04	2.56	1150	2.87	.10	2.27	.13	1.66	.17	1.05	.20	.45	.24				
		1750	4.42	.15	3.82	.20	3.21	.25	2.61	.31	2.00	.36				
		3450	8.70	.29	8.10	.40	7.49	.50	6.88	.60	6.28	.70				
4300-06	3.83	1150	4.35	.11	2.46	.16	.56	.22								
		1750	6.62	.17	4.73	.33	2.83	.41	.94	.48						
		3450	13.05	.34	11.16	.49	9.27	.64	7.38	.80						
4300-08	5.11	1150	5.79	.12	3.89	.19	2.00	.26								
		1750	8.78	.18	6.88	.28	4.99	.39								
		3450	17.29	.35	15.40	.56	13.51	.76								
4300-10	6.39	1150	7.26	.13	5.37	.22	3.48	.31								
		1750	11.01	.20	9.12	.34	7.23	.46								
4300-12	7.69	1150	8.70	.15	6.43	.25										
		1750	13.24	.22	10.97	.38										

MODEL 4400

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa		690 kPa		1,380 kPa		2,070 kPa		2,760 kPa		3,450 kPa		4,140 kPa	
			L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW
4400-05	6.21	1150	7.40	.16	4.76	.24	2.49	.32	.22	.40						
		1750	10.6	.24	8.40	.37	6.13	.49	3.86	.62	1.58	.74				
		3450†	21.0	.47	18.7	.72	16.4	.97	14.1	1.22	11.9	1.46	9.65	1.71	7.38	1.95
4400-07	9.36	1150	10.5	.18	8.32	.31	6.05	.43	3.78	.55	1.51	.68				
		1750	16.0	.28	13.8	.47	11.5	.66	9.27	.84	7.00	1.03	4.73	1.22		
		3450†	31.6	.54	29.3	.92	27.0	1.29	24.7	1.66	22.5	2.03				
4400-10	12.45	1150	14.1	.19	11.4	.36	8.82	.52	6.17	.69						
		1750	21.4	.28	18.7	.54	16.1	.79	13.8	1.04						
4400-15	18.66	1150	21.1	.21	17.7	.46	14.3	.71								
		1750	32.1	.32	28.7	.70	25.3	1.07								

MODEL 4500

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa		690 kPa		1,380 kPa		2,070 kPa		2,760 kPa		3,450 kPa		4,140 kPa	
			L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW
4500-05	9.73	1150	11.0	.15	7.98	.28	4.95	.41	1.93	.54						
		1750	16.7	.23	13.7	.43	10.7	.63	7.68	.82	4.65	1.01	1.62	1.22		
		3450†	33.0	.45	30.0	.84	27.0	1.23	23.9	1.62	20.9	2.00	17.9	2.38	14.9	2.77
4500-07	14.62	1150	16.5	.19	12.7	.38	8.97	.57	5.18	.77	1.40	.96				
		1750	25.1	.28	21.3	.57	17.6	.87	13.8	1.16	10.0	1.45	6.24	1.75		
		3450†	49.5	.54	45.8	1.13	42.0	1.71	38.2	2.29	34.4	2.86	30.6	3.45		
4500-10	19.50	850	16.3	.16	12.5	.36	8.74	.55	4.95	.74	1.17	.93				
		1150	22.0	.22	18.2	.48	14.4	.75	10.7	1.00	6.92	1.26				
		1750	33.5	.34	29.7	.73	26.0	1.13	22.2	1.51	18.4	1.91				
4500-15	29.22	850	24.5	.19	16.9	.48	9.38	.76	1.81	1.04						
		1150	33.0	.25	25.4	.64	17.9	1.03	10.3	1.42						
		1750	50.3	.39	42.7	.98	35.2	1.57	27.6	2.16						

† Restricted inlet conditions-consult factory

All ratings based on a vacuum of 381mm Hg at pump inlet

PERFORMANCE DATA - U.S. Customary

FOR STANDARD NORTHERN GEAR PUMPS

BASED ON FUEL OILS (30 to 80 SSU)

MODEL 4600

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI BHP	100 PSI GPM	100 PSI BHP	200 PSI GPM	200 PSI BHP	300 PSI GPM	300 PSI BHP	400 PSI GPM	400 PSI BHP	500 PSI GPM	500 PSI BHP	600 PSI GPM	600 PSI BHP
4600-05	.589	1.36	1150	6.67	.74	6.07	1.14	5.47	1.54	4.87	1.93	4.27	2.33	3.67	2.72	3.07	3.12
			1750	10.2	1.10	9.6	1.71	9.00	2.31	8.40	2.91	7.80	3.51	7.20	4.11	6.60	4.71
			3450†	20.0	2.17	19.4	3.36	18.8	4.55	18.2	5.73	17.6	6.92	17.0	8.10	16.4	9.29
4600-07	.884	2.04	1150	10.0	.81	8.70	1.41	7.40	2.00	6.10	2.59	4.80	3.19	3.50	3.78		
			1750	15.2	1.20	13.9	2.11	12.6	3.01	11.3	3.91	10.0	4.81	8.70	5.72		
			3450†	30.0	2.37	28.7	4.15	27.4	5.93	26.1	7.71	24.8	9.49				
4600-10	1.18	2.73	850	9.88	.65	8.08	1.24	6.28	1.83	4.48	2.41	2.68	3.00				
			1150	13.4	.88	11.6	1.68	9.80	2.47	8.00	3.26	6.20	4.05				
			1750	20.3	1.30	18.5	2.51	16.7	3.71	14.9	4.92	13.1	6.12				
4600-15	1.77	4.09	850	14.8	.70	11.3	1.58	7.80	2.46	4.30	3.34						
			1150	20.0	.95	16.5	2.14	13.0	3.33	9.50	4.52						
			1750	30.5	1.50	27.0	3.31	23.5	5.12	20.0	6.93						
4600-20	2.36	5.45	850	19.8	.90	16.3	2.08	12.8	3.24								
			1150	26.7	1.22	23.2	2.81	19.7	4.39								
			1750†	40.7	1.80	37.2	4.21	33.7	6.62								
4600-25	2.95	6.81	850	24.7	1.00	21.2	2.47	17.7	3.93								
			1150	33.4	1.35	29.9	3.33	26.4	5.31								
			1750	50.8	2.10	47.3	5.12	43.8	8.13								
4600-30	3.54	8.18	850	29.7	1.10	26.2	2.86										
			1150	40.0	1.50	36.5	3.88										
			1750	61.0	2.30	57.5	5.92										
4600-40	4.72	10.90	850	39.5	1.40	32.0	3.75										
			1150	53.5	1.90	46.0	5.07										
			1750	81.4	2.90	73.9	7.72										

MODEL 4800

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI BHP	100 PSI GPM	100 PSI BHP	200 PSI GPM	200 PSI BHP	300 PSI GPM	300 PSI BHP	400 PSI GPM	400 PSI BHP	500 PSI GPM	500 PSI BHP
4800-10	2.09	4.83	850	17.5	1.4	14.5	2.44	11.5	3.48	8.50	4.51	5.50	5.55	2.50	6.59
			1150	23.7	1.8	20.7	3.21	17.7	4.61	14.7	6.01	11.7	7.41	8.70	8.82
			1750†	36.0	2.9	33.0	5.04	30.0	7.17	27.0	9.31	24.0	11.44	21.0	13.57
4800-15	3.14	7.25	850	26.3	1.6	22.8	3.16	19.3	4.72	15.8	6.28				
			1150	35.5	2.1	32.0	4.21	28.5	6.32	25.0	8.43				
			1750†	54.0	3.2	50.5	6.41	47.0	9.62	43.5	12.9				
4800-20	4.18	9.66	850	35.0	1.7	31.5	3.78	28.0	5.85						
			1150	47.3	2.3	43.8	5.11	40.3	7.91						
			1750†	72.0	3.5	68.5	7.77	65.0	12.1						
4800-25	5.23	12.08	850	43.8	1.9	40.3	4.50	36.8	7.09						
			1150	59.2	2.5	55.7	6.01	52.2	9.52						
			1750†	90.0	3.8	86.5	9.14	83.0	14.5						
4800-30	6.27	14.48	850	52.5	2.0	48.5	5.11	44.5	8.22						
			1150	71.0	2.7	67.0	6.91	63.0	11.2						
			1750†	108.0	4.2	104.0	10.7	100.0	17.1						
4800-40	8.36	19.31	850	70.0	2.3	66.0	6.45								
			1150	94.6	3.2	90.6	8.81								
			1750†	144.0	4.9	140.0	13.5								
4800-50	10.45	24.14	850	88.5	2.8	84.5	7.99								
			1150	118.3	3.8	114.3	10.9								
			1750†	180.0	5.8	176.0	16.5								
4800-60	12.54	28.97	850	105.0	3.2	95.0	9.42								
			1150	142.0	4.3	132.0	12.8								
			1750†	216.0	6.5	206.0	19.4								

† Restricted inlet conditions-consult factory

All ratings based on a vacuum of 15" Hg at pump inlet

PERFORMANCE DATA - SI Metric

FOR STANDARD NORTHERN GEAR PUMPS
BASED ON FUEL OILS (.000002 to .000016m²/s)

MODEL 4600

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa L/min	0 kPa kW	690 kPa L/min	690 kPa kW	1,380 kPa L/min	1,380 kPa kW	2,070 kPa L/min	2,070 kPa kW	2,760 kPa L/min	2,760 kPa kW	3,450 kPa L/min	3,450 kPa kW	4,140 kPa L/min	4,140 kPa kW
4600-05	22.29	1150	25.2	.55	22.9	.85	20.7	1.15	18.4	1.44	16.1	1.74	13.8	2.03	11.6	2.33
		1750	38.6	.82	36.3	1.28	34.0	1.72	31.7	2.17	29.5	2.62	27.2	3.06	24.9	3.51
		3450†	75.7	1.62	73.4	2.51	71.1	3.39	68.8	4.27	66.6	5.16	64.3	6.04	62.0	6.93
4600-07	33.43	1150	37.8	.60	32.9	1.05	28.0	1.49	23.0	1.93	18.1	2.38	13.2	2.82		
		1750	57.5	.89	52.6	1.57	47.6	2.24	42.7	2.91	37.8	3.59	32.9	4.26		
		3450†	113.5	1.77	108.6	3.09	103.7	4.42	98.7	5.75	93.8	7.08				
4600-10	44.74	850	37.3	.48	30.5	.92	23.7	1.36	16.9	1.79	10.1	2.24				
		1150	50.7	.66	43.9	1.25	37.0	1.84	30.2	2.43	23.4	3.02				
		1750	76.8	.97	70.0	1.87	63.2	2.77	56.4	3.67	49.5	4.56				
4600-15	67.02	850	56.0	.52	42.7	1.18	29.5	1.83	16.2	2.49						
		1150	75.7	.71	62.4	1.60	49.2	2.48	35.9	3.37						
		1750	115.4	1.12	102.2	2.47	88.9	3.82	75.7	5.17						
4600-20	89.31	850	74.9	.67	61.7	1.55	48.4	2.43								
		1150	101.0	.91	87.8	2.10	74.5	3.29								
		1750†	154.0	1.34	140.8	3.14	127.5	4.94								
4600-25	111.60	850	93.4	.75	80.2	1.84	67.0	2.93								
		1150	126.4	1.01	113.1	2.48	99.9	3.95								
		1750	192.2	1.57	179.0	3.82	165.8	6.07								
4600-30	134.05	850	112.4	.82	99.1	2.13										
		1150	151.4	1.12	138.1	2.89										
		1750	230.9	1.72	217.6	4.41										
4600-40	178.62	850	149.5	1.04	121.1	2.80										
		1150	202.5	1.42	174.1	3.78										
		1750	308.1	2.16	279.7	5.38										

