

6	10	2.31	Rev. 6
???	Replaces	8-97	

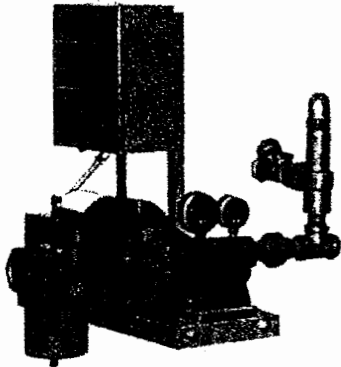
Specification Data

HEAVY OIL PUMPING SYSTEMS

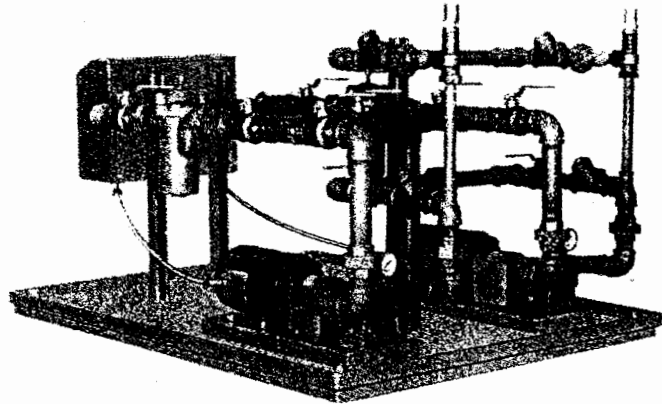
INTERMEDIATE PRESSURE MODELS - IS4D and ID4D for No. 4 FUEL OIL

INTERMEDIATE PRESSURE MODELS - IS6V and ID6V for No. 5 & 6 FUEL OIL

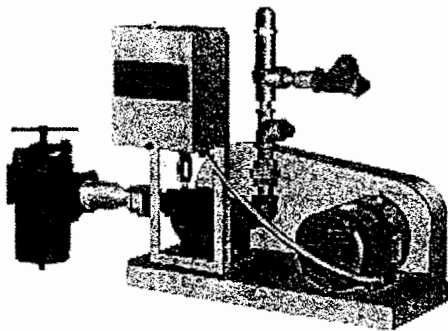
SIMPLEX or DUPLEX DIRECT or V-BELT DRIVE



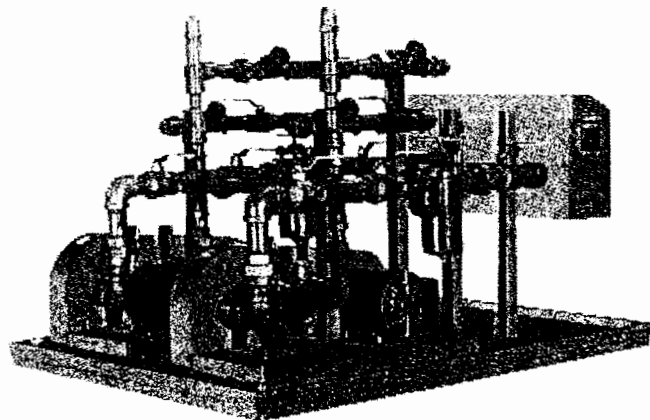
TYPICAL DIRECT-DRIVE SIMPLEX PUMP SYSTEM



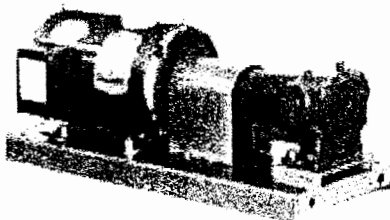
TYPICAL DIRECT-DRIVE DUPLEX PUMP SYSTEM



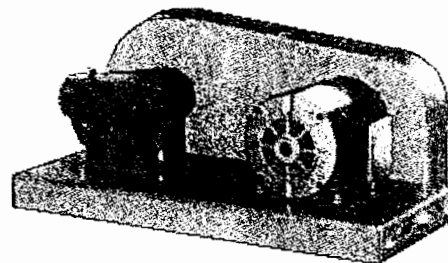
TYPICAL
V-BELT DRIVE
SIMPLEX



TYPICAL V-BELT DRIVE DUPLEX PUMP SYSTEM



TYPICAL BASIC
DIRECT DRIVE
PUMP SET
(SIMPLEX ONLY)



TYPICAL BASIC
V-BELT DRIVE
PUMP SET
(SIMPLEX ONLY)

General Description: Direct drive pump sets are sized for No. 4 oil, 750 SSU at 100 PSIG. They will also deliver a reliable flow of No. 2 oil as noted in the charts. Strainer size noted on the charts indicate suction line size at 750 SSU. For burner applications, a properly sized trim heater at the burner will normally achieve the atomizing temperature/viscosity range.

