

## BULK TRANSFER PUMPS

The "Pump Viscosity Chart" shown below provides a general guideline for the "Single Speed" as well as "Three Speed" transfer pump capability. It also shows the viscosity pumping range for each fixed gear pump along with 1st, 2nd and 3rd gear capability for the "Three Speed" pump.

PUMP VISCOSITY CHART			
Fixed Gear Pumps	3 Speed pump setting	Typical operating range	** Pump should be empty to start
2 HP 40 GPM	3rd Gear 40 GPM	Up to 230 Centipoise	180 Centipoise and above
2 HP 20 GPM	2nd Gear 20 GPM	Up to 1600 Centipoise	1500 Centipoise and above
2 HP 10 GPM	1st Gear 10 GPM	Up to 4900 Centipoise	3500 Centipoise and above
<b>NOT RECOMMENDED</b>		<b>5000 Centipoise and above</b>	
** "Pump should be empty to start" column indicates the viscosity at which pump needs to be empty in order to "start" when pumping the higher viscosities noted in the "Typical operating range" column.			

NOTE: Use of the optional "PowerMaster" in conjunction with a single speed or Three Speed Pump greatly extends the viscosity pumping range by gradually slowing down the pump rate to maintain amp draw below circuit breaker "trip" amperage.

LUBRICANT VISCOSITY TABLE												
Temperature		100 F	90 F	80 F	70 F	60 F	50 F	40 F	30 F	20 F	10 F	0 F
FLUID	ISO No.	38 C	32 C	27 C	21 C	15 C	10 C	4 C	-1 C	-7 C	-12 C	-18 C
A.T.F		35	44	56	72	95	127	176	250	366	544	872
5w-20		46	59	76	101	136	188	268	394	598	944	1557
10w	32	37	49	64	87	122	176	263	407	659	1120	2012
5w-30		61	78	101	134	182	252	359	528	801	1262	2070
Hydraulic	46	46	61	82	114	163	241	370	592	995	1763	3319
10w-30		70	91	121	165	230	331	491	755	1205	2010	3517
20w	68	68	92	127	181	266	405	640	1059	1843	3392	6651
30w	100	100	135	187	267	392	596	940	1547	2670	4854	9364
10w-40		97	126	168	228	317	454	669	1017	1605	2635	4523
15w-40		123	164	223	311	445	656	998	1575	2585	4437	7999
40w	150	128	178	253	370	562	887	1457	2510	4555	8765	18015
20w-50		164	222	308	440	645	976	1530	2494	4243	7575	14266
80W-90		143	198	282	412	622	975	1591	2717	4880	9275	18770
50w	220	226	321	470	709	1110	1807	3074	5491	10358	20769	44595
80W-140		263	359	502	720	1062	1615	2542	4152	7068	12596	23621
90w gear	320	331	479	713	1099	1757	2926	5099	9346	18121	37417	82894
140w gear	460	479	702	1060	1658	2693	4557	8077	15065	29745	62574	141305
Readings are in centipoise (formula used is centistoke X .9 = centipoise).												

### Example of proper Chart usage

**Example #1:** If you would like to pump 15w-40 motor oil at a minimum temperature of 40° F, the maximum viscosity at this temperature is 998 cps, which is in the "green" zone of the chart (as determined from the lower chart). Next, look at the green line in the upper chart to determine that you can pump this oil at 10 GPM by using a fixed gear pump (4:1 ratio) or using 1st gear on a Three Speed Pump. An obvious advantage to the Three Speed Pump in this case is that you can utilize 2nd or 3rd gear to pump at 20 or 40 GPM when the viscosity falls into their pumping range.

**Example#2:** If you need to transfer oil at 40 GPM, the lower chart shows that you can pump any of the oils in the "orange" range of the chart. For instance, 10w-30 motor oil can be pumped at 40 GPM down to 60° F. With the use of a PowerMaster, the pump will continue to pump 10w-30 at gradually lower pumping rates as the temperature decreases (viscosity increases).