MODEL 4800

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa L/min	0 kPa kW	690 kPa L/min	690 kPa kW	1,380 kPa L/min	1,380 kPa kW	2,070 kPa L/min	2,070 kPa kW	2,760 kPa L/min	2,760 kPa kW	3,450 kPa L/min	3,450 kPa kW
4800-10	79.15	850	66.2	1.04	54.8	1.82	43.5	2.60	32.1	3.36	20.8	4.14	9.46	4.91
		1150	89.7	1.34	78.3	2.39	67.0	3.44	55.6	4.48	44.2	5.53	32.9	6.58
		1750†	136.2	2.16	124.9	3.76	113.5	5.35	102.2	6.94	90.8	8.53	79.4	10.12
4800-15	118.81	850	99.5	1.19	86.3	2.36	73.0	3.52	59.8	4.68				
		1150	134.3	1.57	121.1	3.14	107.8	4.71	94.6	6.29				
		1750†	204.4	2.39	191.1	4.78	177.9	7.17	164.6	9.62				
4800-20	158.30	850	132.4	1.27	119.2	2.82	105.9	4.36						
		1150	179.0	1.72	165.8	3.81	152.5	5.90						
		1750†	272.5	2.61	259.3	5.79	246.0	9.02						
4800-25	197.96	850	165.8	1.42	152.5	3.36	139.3	5.29						
		1150	224.0	1.86	210.8	4.48	197.5	7.10						
		1750†	340.6	2.83	327.4	6.82	314.1	10.81						
4800-30	237.29	850	198.7	1.49	183.5	3.81	168.4	6.13						
		1150	268.7	2.01	253.6	5.15	238.4	8.35						
		1750†	408.8	3.13	393.6	7.98	378.5	12.75						
4800-40	316.43	850	264.9	1.72	249.8	4.81								
		1150	358.0	2.39	342.9	6.57								
		1750†	545.0	3.65	529.9	10.07								
4800-50	395.58	850	335.0	2.09	319.8	5.96								
		1150	447.8	2.83	432.6	8.13								
		1750†	681.3	4.33	666.2	12.30								
4800-60	474.73	850	397.4	2.39	359.6	7.02								
		1150	537.5	3.21	499.6	9.45								
		1750†	817.6	4.85	779.7	14.47								

† Restricted inlet conditions-consult factory
All ratings based on a vacuum of 381mm Hg at pump inlet

PERFORMANCE DATA - U.S. Customary

FOR STANDARD NORTHERN GEAR PUMPS
BASED ON FUEL OILS (30 to 80 SSU)

MODEL 4900

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI BHP	100 PSI GPM	100 PSI BHP	200 PSI GPM	200 PSI BHP	300 PSI GPM	300 PSI BHP	400 PSI GPM	400 PSI BHP
4900-10	3.85	8.89	850	32.7	1.1	25.5	2.8	18.3	4.7	11.2	6.6	4.0	8.5
			1150	44.2	1.6	37.0	3.8	29.9	6.4	22.7	9.0	15.5	11.5
4900-20	7.70	17.78	850	65.4	1.1	57.0	4.7	48.7	8.5	40.4	12.3		
			1150	88.4	1.6	80.1	6.4	71.7	11.5	63.4	16.7		
4900-35	13.48	31.12	850	114.3	1.1	104.3	7.6	94.2	14.2				
			1150	154.7	1.6	144.6	10.2	134.5	19.3				
4900-50	19.25	44.45	850	163.3	1.1	148.6	10.4						
			1150	221.0	1.6	206.2	14.1						

All ratings based on a vacuum of 15" Hg at pump inlet

PERFORMANCE DATA - U.S. Customary

FOR STANDARD NORTHERN GEAR PUMPS
BASED ON LUBRICATING LIQUIDS (300 to 800 SSU)

MODEL 4300

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI HP	100 PSI GPM	100 PSI HP	200 PSI GPM	200 PSI HP	400 PSI GPM	400 PSI HP	600 PSI GPM	600 PSI HP	800 PSI GPM	800 PSI HP	1000 PSI GPM	1000 PSI HP	1200 PSI GPM	1200 PSI HP	1500 PSI GPM	1500 PSI HP	2000 PSI GPM	2000 PSI HP	APPROX. HP ADDED FOR 5000 SSU*
4300-01	.0211	.0487	1150	.24	.11	.23	.13	.23	.14	.21	.17	.20	.20	.19	.23	.17	.26	.16	.29	.14	.33			.1
			1750	.36	.17	.35	.20	.35	.22	.33	.26	.32	.31	.31	.35	.29	.40	.28	.44	.26	.51			.1
			3450	.71	.33	.70	.38	.70	.42	.68	.51	.67	.60	.66	.69	.64	.78	.63	.87	.61	1.00	.58	1.23	.2
4300-02	.0338	.0781	1150	.38	.11	.37	.14	.36	.16	.34	.21	.33	.26	.31	.31	.29	.36	.27	.41	.24	.48			.1
			1750	.58	.17	.57	.21	.56	.25	.54	.32	.52	.39	.50	.46	.48	.53	.47	.61	.44	.72			.1
			3450	1.15	.33	1.14	.40	1.13	.48	1.11	.62	1.09	.76	1.08	.90	1.06	1.05	1.04	1.19	1.01	1.41	.97	1.77	.2
4300-03	.0507	.117	1150	.57	.12	.56	.16	.55	.20	.52	.27	.50	.36	.48	.41	.45	.48	.43	.54	.40	.65			.1
			1750	.88	.18	.87	.25	.86	.29	.83	.40	.81	.52	.79	.62	.76	.73	.74	.83	.70	1.02			.1
			3450	1.72	.36	1.71	.48	1.70	.58	1.67	.80	1.65	1.01	1.63	1.24	1.61	1.44	1.58	1.64	1.55	1.98			.2
4300-04	.0676	.156	1150	.76	.13	.75	.18	.73	.23	.71	.33	.68	.43	.65	.52	.63	.61	.60	.72					.1
			1750	1.17	.20	1.16	.30	1.14	.35	1.12	.50	1.09	.65	1.06	.78	1.03	.95	1.01	1.07					.1
			3450	2.30	.39	2.29	.54	2.27	.69	2.24	.99	2.22	1.29	2.19	1.59	2.16	1.87	2.13	2.10					.3
4300-06	.1014	.234	1150	1.15	.15	1.11	.22	1.07	.30	1.00	.44	.92	.58	.85	.72									.1
			1750	1.75	.23	1.71	.33	1.67	.45	1.60	.68	1.52	.88	1.45	1.10									.1
			3450	3.45	.45	3.41	.66	3.37	.89	3.30	1.30	3.22	1.73	3.15	2.16									.3
4300-08	.135	.312	1150	1.53	.16	1.48	.26	1.44	.36	1.34	.54	1.25	.73											.1
			1750	2.32	.24	2.27	.39	2.23	.54	2.13	.84	2.04	1.11											.1
			3450	4.57	.47	4.52	.76	4.48	1.04	4.39	1.61	4.30	2.18											.3
4300-10	.169	.390	1150	1.92	.18	1.86	.29	1.81	.43	1.70	.65	1.59	.89											.1
			1750	2.91	.27	2.85	.47	2.80	.68	2.69	1.03	2.58	1.35											.2
4300-12	.203	.469	1150	2.30	.20	2.24	.35	2.17	.50	2.05	.80	1.99	.93	} 500 PSI										.1
			1750	3.50	.30	3.44	.57	3.37	.75	3.25	1.22	3.19	1.39											.2

All ratings based on a vacuum of 15" Hg at pump inlet

* First determine HP requirement based on 300-800 SSU, then add figure in this column to estimate actual HP required for 5,000 SSU fluid

PERFORMANCE DATA - SI Metric

FOR STANDARD NORTHERN GEAR PUMPS
BASED ON FUEL OILS (.000002 to .000016m²/s)

MODEL 4900

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa L/min	0 kPa kW	690 kPa L/min	690 kPa kW	1,380 kPa L/min	1,380 kPa kW	2,070 kPa L/min	2,070 kPa kW	2,760 kPa L/min	2,760 kPa kW
4900-10	145.7	850	123.8	.82	96.5	2.1	69.3	3.5	42.4	4.9	15.1	6.3
		1150	167.3	1.2	140.1	2.8	113.2	4.8	85.9	6.7	58.7	8.6
4900-20	291.4	850	247.6	.82	215.8	3.5	184.3	6.3	152.9	9.2		
		1150	334.6	1.2	303.2	4.8	271.4	8.6	240.0	12.5		
4900-35	510.0	850	432.7	.82	394.8	5.7	356.6	10.6				
		1150	585.6	1.2	547.4	7.6	509.1	14.4				
4900-50	728.4	850	618.2	.82	562.5	7.8						
		1150	836.6	1.2	780.6	10.5						

All ratings based on a vacuum of 381mm Hg at pump inlet

PERFORMANCE DATA - SI Metric

FOR STANDARD NORTHERN GEAR PUMPS
BASED ON LUBRICATING LIQUIDS (.000066 to .000176m²/s)