V-belt drive pump sets are sized for No. 6 oil, 5000 SSU at 100 PSIG. Pump RPM is reduced through the V-belt reduction to allow time for the thicker fluid to fill the space between the gears without cavitating. With this reduced pump speed and increased gear clearance required on the Viking 4195 Series, the pumps lose their ability to deliver a reliable flow of No.2 oil. Where customer requirement is for multifuel grades (e.g., No. 2 thru No. 6), a separate fuel pump designed for No. 2 oil is required. Ref. Catalog Sheet (6-10-2.3 Rev. 7) or later.

For burner applications, the temperature rise from pumpable viscosity to atomizing viscosity requires pre-heating. These pump sets are designed to deliver heavy oil to a pre-heater or can be incorporated into a pump and heater set on request.

BASIC COMPONENTS: The direct drive simplex pump set is made up with a NEMA base mounted electric motor; gear type pump; flexible drive coupling and

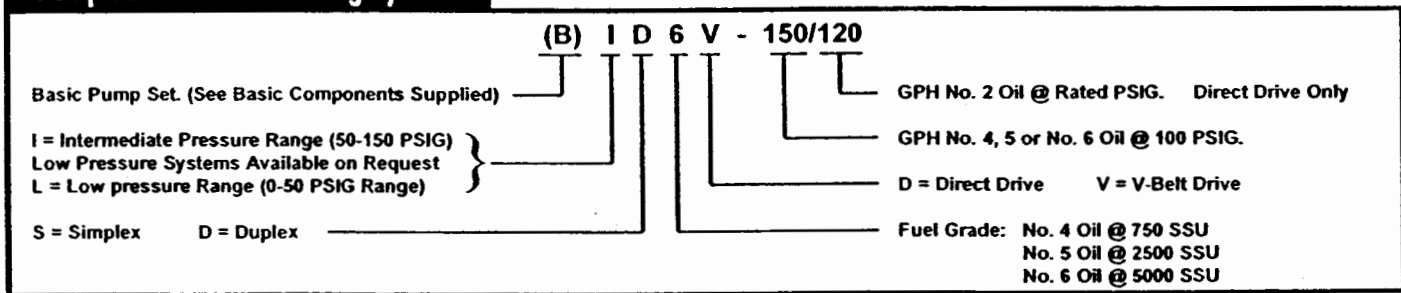
coupling guard mounted on a heavy gauge steel base. The V-belt drive simplex pump set is made up with a NEMA base mounted electric motor; gear type pump; variable pitch drive sheave; driven sheave; V-belt(s) and belt guard mounted on a heavy gauge steel base.

ACCESSORIES include a compound gauge (0-30 PSI x 30" hg); pressure-gauge (0-200 PSI) relief/regulator valve; check and shutoff valve(s) when applicable (see piping schematics); simplex strainer with removable basket; NEMA-1 control cabinet with motor starter(s) mounted and wired. Oil strainer is not mounted on simplex pump sets to prevent damage to the pump in shipment.

Duplex pump sets are the same as simplex systems described above, except that two each of the components are piped for common supply, discharge and relief return line with necessary shutoff valves and piping to permit transferring from one system to the other. Motor starters are enclosed in a single NEMA-1 control cabinet. All duplex components are mounted on a liquid tight base pan. Duplex pump sets with 2-1/2" NPS inlet piping and larger are standard with flanged duplex strainers.

Reference Catalog Sheet (1-GEN-10.6) for a more detailed discussion on suction lines and piping in general.