MODEL 4300

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa L/min	0 kPa kW	690 kPa L/min	690 kPa kW	1,380 kPa L/min	1,380 kPa kW	2,760 kPa L/min	2,760 kPa kW	4,140 kPa L/min	4,140 kPa kW	5,520 kPa L/min	5,520 kPa kW	6,890 kPa L/min	6,890 kPa kW	8,270 kPa L/min	8,270 kPa kW	10,340 kPa L/min	10,340 kPa kW	13,790 kPa L/min	13,790 kPa kW	APPROX. kW ADDED FOR .0011M²/S*
4300-01	.80	1150	.91	.08	.87	.10	.87	.10	.79	.13	.76	.15	.72	.17	.64	.19	.61	.22	.53	.25			.08
		1750	1.36	.13	1.32	.15	1.32	.16	1.25	.19	1.21	.23	1.17	.26	1.10	.30	1.06	.33	.98	.38			.08
		3450	2.69	.25	2.65	.28	2.65	.31	2.57	.38	2.54	.45	2.50	.52	2.42	.58	2.38	.65	2.31	.75	2.20	.92	.15
4300-02	1.28	1150	1.44	.08	1.40	.10	1.36	.12	1.29	.16	1.25	.20	1.17	.23	1.10	.27	1.02	.31	.91	.36			.08
		1750	2.20	.13	2.16	.16	2.12	.19	2.04	.24	1.97	.29	1.89	.34	1.82	.40	1.78	.46	1.67	.54			.08
		3450	4.35	.25	4.32	.30	4.28	.36	4.20	.46	4.13	.57	4.09	.67	4.01	.78	3.94	.89	3.82	1.05	3.67	1.32	.15
4300-03	1.92	1150	2.16	.09	2.12	.12	2.08	.15	1.97	.20	1.89	.27	1.82	.31	1.70	.36	1.63	.40	1.51	.49			.08
		1750	3.33	.13	3.29	.19	3.26	.22	3.14	.30	3.07	.39	2.99	.46	2.88	.54	2.80	.62	2.65	.76			.08
		3450	6.51	.27	6.47	.36	6.44	.43	6.32	.60	6.25	.75	6.17	.93	6.09	1.07	5.98	1.22	5.87	1.48			.15
4300-04	2.56	1150	2.88	.10	2.84	.13	2.76	.17	2.69	.25	2.57	.32	2.46	.39	2.38	.46	2.27	.54					.08
		1750	4.43	.15	4.39	.22	4.32	.26	4.24	.37	4.13	.49	4.01	.58	3.90	.71	3.82	.80					.08
		3450	8.71	.30	8.67	.40	8.59	.52	8.48	.74	8.40	.96	8.29	1.19	8.18	1.39	8.06	1.57					.22
4300-06	3.83	1150	4.35	.11	4.20	.16	4.05	.22	3.79	.33	3.48	.43	3.22	.54									.08
		1750	6.62	.17	6.47	.25	6.32	.34	6.06	.51	5.75	.66	5.49	.82									.08
		3450	13.06	.34	12.91	.49	12.76	.66	12.49	.97	12.19	1.29	11.92	1.61									.22
4300-08	5.11	1150	5.79	.12	5.60	.19	5.45	.27	5.07	.40	4.73	.54											.08
		1750	8.78	.18	8.59	.29	8.44	.40	8.06	.63	7.72	.83											.08
		3450	17.30	.35	17.11	.57	16.96	.78	16.62	1.20	16.28	1.63											.22
4300-10	6.39	1150	7.27	.13	7.04	.22	6.85	.32	6.44	.49	6.02	.66											.08
		1750	11.02	.20	10.79	.35	10.60	.51	10.18	.77	9.77	1.00											.15
4300-12	7.69	1150	8.71	.15	8.48	.26	8.21	.34	7.76	.60	7.53	.69	3450 kPa										.08
		1750	13.25	.22	13.02	.43	12.76	.56	12.30	.91	12.08	1.04											.15

All ratings based on a vacuum of 381mm Hg at pump inlet

* First determine kW requirement based on .000066 to .000176m²/s, then add figure in this column to estimate actual kW required for .0011 m²/s fluid

PERFORMANCE DATA - U.S. Customary

FOR STANDARD NORTHERN GEAR PUMPS

BASED ON LUBRICATING LIQUIDS (300 to 800 SSU)

MODEL 4400

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI HP	100 PSI GPM	100 PSI HP	200 PSI GPM	200 PSI HP	400 PSI GPM	400 PSI HP	600 PSI GPM	600 PSI HP	800 PSI GPM	800 PSI HP	1000 PSI GPM	1000 PSI HP	1200 PSI GPM	1200 PSI HP	1500 PSI GPM	1500 PSI HP	1800 PSI GPM	1800 PSI HP	APPROX. HP ADDED FOR 5,000 SSU*
4400-05	.164	.379	1150	1.86	.21	1.80	.33	1.75	.45	1.63	.70	1.52	.95	1.41	1.20	1.29	1.40	1.18	1.65	1.01	2.00	.84	2.32	.1
			1750	2.82	.32	2.76	.50	2.71	.68	2.59	1.03	2.48	1.43	2.37	1.73	2.26	2.13	2.14	2.48	1.97	3.04	1.80	3.55	.2
			3450†	5.55	.63	5.49	.98	5.44	1.34	5.32	2.05	5.21	2.75	5.10	3.47	4.99	4.17	4.87	4.88	4.70	5.94	4.53	7.00	.4
4400-07	.247	.571	1150	2.80	.24	2.73	.43	2.66	.60	2.51	.95	2.37	1.30	2.22	1.70	2.08	2.00	1.94	2.36					.1
			1750	4.25	.37	4.18	.67	4.11	.94	3.96	1.46	3.82	2.04	3.68	2.54	3.53	3.14	3.39	3.61					.2
			3450†	8.35	.73	8.28	1.26	8.21	1.79	8.06	2.85	7.92	3.92	7.78	4.98	7.63	6.04	7.49	7.10					.4
4400-10	.329	.760	1150	3.73	.25	3.64	.51	3.56	.75	3.38	1.23	3.21	1.70	3.03	2.14	2.86	2.61							.1
			1750	5.66	.38	5.57	.78	5.49	1.13	5.31	1.88	5.14	2.63	4.96	3.27	4.79	3.98							.2
4400-15	.493	1.139	1150	5.58	.28	5.41	.64	5.24	1.00	4.90	1.72	4.56	2.41											.2
			1750	8.50	.43	8.33	.97	8.16	1.52	7.82	2.62	7.48	3.67											.2
4400-20	.658	1.520	1150	7.45	.33	7.27	.80	7.09	1.30	6.73	2.22	6.55	2.70	500 PSI										.2
			1750	11.3	.50	11.1	1.27	10.9	2.04	10.6	3.38	10.4	4.10											.2
4400-25	.823	1.901	1150	9.33	.36	9.12	.96	8.91	1.54	8.50	2.73													.2
			1750	14.2	.55	14.0	1.45	13.8	2.35	13.4	4.15													.3
4400-30	.987	2.280	1150	11.2	.42	11.0	1.13	10.7	1.84	10.5	2.54	300 PSI												.2
			1750	17.0	.64	16.8	1.72	16.5	2.80	16.3	3.88													.3

MODEL 4500

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI HP	100 PSI GPM	100 PSI HP	200 PSI GPM	200 PSI HP	400 PSI GPM	400 PSI HP	600 PSI GPM	600 PSI HP	800 PSI GPM	800 PSI HP	1000 PSI GPM	1000 PSI HP	1200 PSI GPM	1200 PSI HP	1500 PSI GPM	1500 PSI HP	2000 PSI GPM	2000 PSI HP	APPROX. HP ADDED FOR 5000 SSU*
4500-05	.257	.594	1150	2.91	.20	2.84	.40	2.76	.55	2.61	.9	2.47	1.3	2.32	1.7	2.17	2.0	2.02	2.6	1.80	3.0	1.43	3.9	.3
			1750	4.43	.31	4.36	.60	4.28	.90	4.13	1.5	3.99	2.0	3.84	2.6	3.69	3.2	3.54	4.0	3.32	4.6	2.95	6.0	.4
			3450†	8.74	.61	8.67	1.16	8.59	1.72	8.45	2.8	8.30	3.9	8.15	5.0	8.00	6.2	7.86	7.3	7.63	8.9			.8
4500-07	.386	.892	1150	4.37	.25	4.28	.55	4.18	.75	4.00	1.4	3.81	1.9	3.62	2.5	3.43	3.1	3.25	3.6	2.97	4.4			.3
			1750	6.65	.37	6.56	.80	6.46	1.20	6.27	2.1	6.09	2.9	5.90	3.8	5.71	4.6	5.52	5.4	5.24	6.7			.5
			3450†	13.1	.73	13.0	1.56	12.9	2.34	12.7	4.1	12.5	5.7	12.4	7.4	12.2	9.0							1.0
4500-10	.515	1.190	850	4.31	.22	4.20	.50	4.08	.80	3.86	1.3	3.63	1.9	3.40	2.5	3.18	3.0							.2
			1150	5.83	.30	5.72	.70	5.60	1.10	5.38	1.8	5.15	2.5	4.93	3.3	4.70	4.0	4.47	4.8					.4
			1750	8.87	.45	8.76	1.10	8.64	1.60	8.42	2.7	8.19	3.9	7.97	5.0	7.74	6.1	7.52	7.2					.5
4500-15	.772	1.783	850	6.48	.25	6.32	.65	6.17	1.10	5.86	1.9	5.55	2.7	5.24	3.5									.3
			1150	8.73	.34	8.57	.96	8.42	1.51	8.11	2.6	7.80	3.7	7.49	4.8									.4
			1750	13.3	.52	13.1	1.42	13.0	2.20	12.7	3.9	12.4	5.6	12.1	7.3									.6
4500-20	1.030	2.379	850	8.63	.27	8.35	.85	8.08	1.36	7.53	2.5	6.98	3.6											.3
			1150	11.7	.37	11.4	1.11	11.2	1.85	10.6	3.3	10.0	4.8											.4
			1750	17.8	.56	17.5	1.70	17.2	2.80	16.7	5.1	16.1	7.3											.6
4500-25	1.288	2.975	850	10.8	.30	10.5	.98	10.2	1.66	9.53	3.0													.3
			1150	14.6	.40	14.3	1.35	14.0	2.25	13.3	4.1													.4
			1750	22.2	.62	21.9	2.00	21.6	3.43	20.9	6.2													.7
4500-30	1.545	3.569	850	12.9	.32	12.6	1.15	12.2	1.96	11.8	2.8	300 PSI												.3
			1150	17.5	.43	17.1	1.54	16.8	2.64	16.4	3.8													.5
			1750	26.6	.66	26.2	2.35	25.9	3.93	25.5	5.7													.7

† Restricted inlet conditions-consult factory

All ratings based on a vacuum of 15" Hg at pump inlet

* First determine HP requirement based on 300-800 SSU, then add figure in this column to estimate actual HP required for 5,000 SSU fluid

PERFORMANCE DATA - SI Metric

FOR STANDARD NORTHERN GEAR PUMPS

BASED ON LUBRICATING LIQUIDS (.000066 to .000176m²/s)

MODEL 4400

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa		690 kPa		1,380 kPa		2,760 kPa		4,140 kPa		5,520 kPa		6,890 kPa		8,270 kPa		10,340 kPa		12,410 kPa		APPROX. kW ADDED FOR .0011M³/S*
			L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	
4400-05	6.21	1150	7.04	.16	6.81	.25	6.62	.34	6.17	.52	5.75	.71	5.34	.90	4.88	1.04	4.47	1.23	3.82	1.49	3.18	1.73	.08
		1750	10.6	.24	10.4	.37	10.2	.51	9.80	.77	9.39	1.07	8.97	1.29	8.56	1.59	8.10	1.85	7.46	2.27	6.81	2.65	.15
		3450†	21.0	.47	20.7	.73	20.5	1.00	20.1	1.53	19.7	2.05	19.3	2.59	18.8	3.11	18.4	3.64	17.7	4.43	17.1	5.22	.30
4400-07	9.36	1150	10.6	.18	10.3	.32	10.0	.49	9.50	.71	8.97	.97	8.40	1.27	7.87	1.49	7.34	1.76					.08
		1750	16.0	.28	15.8	.50	15.5	.70	14.9	1.09	14.4	1.52	13.9	1.90	13.3	2.34	12.8	2.69					.15
		3450†	31.6	.54	31.3	.94	31.0	1.34	30.5	2.13	29.9	2.92	29.4	3.71	28.8	4.50	28.3	5.29					.30
4400-10	12.45	1150	14.1	.19	13.7	.38	13.4	.56	12.7	.92	12.1	1.27	11.4	1.60	10.8	1.95							.08
		1750	21.4	.28	21.0	.58	20.7	.84	20.1	1.40	19.4	1.96	18.7	2.44	18.1	2.97							.15
4400-15	18.66	1150	21.1	.21	20.4	.48	19.8	.75	18.5	1.28	17.2	1.80											.15
		1750	32.1	.32	31.5	.72	30.8	1.13	29.6	1.95	28.3	2.74											.15
4400-20	24.91	1150	28.2	.25	27.5	.60	26.8	.97	25.4	1.66	24.7	2.01	} 3450 kPa										.15
		1750	42.7	.37	42.0	.95	41.2	1.52	40.1	2.52	39.3	3.06											.15
4400-25	31.15	1150	35.3	.27	34.5	.72	33.7	1.15	32.1	2.04													.15
		1750	53.7	.41	53.0	1.08	52.2	1.75	50.7	3.10													.22
4400-30	37.36	1150	42.4	.31	41.6	.84	40.5	1.37	39.7	1.89	} 2070 kPa												.15
		1750	64.3	.48	63.5	1.28	62.4	2.09	61.7	2.89													.22

MODEL 4500

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa		690 kPa		1,380 kPa		2,760 kPa		4,140 kPa		5,520 kPa		6,890 kPa		8,270 kPa		10,340 kPa		13,790 kPa		APPROX. kW ADDED FOR .0011M³/S*
			L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	L/min	kW	
4500-05	9.73	1150	11.0	.15	10.7	.30	10.4	.41	9.88	.67	9.3	.97	8.78	1.27	8.21	1.49	7.65	1.94	6.81	2.24	5.41	2.91	.22
		1750	16.7	.23	16.5	.45	16.2	.67	15.6	1.12	15.1	1.49	14.5	1.94	13.9	2.39	13.4	2.98	12.5	3.43	11.1	4.47	.30
		3450†	33.0	.46	32.8	.87	32.5	1.28	31.9	2.09	31.4	2.91	30.8	3.73	30.2	4.62	29.7	5.44	28.8	6.64			.60
4500-07	14.62	1150	16.5	.19	16.2	.41	15.8	.56	15.1	1.04	14.4	1.42	13.7	1.86	12.9	2.31	12.3	2.68	11.2	3.28			.22
		1750	25.1	.28	24.8	.60	24.4	.90	23.7	1.57	23.0	2.16	22.3	2.83	21.6	3.43	20.9	4.03	19.8	5.00			.37
		3450†	49.5	.54	49.2	1.16	48.8	1.75	48.0	3.06	47.3	4.25	46.9	5.52	46.1	6.71							.75
4500-10	19.50	850	16.3	.16	15.9	.37	15.4	.60	14.6	.97	13.7	1.42	12.8	1.86	12.0	2.24							.15
		1150	22.0	.22	21.6	.52	21.2	.82	20.3	1.34	19.4	1.86	18.6	2.46	17.7	2.98	16.9	3.58					.30
		1750	33.5	.34	33.1	.82	32.7	1.19	31.8	2.01	31.0	2.91	30.1	3.73	29.3	4.55	28.4	5.37					.37
4500-15	29.22	850	24.5	.19	23.9	.49	23.3	.82	22.1	1.42	21.0	2.01	19.8	2.61									.22
		1150	33.0	.25	32.4	.72	31.8	1.13	30.7	1.94	29.5	2.76	28.3	3.58									.30
		1750	50.3	.39	49.5	1.06	49.2	1.64	48.0	2.91	46.9	4.18	45.8	5.44									.45
4500-20	38.99	850	32.6	.20	31.6	.64	30.5	1.01	28.5	1.86	26.4	2.68											.22
		1150	44.2	.28	43.1	.83	42.4	1.38	40.1	2.46	37.8	3.58											.30
		1750	67.3	.42	66.2	1.27	65.1	2.09	63.2	3.80	60.9	5.44											.45
4500-25	48.75	850	40.8	.22	39.7	.73	38.6	1.24	36.0	2.24													.22
		1150	55.2	.30	54.1	1.01	53.0	1.68	50.3	3.06													.30
		1750	84.0	.46	82.9	1.50	81.7	2.56	79.1	4.62													.52
4500-30	58.49	850	48.8	.24	47.7	.86	46.1	1.46	44.6	2.09	} 2070 kPa												.22
		1150	66.2	.32	64.7	1.15	63.5	1.97	58.3	2.83													.37
		1750	100.6	.49	99.1	1.75	98.0	2.93	96.5	4.25													.52

† Restricted inlet conditions-consult factory

All ratings based on a vacuum of 381mm Hg at pump inlet

* First determine kW requirement based on .000066 to .000176m²/s, then add figure in this column to estimate actual kW required for .0011 m³/s fluid

PERFORMANCE DATA - U.S. Customary

FOR STANDARD NORTHERN GEAR PUMPS

BASED ON LUBRICATING LIQUIDS (300 to 800 SSU)

MODEL 4600

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI HP	100 PSI GPM	100 PSI HP	200 PSI GPM	200 PSI HP	400 PSI GPM	400 PSI HP	600 PSI GPM	600 PSI HP	800 PSI GPM	800 PSI HP	1000 PSI GPM	1000 PSI HP	1200 PSI GPM	1200 PSI HP	1500 PSI GPM	1500 PSI HP	2000 PSI GPM	2000 PSI HP	APPROX. HP ADDED FOR 5000 SSU*
4600-05	.589	1.36	1150	6.67	.74	6.59	1.1	6.50	1.6	6.34	2.4	6.17	3.2	6.00	4.0	5.84	4.8	5.67	5.6	5.42	6.9	5.01	8.9	.7
			1750	10.2	1.10	10.1	1.7	10.0	2.4	9.90	3.6	9.70	4.9	9.53	6.1	9.36	7.3	9.20	8.6	8.95	10.5	8.53	13.6	1.0
			3450†	20.0	2.17	19.9	3.4	19.8	4.6	19.7	7.1	19.5	9.5	19.3	12.0	19.2	14.4	19.0	16.9	18.7	20.6	18.3	26.7	2.2
4600-07	.884	2.04	1150	10.0	.81	9.90	1.4	9.80	2.1	9.60	3.3	9.41	4.6	9.21	5.8	9.01	7.0	8.81	8.2	8.52	10.1			.7
			1750	15.2	1.20	15.1	2.2	15.0	3.1	14.8	5.0	14.6	6.9	14.4	8.8	14.2	10.6	14.0	12.4	13.7	15.3			1.1
			3450†	30.0	2.37	29.9	4.2	29.8	6.0	29.6	9.7	29.4	13.4	29.2	17.1	29.0	20.8	28.8	24.5	28.5	29.8			2.4
4600-10	1.18	2.73	850	9.88	.65	9.76	1.2	9.65	1.8	9.42	3.0	9.18	4.2	8.95	5.4	8.72	6.6							.5
			1150	13.4	.88	13.3	1.5	13.2	2.4	12.9	4.1	12.7	5.7	12.5	7.4	12.2	9.0							.8
			1750	20.3	1.30	20.2	2.6	20.1	3.8	19.8	6.3	19.6	8.8	19.4	11.3	19.1	13.7							1.1
4600-15	1.77	4.09	850	14.8	.70	14.6	1.6	14.3	2.5	13.9	4.3	13.4	6.1	13.0	7.9									.6
			1150	20.0	.95	19.8	2.2	19.5	3.5	19.1	5.9	18.6	8.3	18.2	10.8									.8
			1750	30.5	1.50	30.3	3.4	30.0	5.3	29.6	9.0	29.1	12.7	28.7	16.5									1.2
4600-20	2.36	5.45	850	19.8	.90	19.6	2.1	19.3	3.3	18.7	5.7	18.2	8.1											.6
			1150	26.7	1.22	26.5	3.0	26.2	4.6	25.6	7.8	25.1	11.0											.9
			1750†	40.7	1.80	40.5	4.5	40.2	7.0	39.6	11.9	39.1	16.9											1.3
4600-25	2.95	6.81	850	24.7	1.00	24.4	2.5	24.1	4.0	23.5	7.0													.8
			1150	33.4	1.35	33.1	3.5	32.8	5.5	32.2	9.6													.9
			1750	50.8	2.10	50.5	5.3	50.2	8.4	49.6	14.6													1.4
4600-30	3.54	8.18	850	29.7	1.10	29.3	3.0	28.8	4.7	28.1	7.5	350 PSI												.7
			1150	40.0	1.50	39.6	4.0	39.1	6.4	38.4	10.1													1.0
			1750	61.0	2.30	60.6	6.1	60.1	10.0	59.4	15.3													1.5
4600-40	4.72	10.90	850	39.5	1.40	39.0	3.8	38.5	6.2	38.2	7.5	250 PSI												.7
			1150	53.5	1.90	53.0	5.1	52.5	8.4	52.2	10.1													1.1
			1750	81.4	2.90	80.9	8.0	80.4	13.0	80.1	15.3													1.9

MODEL 4800

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI HP	100 PSI GPM	100 PSI HP	200 PSI GPM	200 PSI HP	400 PSI GPM	400 PSI HP	600 PSI GPM	600 PSI HP	800 PSI GPM	800 PSI HP	1000 PSI GPM	1000 PSI HP	1200 PSI GPM	1200 PSI HP	1400 PSI GPM	1400 PSI HP	1500 PSI GPM	1500 PSI HP	APPROX. HP ADDED FOR 5000 SSU*
4800-10	2.09	4.83	850	17.5	1.4	17.1	2.5	16.8	3.6	16.1	5.8	15.3	7.9	14.6	10.0	13.9	12.1	13.2	14.2	12.4	16.4	12.1	17.5	1.8
			1150	23.7	1.8	23.3	3.3	23.0	4.7	22.3	7.6	21.5	10.5	20.8	13.4	20.1	16.3	19.4	19.2	18.6	22.2	18.3	23.6	2.7
			1750†	36.0	2.9	35.6	5.1	35.3	7.3	34.6	11.7	33.8	16.1	33.1	20.5	32.4	25.0	31.7	29.4	31.0	33.8	30.6	36.0	4.0
4800-15	3.14	7.25	850	26.3	1.6	25.8	3.2	25.4	4.8	24.4	8.0	23.5	11.2	22.6	14.4	21.6	17.6							1.9
			1150	35.5	2.1	35.0	4.2	34.6	6.4	33.6	10.8	32.7	15.1	31.8	19.5	30.9	23.8							2.9
			1750†	54.0	3.2	53.5	6.5	53.1	9.8	52.2	16.4	51.2	23.1	50.3	29.7	49.4	36.3							4.3
4800-20	4.18	9.66	850	35.0	1.7	34.4	3.9	33.9	6.1	32.7	10.5	31.6	14.9	30.4	19.3									2.0
			1150	47.3	2.3	46.7	5.3	46.2	8.3	45.0	14.3	43.9	20.3	42.8	26.3									3.1
			1750†	72.0	3.5	71.4	7.9	70.9	12.3	69.7	21.1	68.6	30.0											4.7
4800-25	5.23	12.08	850	43.8	1.9	43.1	4.6	42.4	7.3	41.1	12.7	39.7	18.0											2.1
			1150	59.2	2.5	58.5	6.2	57.8	9.8	56.5	17.1	55.1	24.3											3.3
			1750†	90.0	3.8	89.3	9.3	88.6	14.8	87.3	25.8													5.1
4800-30	6.27	14.48	850	52.5	2.0	51.7	5.3	50.9	8.6	49.4	15.2	48.6	18.1	500 PSI										2.2
			1150	71.0	2.7	70.2	7.3	69.4	11.7	67.8	20.5	67.1	24.5											3.6
			1750†	108.0	4.2	107.2	10.8	106.4	17.4	104.8	30.7													5.7
4800-40	8.36	19.31	850	70.0	2.3	69.0	6.7	68.0	11.1	66.0	19.8													2.4
			1150	94.6	3.2	93.6	9.3	92.6	15.3	90.6	27.1													3.9
			1750†	144.0	4.9	143.0	13.7	142.0	22.5															7.0
4800-50	10.45	24.14	850	88.5	2.8	87.2	8.3	86.0	13.8	84.8	18.9	300 PSI												2.6
			1150	118.3	3.8	117.1	11.4	115.9	18.7	114.7	25.6													4.5
			1750†	180.0	5.8	178.8	16.8	177.5	27.9															8.8
4800-60	12.54	28.97	850	105.0	3.2	103.5	9.9	102.1	16.0	101.3	19.3	250 PSI												2.8
			1150	142.0	4.3	140.5	13.4	139.1	21.7	138.3	26.1													5.2
			1750†	216.0	6.5	214.5	19.7	213.1	33.0															11.7