Pump Set Model Numbering System



BACK PRESSURE REGULATOR VALVE

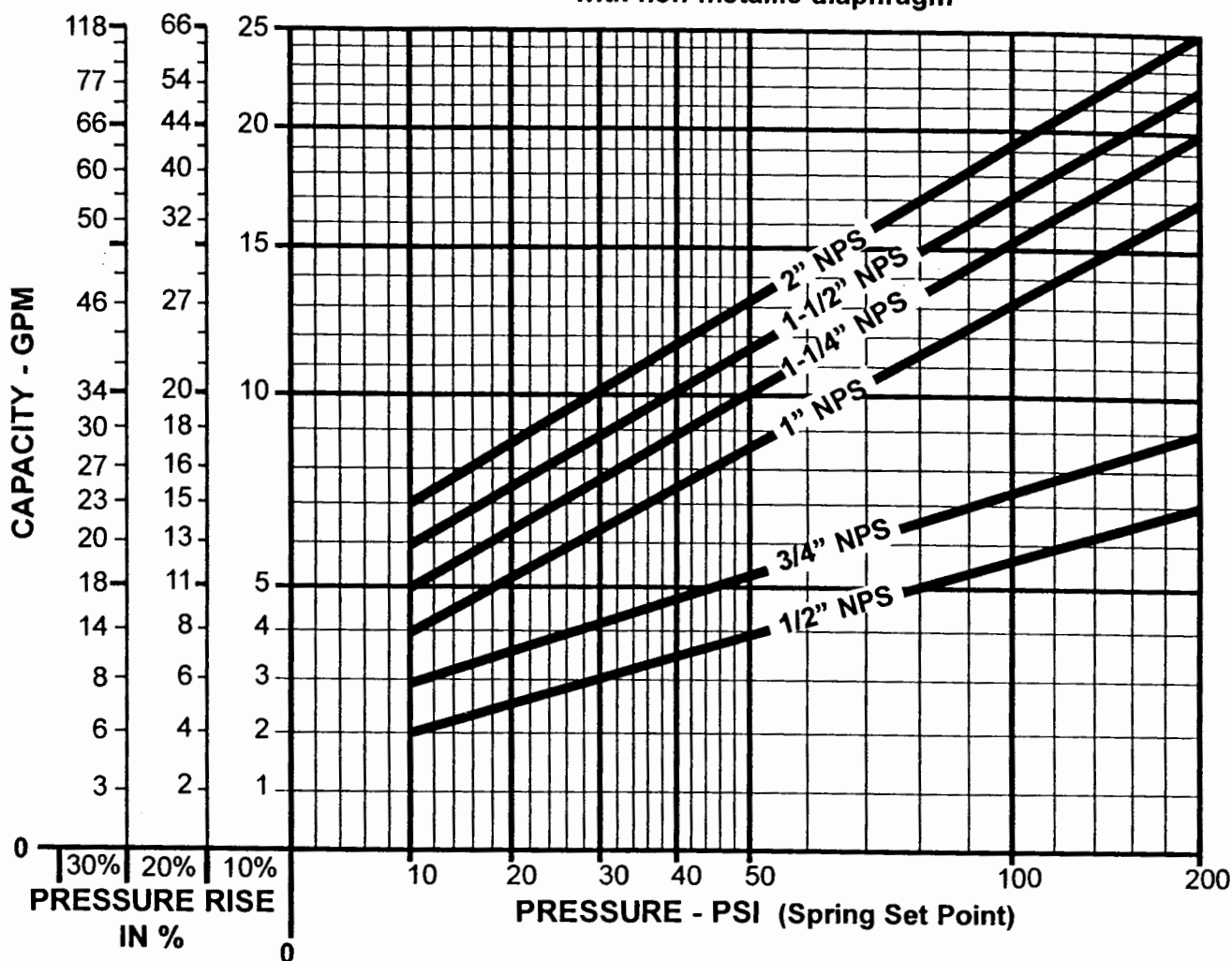
Back pressure regulator valves are not supplied as standard on G-PEG pump sets. When required, order separately to be shipped loose.

Flow chart is for Cash-Acme Model FR10 with viton non-metallic diaphragm and a 10% rise in pressure from set point flowing No. 2 oil (eg. A valve flowing the full discharge capacity of a pump will have a 10% rise in pressure from set point. For a more sensitive pressure control, select the valve with next pipe size larger. For a less sensitive pressure control, use the 20% or 30% pressure capacities.)