† Restricted inlet conditions-consult factory

All ratings based on a vacuum of 15" Hg at pump inlet

* First determine HP requirement based on 300-800 SSU, then add figure in this column to estimate actual HP required for 5,000 SSU fluid

PERFORMANCE DATA - SI Metric

FOR STANDARD NORTHERN GEAR PUMPS

BASED ON LUBRICATING LIQUIDS (.000066 to .000176m²/s)

MODEL 4600

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa L/min	0 kPa kW	690 kPa L/min	690 kPa kW	1,380 kPa L/min	1,380 kPa kW	2,760 kPa L/min	2,760 kPa kW	4,140 kPa L/min	4,140 kPa kW	5,520 kPa L/min	5,520 kPa kW	6,890 kPa L/min	6,890 kPa kW	8,270 kPa L/min	8,270 kPa kW	10,340 kPa L/min	10,340 kPa kW	13,790 kPa L/min	13,790 kPa kW	APPROX. kW ADDED FOR .0011M²/S*
4600-05	22.29	1150	25.2	.55	24.9	.82	24.6	1.19	24.0	1.79	23.3	2.39	22.7	2.98	22.1	3.58	21.4	4.18	20.5	5.15	18.9	6.64	.52
		1750	38.6	.82	38.2	1.27	37.8	1.79	37.4	2.68	36.7	3.65	36.0	4.55	35.4	5.44	34.8	6.41	33.8	7.83	32.2	10.14	.75
		3450†	75.7	1.62	75.3	2.54	74.9	3.43	74.5	5.29	73.8	7.08	73.0	8.95	72.6	10.74	71.9	12.60	70.7	15.36	69.2	19.91	1.64
4600-07	33.43	1150	37.8	.60	37.4	1.04	37.1	1.57	36.3	2.46	35.6	3.43	34.8	4.33	34.1	5.22	33.3	6.11	32.2	7.53			.52
		1750	57.5	.89	57.1	1.64	56.7	2.31	56.0	3.73	55.3	5.15	54.5	6.56	53.8	7.90	53.0	9.25	51.9	11.41			.82
		3450†	113.5	1.77	113.1	3.13	112.8	4.47	112.0	7.23	111.3	9.99	110.5	12.75	109.8	15.51	109.0	18.27	107.9	22.22			1.79
4600-10	44.74	850	37.4	.48	36.9	.89	36.5	1.34	35.6	2.24	34.7	3.13	33.8	4.03	33.0	4.92							.37
		1150	50.7	.66	50.4	1.12	50.0	1.79	48.8	3.06	48.1	4.25	47.3	5.52	46.2	6.71							.60
		1750	76.8	.97	76.5	1.94	76.1	2.83	75.0	4.70	74.2	6.56	73.4	8.43	72.3	10.22							.82
4600-15	67.02	850	56.0	.52	55.3	1.19	54.1	1.86	52.6	3.21	50.7	4.55	49.2	5.89									.45
		1150	75.7	.71	75.0	1.64	73.8	2.61	72.3	4.40	70.4	6.19	68.9	8.05									.60
		1750	115.5	1.12	114.7	2.54	113.5	3.95	112.0	6.71	110.2	9.47	108.6	12.30									.89
4600-20	89.31	850	75.0	.67	74.2	1.57	73.1	2.46	70.8	4.25	68.9	6.04											.45
		1150	101.1	.91	100.3	2.24	99.2	3.43	96.9	5.82	95.0	8.20											.67
		1750†	154.1	1.34	153.3	3.36	152.2	5.22	149.9	8.87	148.0	12.60											.97
4600-25	111.60	850	93.5	.75	92.4	1.86	91.2	2.98	89.0	5.22													.45
		1150	126.4	1.01	125.3	2.61	124.2	4.10	121.9	7.16													.67
		1750	192.3	1.57	191.2	3.95	190.0	6.26	187.8	10.89													1.04
4600-30	134.05	850	112.4	.82	110.9	2.24	109.0	3.50	106.4	5.59	2410 kPa												.52
		1150	151.4	1.12	149.9	2.98	148.0	4.77	145.4	7.53													.75
		1750	230.9	1.72	229.4	4.55	227.5	7.46	224.9	11.41													1.12
4600-40	178.62	850	149.5	1.04	147.6	2.83	145.7	4.62	144.6	5.59	1720 kPa												.52
		1150	202.5	1.42	200.6	3.80	198.7	6.26	197.6	7.53													.82
		1750	308.1	2.16	306.2	5.97	304.3	9.69	303.2	11.41													1.42

MODEL 4800

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa L/min	0 kPa kW	690 kPa L/min	690 kPa kW	1,380 kPa L/min	1,380 kPa kW	2,760 kPa L/min	2,760 kPa kW	4,140 kPa L/min	4,140 kPa kW	5,520 kPa L/min	5,520 kPa kW	6,890 kPa L/min	6,890 kPa kW	8,270 kPa L/min	8,270 kPa kW	9,650 kPa L/min	9,650 kPa kW	10,340 kPa L/min	10,340 kPa kW	APPROX. kW ADDED FOR .0011M²/S*
4800-10	79.15	850	66.2	1.04	64.7	1.86	63.6	2.68	60.9	4.33	57.9	5.89	55.3	7.46	52.6	9.02	50.0	10.59	46.9	12.23	45.8	13.05	1.34
		1150	89.7	1.34	88.2	2.46	87.1	3.50	81.4	5.67	81.4	7.83	78.7	9.99	76.1	12.15	73.4	14.32	70.4	16.55	69.3	17.60	2.01
		1750†	136.3	2.16	134.8	3.80	133.6	5.44	131.0	8.72	127.9	12.01	125.3	15.29	122.6	18.64	120.0	21.92	117.3	25.20	115.8	26.85	2.98
4800-15	118.81	850	99.6	1.19	97.7	2.39	96.1	3.58	92.4	5.97	88.9	8.35	85.6	10.74	81.7	13.12							1.42
		1150	134.4	1.57	132.5	3.13	131.0	4.77	127.2	8.05	123.8	11.26	120.4	14.54	117.0	17.75							2.16
		1750†	204.4	2.39	202.5	4.85	201.0	7.31	197.6	12.23	193.8	17.23	190.4	22.15	187.0	27.07							3.21
4800-20	158.30	850	132.5	1.27	130.2	2.91	128.3	4.55	123.8	7.83	119.6	11.11	115.1	14.39									1.49
		1150	179.0	1.72	176.8	3.95	174.9	6.19	170.3	10.66	166.1	15.14	162.0	19.61									2.31
		1750†	272.5	2.61	270.3	5.89	268.4	9.17	263.8	15.73	259.6	22.37											3.50
4800-25	197.96	850	165.8	1.42	163.2	3.43	160.5	5.44	155.6	9.47	150.3	13.42											1.57
		1150	224.1	1.86	221.4	4.62	218.8	7.31	213.9	12.75	208.6	18.12											2.46
		1750†	340.7	2.83	338.0	6.94	335.4	11.04	330.5	19.24													3.80
4800-30	237.29	850	198.7	1.49	195.7	3.95	192.7	6.41	187.0	11.33	184.0	13.50	3450 kPa										1.64
		1150	268.8	2.01	265.7	5.44	262.7	8.72	256.7	15.29	254.0	18.27											2.68
		1750†	408.8	3.13	405.8	8.05	402.8	12.98	396.7	22.89													4.25
4800-40	316.43	850	265.0	1.72	261.2	5.00	257.4	8.28	249.8	14.76													1.79
		1150	358.1	2.39	354.3	6.94	350.5	11.41	343.0	20.21													2.91
		1750†	545.1	3.65	541.3	10.22	537.5	16.78															5.22
4800-50	395.58	850	335.0	2.09	330.1	6.19	325.5	10.29	321.0	14.09	2070 kPa												1.94
		1150	447.8	2.83	443.3	8.50	438.7	13.94	434.2	19.09													3.36
		1750†	681.4	4.33	676.8	12.53	671.9	20.81															6.56
4800-60	474.73	850	397.5	2.39	391.8	7.38	386.5	11.93	383.5	14.39	1720 kPa												2.09
		1150	537.5	3.21	531.9	9.99	526.6	16.18	523.5	19.46													3.88
		1750†	817.6	4.85	812.0	14.69	806.7	24.61															8.72

† Restricted inlet conditions-consult factory

All ratings based on a vacuum of 381mm Hg at pump inlet

* First determine kW requirement based on .000066 to .000176m²/s, then add figure in this column to estimate actual kW required for .0011 m²/s fluid

PERFORMANCE DATA - U.S. Customary

FOR STANDARD NORTHERN GEAR PUMPS
BASED ON LUBRICATING LIQUIDS (300 to 800 SSU)

MODEL 4900

SIZE	DISPLACEMENT GPM/ 100 RPM	DISPLACEMENT IN³/ REV.	RPM	0 PSI GPM	0 PSI HP	100 PSI GPM	100 PSI HP	200 PSI GPM	200 PSI HP	400 PSI GPM	400 PSI HP	600 PSI GPM	600 PSI HP	800 PSI GPM	800 PSI HP	1000 PSI GPM	1000 PSI HP	1200 PSI GPM	1200 PSI HP	1500 PSI GPM	1500 PSI HP	2000 PSI GPM	2000 PSI HP	APPROX. HP ADDED FOR 5000 SSU*
4900-10	3.85	8.89	850	31.9	2.9	31.5	4.8	31.0	6.7	30.0	10.5	29.0	14.4	28.1	18.2	27.1	22.0	26.1	25.8	24.6	31.5	22.2	41.1	14.0
			1150	43.2	3.8	42.8	6.4	42.3	9.0	41.3	14.1	40.4	19.3	39.4	24.5	38.5	29.6	37.5	34.8	36.0	42.5	34.5	55.5	27.0
4900-20	7.70	17.78	850	63.9	3.4	63.3	7.2	62.7	11.0	61.5	18.7	60.3	26.3	59.1	34.0	57.9	41.6							14.5
			1150	86.5	4.4	85.9	9.6	85.3	14.7	84.1	25.1	82.9	35.4	81.7	45.7	80.5	56.1							28.0
4900-35	13.48	31.12	850	111.9	4.8	110.9	11.4	109.9	18.2	107.9	31.5	105.9	44.9											15.0
			1150	151.4	6.2	150.5	15.2	149.5	24.3	147.5	42.3	145.5	60.5											29.0
4900-50	19.25	44.45	850	159.8	6.2	158.4	15.8	156.9	25.3	153.9	44.3													12.0
			1150	216.3	8.0	214.9	20.9	213.3	33.8	210.3	59.6													25.0

All ratings based on a vacuum of 15" Hg at pump inlet
* First determine HP requirement based on 300-800 SSU, then add figure in this column to estimate actual HP required for 5,000 SSU fluid

PERFORMANCE DATA - SI Metric

FOR STANDARD NORTHERN GEAR PUMPS
BASED ON LUBRICATING LIQUIDS (.000066 to .000176m²/s)

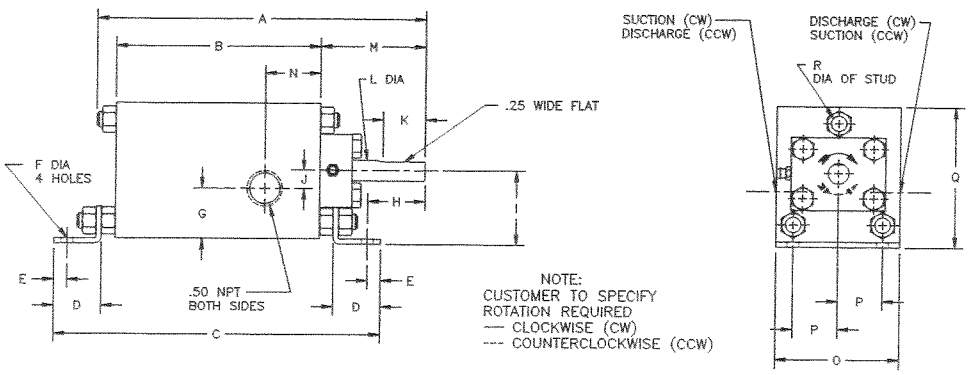
MODEL 4900

SIZE	DISPLACEMENT cm³/REV.	RPM	0 kPa L/min	0 kPa kW	690 kPa L/min	690 kPa kW	1,380 kPa L/min	1,380 kPa kW	2,760 kPa L/min	2,760 kPa kW	4,140 kPa L/min	4,140 kPa kW	5,520 kPa L/min	5,520 kPa kW	6,900 kPa L/min	6,900 kPa kW	8,280 kPa L/min	8,280 kPa kW	10,350 kPa L/min	10,350 kPa kW	13,800 kPa L/min	13,800 kPa kW	APPROX. kW ADDED FOR .0011M²/S*
4900-10	145.7	850	120.8	2.2	119.2	3.6	117.3	5.0	113.6	7.8	109.8	10.7	106.4	13.6	102.6	16.4	98.8	19.2	93.1	23.5	84.0	30.6	10.5
		1150	163.5	2.8	162.0	4.8	160.1	6.7	156.3	10.5	152.9	14.4	149.1	18.3	145.7	22.1	142.0	26.0	136.3	31.7	130.6	41.4	20.2
4900-20	291.4	850	241.9	2.5	239.6	5.4	237.3	8.2	232.8	13.9	228.3	19.6	223.7	25.4	219.2	31.0							10.8
		1150	327.4	3.3	325.2	7.2	322.9	11.0	318.4	18.7	313.8	26.4	309.3	34.1	304.7	41.8							20.9
4900-35	510.0	850	423.6	3.6	419.8	8.5	416.0	13.6	408.4	23.5	400.9	33.5											11.2
		1150	573.1	4.6	569.7	11.3	565.9	18.1	558.3	31.5	550.8	45.1											21.7
4900-50	728.4	850	604.9	4.6	599.6	11.8	593.9	18.9	582.6	33.0													9.0
		1150	818.8	6.0	813.5	15.6	807.4	25.2	796.1	44.4													18.7

† Restricted inlet conditions-consult factory
All ratings based on a vacuum of 381mm Hg at pump inlet
* First determine kW requirement based on .000066 to .000176m²/s, then add figure in this column to estimate actual kW required for .0011 m²/s fluid

DIMENSION DATA - MODEL 4300

TAPPED CONNECTIONS



DIMENSIONS IN INCHES

Pump Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	Approx. Weight Lbs.
4300-01	6.82	3.98	6.91	1.13	.31	.28	1.19	1.34	1.75	.44	1.0	.498	2.50	1.31	2.94	1.06	3.38	.38	11
4300-02	6.89	4.05	6.99	1.13	.31	.28	1.19	1.34	1.75	.44	1.0	.498	2.50	1.31	2.94	1.06	3.38	.38	11
4300-03	6.99	4.15	7.09	1.13	.31	.28	1.19	1.34	1.75	.44	1.0	.498	2.50	1.31	2.94	1.06	3.38	.38	11
4300-04	7.09	4.25	7.19	1.13	.31	.28	1.19	1.34	1.75	.44	1.0	.498	2.50	1.31	2.94	1.06	3.38	.38	11
4300-06	7.29	4.45	7.39	1.13	31	.28	1.19	1.34	1.75	.44	1.0	.498	2.50	1.31	2.94	1.06	3.38	.38	11
4300-08	7.49	4.65	7.59	1.13	.31	.28	1.19	1.34	1.75	.44	1.0	.498	2.50	1.31	2.94	1.06	3.38	.38	12
4300-10	7.69	4.85	7.79	1.13	.31	.28	1.19	1.34	1.75	.44	1.0	.498	2.50	1.31	2.94	1.06	3.38	.38	13
4300-12	7.89	5.05	7.99	1.13	.31	.28	1.19	1.34	1.75	.44	1.0	.498	2.50	1.31	2.94	1.06	3.38	.38	13

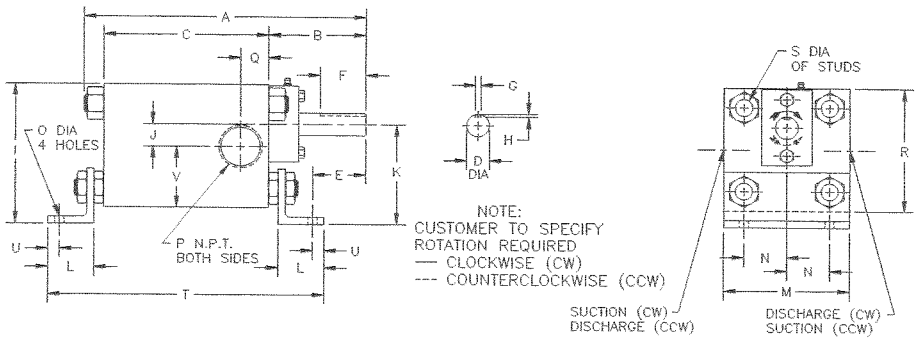
DIMENSIONS IN MILLIMETERS

Pump Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	Approx. Weight kg
4300-01	173.2	101.1	175.5	28.7	7.9	7.1	30.2	33.4	44.5	11.2	25.4	12.65	63.5	33.3	74.7	26.9	85.9	9.7	5.0
4300-02	175.0	102.9	177.5	28.7	7.9	7.1	30.2	33.4	44.5	11.2	25.4	12.65	63.5	33.3	74.7	26.9	85.9	9.7	5.0
4300-03	177.5	105.4	180.1	28.7	7.9	7.1	30.2	33.4	44.5	11.2	25.4	12.65	63.5	33.3	74.7	26.9	85.9	9.7	5.0
4300-04	180.1	108.0	182.6	28.7	7.9	7.1	30.2	33.4	44.5	11.2	25.4	12.65	63.5	33.3	74.7	26.9	85.9	9.7	5.0
4300-06	185.2	113.0	187.7	28.7	7.9	7.1	30.2	33.4	44.5	11.2	25.4	12.65	63.5	33.3	74.7	26.9	85.9	9.7	5.0
4300-08	190.2	118.1	192.8	28.7	7.9	7.1	30.2	33.4	44.5	11.2	25.4	12.65	63.5	33.3	74.7	26.9	85.9	9.7	5.4
4300-10	195.3	123.2	197.9	28.7	7.9	7.1	30.2	33.4	44.5	11.2	25.4	12.65	63.5	33.3	74.7	26.9	85.9	9.7	5.9
4300-12	200.4	128.3	202.9	28.7	7.9	7.1	30.2	33.4	44.5	11.2	25.4	12.65	63.5	33.3	74.7	26.9	85.9	9.7	5.9

Not to be used for construction purposes unless certified.

DIMENSION DATA - MODELS 4400 THRU 4900

TAPPED CONNECTIONS
(also available with Flanged Connections)