SIZE (inches)	RANGE OF ADJUSTMENT IN PSI				
	0-25	5-50	30-100	75-175	100-250
1/2	0-25	5-50	30-100	75-175	100-250
3/4	0-10	10-50	20-110	30-150	100-250
1	0-20	20-90	40-125	50-250	--
1-1/4	0-15	20-85	40-125	50-250	--
1-1/2, 2	0-10	10-55	30-100	40-200	125-250

BACK PRESSURE REGULATOR FLOW CHART

No. 2 oil Cash-Acme Model FR10
with non-metallic diaphragm



VISCOSITY CORRECTION FOR VALVE SIZING

Fluids such as No. 4, 5 & 6 oil can be quite viscous and an adjustment must be made to properly size valves for these applications.

A three valve bypass should be installed around the BPR valve for liquids in circulating loops that have cooled to a viscosity higher than design operating conditions or size the BPR to a higher viscosity or both.

VISCOSITY CORRECTION FACTOR			
VISCOSITY/TEMPERATURE IN SSU			CORR. FACTOR
SSU	FUEL GRADE	TEMP. °F	
100	#4	70° F	.78
200	#5 Light	100° F	.71
500	#5 Heavy	100° F	.62
1000	#6 Lower limit	100° F	.56
2000	#6 Upper limit	130° F	.52

Example of Sizing for Viscous Liquids.

What size valve is required to pass 5 GPM of heavy oil, viscosity of 750 SSU at flowing temperature.

Answer: $5 \text{ GPM} \div \text{factor } .59 \text{ (by interpolation)} = 8.5 \text{ GPM}$ of equivalent flow.

The above chart is for ref. points on the viscosity-temperature chart for No. 2-4-5 and 6 fuel oils.

Size the valve at the 8.5 GPM (10% column) level and at the operating pressure.

Figure 1

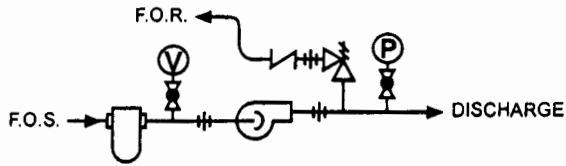


Figure 2

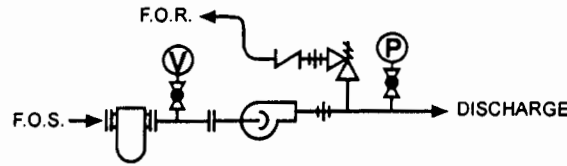
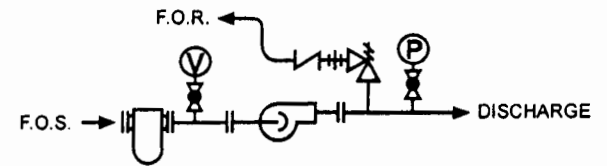
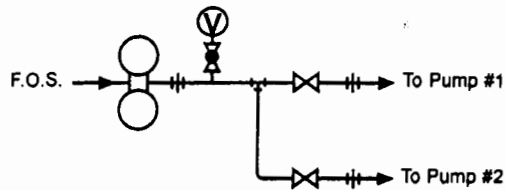


Figure 3

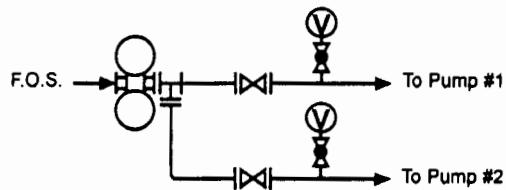


Alternate Piping for Threaded Duplex Strainer



Alternate Piping for Duplex Strainer with Threaded Inlet Piping on Duplex pump sets.

Alternate Piping for Flanged Duplex Strainer



Alternate Piping for Duplex Strainer with Flanged Inlet Piping on Duplex pump sets.

LEGEND (for piping)

Check Valve		Pressure Gauge	
Gate Valve		Gauge Cock (See Note) . .	
Globe Valve		Fuel Oil Supply	F.O.S.
Oil Pump		Fuel Oil Return	F.O.R.
Oil Strainer		Union	
Relief/Regulator Valve . .		Flanged Joint	
Temperature Gauge			
Vacuum/Pressure Gauge . .			

NOTE: Gauge cock not supplied as standard.