PUMP SIZE	DIMENSIONS IN INCHES																					Approx Weight Lbs.
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
4400-05	9.44	3.25	5.63	.623	1.66	1.25	3/16	3/32	4.56	.60	3.13	1.75	4.00	1.31	.41	3/4	.97	4.00	.56	9.81	.50	2.00	27
4400-07	9.69	3.25	5.88	.623	1.66	1.25	3/16	3/32	4.56	.60	3.13	1.75	4.00	1.31	.41	3/4	.97	4.00	.56	10.06	.50	2.00	28
4400-10	9.94	3.25	6.13	.623	1.66	1.25	3/16	3/32	4.56	.60	3.13	1.75	4.00	1.31	.41	3/4	.97	4.00	.56	10.31	.50	2.00	29
4400-15	10.44	3.25	6.63	.623	1.66	1.25	3/16	3/32	4.56	.60	3.13	1.75	4.00	1.31	.41	3/4	.97	4.00	.56	10.81	.50	2.00	30
4500-05	9.94	3.50	5.81	.747	1.63	1.50	3/16	3/32	5.00	.75	3.50	2.00	4.50	1.50	.41	1	.84	4.50	.63	10.56	.50	2.25	33
4500-07	10.19	3.50	6.06	.747	1.63	1.50	3/16	3/32	5.00	.75	3.50	2.00	4.50	1.50	.41	1	.84	4.50	.63	10.81	.50	2.25	36
4500-10	10.44	3.50	6.31	.747	1.63	1.50	3/16	3/32	5.00	.75	3.50	2.00	4.50	1.50	.41	1	.84	4.50	.63	11.06	.50	2.25	37
4500-15	10.94	3.50	6.81	.747	1.63	1.50	3/16	3/32	5.00	.75	3.50	2.00	4.50	1.50	.41	1	.84	4.50	.63	11.56	.50	2.25	39
4600-05	11.69	4.25	6.69	.997	2.31	2.00	1/4	1/8	5.75	1.00	4.00	2.00	5.50	1.88	.41	1 1/2	1.22	5.50	.75	11.56	.50	2.75	51
4600-07	11.94	4.25	6.94	.997	2.31	2.00	1/4	1/8	5.75	1.00	4.00	2.00	5.50	1.88	.41	1 1/2	1.22	5.50	.75	11.81	.50	2.75	53
4600-10	12.19	4.25	7.19	.997	2.31	2.00	1/4	1/8	5.75	1.00	4.00	2.00	5.50	1.88	.41	1 1/2	1.22	5.50	.75	12.06	.50	2.75	56
4600-15	12.69	4.25	7.69	.997	2.31	2.00	1/4	1/8	5.75	1.00	4.00	2.00	5.50	1.88	.41	1 1/2	1.22	5.50	.75	12.56	.50	2.75	61
4600-20	13.19	4.25	8.19	.997	2.31	2.00	1/4	1/8	5.75	1.00	4.00	2.00	5.50	1.88	.41	1 1/2	1.22	5.50	.75	13.06	.50	2.75	66
4800-10	15.19	5.00	9.31	1.371	2.75	2.50	3/8	3/16	8.50	1.50	6.00	2.50	6.00	2.00	.53	2	1.47	8.00	.88	15.31	.75	4.00	125
4800-15	15.69	5.00	9.81	1.371	2.75	2.50	3/8	3/16	8.50	1.50	6.00	2.50	6.00	2.00	.53	2	1.47	8.00	.88	15.81	.75	4.00	132
4800-20	16.19	5.00	10.31	1.371	2.75	2.50	3/8	3/16	8.50	1.50	6.00	2.50	6.00	2.00	.53	2	1.47	8.00	.88	16.31	.75	4.00	138
4900-10	18.28	6.00	11.30	1.875	3.89	2.50	1/2	1/4	12.50	2.00	8.63	2.50	15.00	5.50	.94	2	1.50	11.75	.88	17.27	.88	5.88	335
4900-20	19.28	6.00	12.30	1.875	3.89	2.50	1/2	1/4	12.50	2.00	8.63	2.50	15.00	5.50	.94	2	1.50	11.75	.88	18.27	.88	5.88	363

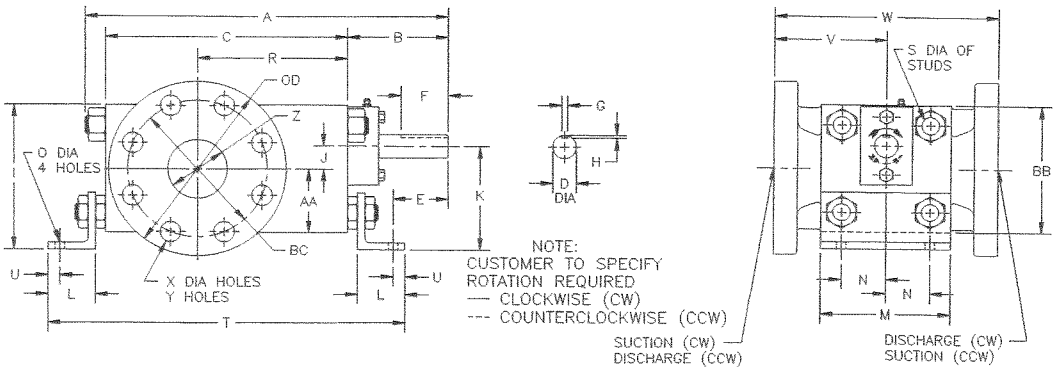
PUMP SIZE	DIMENSIONS IN MILLIMETERS																					Approx. Weight kg
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P*	Q	R	S	T	U	V	
4400-05	239.8	82.6	143.0	15.82	42.16	31.75	4.76	2.38	115.8	15.24	79.5	44.5	101.6	33.3	10.4	3/4	24.6	101.6	14.2	249.2	12.7	50.8	12.2
4400-07	246.1	82.6	149.4	15.82	42.16	31.75	4.76	2.38	115.8	15.24	79.5	44.5	101.6	33.3	10.4	3/4	24.6	101.6	14.2	255.5	12.7	50.8	12.7
4400-10	252.2	82.6	155.7	15.82	42.16	31.75	4.76	2.38	115.8	15.24	79.5	44.5	101.6	33.3	10.4	3/4	24.6	101.6	14.2	261.9	12.7	50.8	13.2
4400-15	265.2	82.6	168.4	15.82	42.16	31.75	4.76	2.38	115.8	15.24	79.5	44.5	101.6	33.3	10.4	3/4	24.6	101.6	14.2	274.6	12.7	50.8	13.6
4500-05	252.5	88.9	147.6	18.97	41.40	38.10	4.76	2.38	127.0	19.1	88.9	50.8	114.3	38.1	10.4	1	21.3	114.3	16.0	268.2	12.7	57.2	15.0
4500-07	258.8	88.9	153.9	18.97	41.40	38.10	4.76	2.38	127.0	19.1	88.9	50.8	114.3	38.1	10.4	1	21.3	114.3	16.0	274.6	12.7	57.2	16.3
4500-10	265.2	88.9	160.3	18.97	41.40	38.10	4.76	2.38	127.0	19.1	88.9	50.8	114.3	38.1	10.4	1	21.3	114.3	16.0	280.9	12.7	57.2	16.8
4500-15	277.9	88.9	173.0	18.97	41.40	38.10	4.76	2.38	127.0	19.1	88.9	50.8	114.3	38.1	10.4	1	21.3	114.3	16.0	293.6	12.7	57.2	17.7
4600-05	296.9	108.0	169.9	25.32	58.67	50.80	6.35	3.18	146.1	25.4	101.6	50.8	139.7	47.8	10.4	1 1/2	31.0	139.7	19.1	293.6	12.7	69.9	23.1
4600-07	303.3	108.0	176.3	25.32	58.67	50.80	6.35	3.18	146.1	25.4	101.6	50.8	139.7	47.8	10.4	1 1/2	31.0	139.7	19.1	300.0	12.7	69.9	24.0
4600-10	309.6	108.0	182.6	25.32	58.67	50.80	6.35	3.18	146.1	25.4	101.6	50.8	139.7	47.8	10.4	1 1/2	31.0	139.7	19.1	306.3	12.7	69.9	25.4
4600-15	322.3	108.0	195.3	25.32	58.67	50.80	6.35	3.18	146.1	25.4	101.6	50.8	139.7	47.8	10.4	1 1/2	31.0	139.7	19.1	319.0	12.7	69.9	27.7
4600-20	335.0	108.0	208.0	25.32	58.67	50.80	6.35	3.18	146.1	25.4	101.6	50.8	139.7	47.8	10.4	1 1/2	31.0	139.7	19.1	331.7	12.7	69.9	29.9
4800-10	385.8	127.0	236.5	34.82	69.85	63.50	9.53	4.76	215.9	38.1	152.4	63.5	152.4	50.8	13.5	2	37.3	203.2	22.4	388.9	19.1	101.6	56.7
4800-15	398.5	127.0	249.2	34.82	69.85	63.50	9.53	4.76	215.9	38.1	152.4	63.5	152.4	50.8	13.5	2	37.3	203.2	22.4	401.6	19.1	101.6	59.9
4800-20	411.2	127.0	261.9	34.82	69.85	63.50	9.53	4.76	215.9	38.1	152.4	63.5	152.4	50.8	13.5	2	37.3	203.2	22.4	414.3	19.1	101.6	62.6
4900-10	464.3	152.4	287.0	47.63	98.81	63.50	12.70	6.35	317.5	50.8	219.2	63.5	381.0	139.7	23.9	2	38.1	298.5	22.4	438.7	22.4	149.4	152
4900-20	489.7	152.4	312.4	47.63	98.81	63.50	12.70	6.35	317.5	50.8	219.2	63.5	381.0	139.7	23.9	2	38.1	298.5	22.4	464.1	22.4	149.4	165

* NPT Customary System

Not to be used for construction purposes unless certified.

DIMENSION DATA - MODELS 4400 THRU 4900

FLANGED CONNECTIONS



PUMP SIZE	DIMENSIONS IN INCHES																											Approx Weight
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	R	S	T	U	V	W	X	Y	Z	OD	BC	AA	BB	Lbs.
4400-20	10.94	3.25	7.13	.623	1.66	1.25	3/16	3/32	4.56	.60	3.13	1.75	4.00	1.31	.41	4.25	.56	11.31	.50	3.50	7.00	.75	4	1.00	4.88	3.50	2.00	4.00	38
4400-25	11.44	3.25	7.63	.623	1.66	1.25	3/16	3/32	4.56	.60	3.13	1.75	4.00	1.31	.41	4.50	.56	11.81	.50	3.50	7.00	.75	4	1.25	5.25	3.88	2.00	4.00	40
4400-30	11.94	3.25	8.13	.623	1.66	1.25	3/16	3/32	4.56	.60	3.13	1.75	4.00	1.31	.41	4.75	.56	12.31	.50	3.50	7.00	.75	4	1.25	5.25	3.88	2.00	4.00	42
4500-20	11.44	3.50	7.31	.747	1.63	1.50	3/16	3/32	5.00	.75	3.50	2.00	4.50	1.50	.41	4.00	.63	12.06	.50	4.00	8.00	.75	4	1.25	5.25	3.88	2.25	4.50	51
4500-25	11.94	3.50	7.81	.747	1.63	1.50	3/16	3/32	5.00	.75	3.50	2.00	4.50	1.50	.41	4.25	.63	12.56	.50	4.00	8.00	.88	4	1.50	6.13	4.50	2.25	4.50	55
4500-30	12.44	3.50	8.31	.747	1.63	1.50	3/16	3/32	5.00	.75	3.50	2.00	4.50	1.50	.41	4.50	.63	13.06	.50	4.00	8.00	.88	4	1.50	6.13	4.50	2.25	4.50	66
4600-25	13.69	4.25	8.69	.997	2.31	2.00	1/4	1/8	5.75	1.00	4.00	2.00	5.50	1.88	.41	5.06	.75	13.56	.50	4.75	9.50	.75	8	2.00	6.50	5.00	2.75	5.50	85
4600-30	14.19	4.25	9.19	.997	2.31	2.00	1/4	1/8	5.75	1.00	4.00	2.00	5.50	1.88	.41	5.31	.75	14.06	.50	4.75	9.50	.88	8	2.50	7.50	5.88	2.75	5.50	91
4600-40	15.19	4.25	10.19	.997	2.31	2.00	1/4	1/8	5.75	1.00	4.00	2.00	5.50	1.88	.41	5.81	.75	15.06	.50	4.75	9.50	.88	8	3.00	8.25	6.63	2.75	5.50	99
4800-25	16.69	5.00	10.81	1.371	2.75	2.50	3/8	3/16	8.50	1.50	6.00	2.50	6.00	2.00	.53	6.06	.88	16.81	.75	5.75	11.50	.88	8	2.50	7.50	5.88	4.00	8.00	165
4800-30	17.19	5.00	11.31	1.371	2.75	2.50	3/8	3/16	8.50	1.50	6.00	2.50	6.00	2.00	.53	6.31	.88	17.31	.75	5.75	11.50	.88	8	3.00	8.25	6.63	4.00	8.00	177
4800-40	18.19	5.00	12.31	1.371	2.75	2.50	3/8	3/16	8.50	1.50	6.00	2.50	6.00	2.00	.53	6.81	.88	18.31	.75	5.75	11.50	.88	8	3.00	8.25	6.63	4.00	8.00	188
4800-50	19.19	5.00	13.31	1.371	2.75	2.50	3/8	3/16	8.50	1.50	6.00	2.50	6.00	2.00	.53	7.31	.88	19.31	.75	5.75	11.50	.88	8	4.00	10.00	7.88	4.00	8.00	207
4800-60	20.19	5.00	14.31	1.371	2.75	2.50	3/8	3/16	8.50	1.50	6.00	2.50	6.00	2.00	.53	7.81	.88	20.31	.75	5.75	11.50	.75	8	4.00	9.00	7.50	4.00	8.00	215
4900-35	20.78	6.00	13.80	1.875	3.89	2.50	1/2	1/4	12.50	2.00	8.63	2.50	15.00	2.00	.94	7.53	.88	19.77	.88	7.75	15.50	.88	8	4.00	10.00	7.88	5.88	11.75	476
4900-50	22.28	6.00	15.30	1.875	3.89	2.50	1/2	1/4	12.50	2.00	8.63	2.50	15.00	2.00	.94	8.28	.88	21.27	.88	7.75	15.50	.88	12	6.00	12.50	10.63	5.88	11.75	525

PUMP SIZE	DIMENSIONS IN MILLIMETERS																											Approx Weight
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	R	S	T	U	V	W	X	Y	Z	OD	BC	AA	BB	kg
4400-20	277.9	82.6	181.1	15.82	42.2	31.8	4.76	2.38	115.8	15.24	79.5	44.5	101.6	33.3	10.4	108.0	14.2	287.3	12.7	88.9	177.8	19.1	4	25.4	124.0	88.9	50.8	101.6	17.2
4400-25	290.6	82.6	193.8	15.82	42.2	31.8	4.76	2.38	115.8	15.24	79.5	44.5	101.6	33.3	10.4	114.3	14.2	300.0	12.7	88.9	177.8	19.1	4	31.8	133.4	98.6	50.8	101.6	18.1
4400-30	303.3	82.6	206.5	15.82	42.2	31.8	4.76	2.38	115.8	15.24	79.5	44.5	101.6	33.3	10.4	120.7	14.2	312.7	12.7	88.9	177.8	19.1	4	31.8	133.4	98.6	50.8	101.6	19.1
4500-20	290.6	88.9	185.7	18.97	41.4	38.1	4.76	2.38	127.0	19.1	88.9	50.8	114.3	38.1	10.4	101.6	16.0	306.3	12.7	101.6	203.2	19.1	4	31.8	133.4	98.6	57.2	114.3	23.1
4500-25	303.3	88.9	198.4	18.97	41.4	38.1	4.76	2.38	127.0	19.1	88.9	50.8	114.3	38.1	10.4	108.0	16.0	319.0	12.7	101.6	203.2	22.4	4	38.1	155.7	114.3	57.2	114.3	24.9
4500-30	316.0	88.9	211.1	18.97	41.4	38.1	4.76	2.38	127.0	19.1	88.9	50.8	114.3	38.1	10.4	114.3	16.0	331.7	12.7	101.6	203.2	22.4	4	38.1	155.7	114.3	57.2	114.3	29.9
4600-25	347.7	108.0	220.7	25.32	58.7	50.8	6.35	3.18	146.1	25.4	101.6	50.8	139.7	47.8	10.4	128.5	19.1	344.4	12.7	120.7	241.3	19.1	8	50.8	165.1	127.0	69.9	139.7	38.6
4600-30	360.4	108.0	233.4	25.32	58.7	50.8	6.35	3.18	146.1	25.4	101.6	50.8	139.7	47.8	10.4	134.9	19.1	357.1	12.7	120.7	241.3	22.4	8	63.5	190.5	149.4	69.9	139.7	41.3
4600-40	385.8	108.0	258.8	25.32	58.7	50.8	6.35	3.18	146.1	25.4	101.6	50.8	139.7	47.8	10.4	147.6	19.1	382.5	12.7	120.7	241.3	22.4	8	76.2	209.6	168.4	69.9	139.7	44.9
4800-25	423.9	127.0	274.6	34.82	69.9	63.5	9.53	4.76	215.9	38.1	152.4	63.5	152.4	50.8	13.5	153.9	22.4	427.0	19.1	146.1	292.1	22.4	8	63.5	190.5	149.4	101.6	203.2	74.8
4800-30	436.6	127.0	287.3	34.82	69.9	63.5	9.53	4.76	215.9	38.1	152.4	63.5	152.4	50.8	13.5	160.3	22.4	439.7	19.1	146.1	292.1	22.4	8	76.2	209.6	168.4	101.6	203.2	80.3
4800-40	462.0	127.0	312.7	34.82	69.9	63.5	9.53	4.76	215.9	38.1	152.4	63.5	152.4	50.8	13.5	173.0	22.4	465.1	19.1	146.1	292.1	22.4	8	76.2	209.6	168.4	101.6	203.2	85.3
4800-50	487.4	127.0	338.1	34.82	69.9	63.5	9.53	4.76	215.9	38.1	152.4	63.5	152.4	50.8	13.5	185.7	22.4	490.5	19.1	146.1	292.1	22.4	8	101.6	254.0	200.2	101.6	203.2	93.9
4800-60	512.8	127.0	363.5	34.82	69.9	63.5	9.53	4.76	215.9	38.1	152.4	63.5	152.4	50.8	13.5	198.4	22.4	515.9	19.1	146.1	292.1	19.1	8	101.6	228.6	190.5	101.6	203.2	97.5
4900-35	527.8	152.4	350.5	47.63	98.8	63.5	12.7	6.35	317.5	50.8	219.2	63.5	381.0	50.8	23.9	191.3	22.4	502.2	22.4	196.9	393.7	22.4	8	101.6	254.0	200.2	149.4	298.5	216
4900-50	565.9	152.4	388.6	47.63	98.8	63.5	12.7	6.35	317.5	50.8	219.2	63.5	381.0	50.8	23.9	210.3	22.4	540.3	22.4	196.9	393.7	22.4	12	152.4	317.5	270.0	149.4	298.5	238

McNally Industries
(715) 463-5177 / (800) 366-1410
Fax (715) 463-5174
info@northern-pump.com

APPLICATION DATA

Company _____
Division _____
Address _____
_____
State, Zip _____

Date _____
Requested by _____
Reference _____
Telephone _____
Fax _____
Email _____

Quantity of pumps _____
Flow rate _____ gpm
Inlet Condition:
vacuum _____ in. HG
pressure _____ psi
Discharge pressure _____ psi
Liquid _____
Liquid temp. _____ deg. F
Viscosity _____ cP/SSU at _____ F
Specific gravity _____
Density _____

Vapor press _____ at _____ F
Lubrication properties _____ yes/no
if yes, describe _____
_____
Abrasives in liquid yes/no
if yes, size _____
hardness _____
identity _____
concentration _____
Intermittent duty yes/no
if yes, describe _____
_____
Is metering required? _____ yes/no
if yes, required accuracy, % _____
Mechanical seal yes/no

Will pump be direct coupled to driver? yes/no
Shall we quote?
Unit base ---------- yes/no
Coupling and guard ---------- yes/no
Electric motor ---------- yes/no
if yes:
enclosure _____ Efficiency std/high
power _____ phase, _____ hertz, _____ volts

Compatible materials of construction: _____
_____
_____

Incompatible materials of construction: _____
_____
_____

Important application information: _____
_____
_____
_____
_____
_____
_____

GUARANTEED FACTORY REPAIR SERVICE

All NORTHERN pumps can be returned to NORTHERN's factory for repair and refurbishment. No matter when your NORTHERN pump was built or what condition it is in when you take it out of service, NORTHERN's engineers and craftsmen can make your NORTHERN pump work like it did when it was new.

When you return your pump to NORTHERN's factory, it will be completely disassembled, cleaned, and thoroughly inspected to determine any departures from the original manufacturing requirements. A quotation will be prepared detailing the parts to be replaced, the parts to be remanufactured, the cost of the repair, and the cost of a new, exact duplicate pump. This gives you all of the information that you need to make an informed decision regarding your pump.

NORTHERN pumps that are repaired at the factory are always returned to you in a like new condition. They will perform and last just like the original pump when placed in an identical service application. Parts which can be refurbished to the same design requirements as new parts will be refurbished. Those which cannot be refurbished will be replaced with new parts meeting the same design requirements as the original parts. Each pump is tested to the same requirements as the original pump and will pass the original performance requirements.

All factory repaired NORTHERN pumps are returned with the same material and workmanship warranty that is provided with a new pump. Why pay a penny more for a new pump when a factory repaired pump is as good as new?

NORTHERN

Other NORTHERN Pumps and Services Available from McNally Industries

T-SERIES ABRASIVE LIQUID PUMPS

The NORTHERN T-Series pumps are designed to pump liquids containing high concentrations of fine abrasive materials. All of the load carrying elements of the pump are moved out of the pumped liquid and are lubricated separately from the pumped liquid.

The pump has a pressurized double mechanical seal design to isolate the grease lubricated shaft bearings from the pumped liquid. An oil lubricated timing gear design transmits the torque required to turn the driven (idler) shaft of the pump. Thrust bearings are used to position the pump gears centrally within the pumping chamber. Heat treated pumping gears and hard wear plates are used to minimize wear in the pumping chamber.

ECC-SERIES METERING PUMPS:

The NORTHERN ECC-Series pumps are designed to reliably and accurately meter liquids that have some lubricating properties. These pumps are designed to successfully operate in applications where fluid pulses are a concern or where gear type metering pumps have traditionally experienced reliability problems.

The pumps have ceramic wear plates to both lengthen service life and minimize the tendency for galling to occur between the gear and the wear plate. A matched set of parts - gear/shaft assemblies and pump cylinder - is used in each pump to obtain the required metering characteristics. This allows for both economical manufacture and for the opportunity to tailor the clearances in the pump to suit the requirements of the intended application. All of the metal wearing parts of the pump are heat treated to extend the useful life of the pump.

CUSTOMIZED PUMP DESIGN:

The design of the NORTHERN pump is such that tailoring key aspects of the pump to the requirements of the intended application is easy to accomplish. When special clearances, special materials, special heat treatments, special coatings/platings, or special design features are required, the pump design can be customized to accommodate the requirement without making substantial changes to the standard configuration. In applications where other positive displacement pumps are not able to deliver complete satisfaction, our design flexibility provides the pump user with NORTHERN pumps that are both cost effective and reliable.

NORTHERN PUMP
Division of McNally Industries, LLC.
340 W. Benson Avenue
Grantsburg, WI 54840
(715) 463-5177
(800) 366-1410
Fax (715) 463-5174
www.northern-pump.com