Figure 4

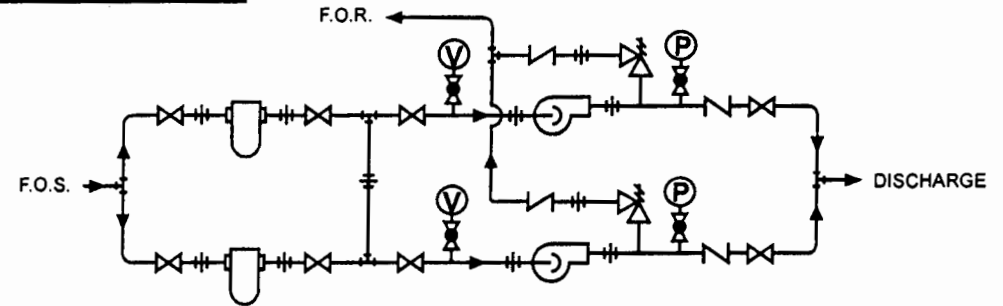


Figure 5

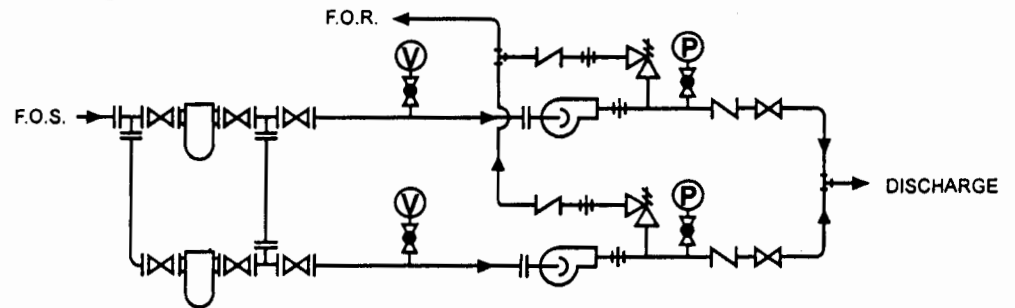
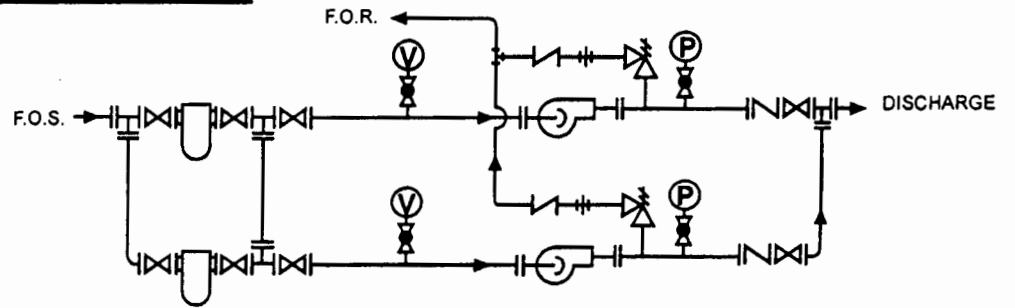


Figure 6



DIRECT DRIVE - NO. 4 OIL @ 100 PSI 750 SSU								
PUMP MODEL	PIPING SCHEMATIC FIGURE NO.		(3) PUMP CAPACITY (GPH)		(2) RELIEF/REG. VALVE		PUMP RPM (1) @ 60 HZ	MOTOR H. P.
	SIMPLEX	DUPLEX	DISCHARGE	SUCTION	MODEL	SPRING RANGE		
C432-PHSFCS	1	4	34 [25]	38	VJ-3XS	60-175#	1725	.33
F432-PHSFCV	1	4	65 [45]	78	VJ-3XS	60-175#	1150	.33
F432-PHSFCV	1	4	100 [80]	114	VJ-3XS	60-175#	1725	.50
FH432-PHSFCV	1	4	138 [95]	145	VJ-3XS	60-175#	1150	.50
FH432-PHSFCV	1	4	200 [165]	215	VJ-3XS	60-175#	1725	.75
GG4195-PHSCCV	1	4	430 [275]	480	VJ-4X	60-175#	1150	1.50
GG4195-PHSCCV	1	4	670 [525]	700	VJ-5XS	60-175#	1725	2.00
HJ4195-PHSCCV	1	4	840 [685]	900	VJ-5XS	60-175#	1150	3.00
HJ4195-PHSCCV	1	4	1320 [1120]	1400	VJ-5XS	60-175#	1725	5.00
HL4195-PHSCCV	1	4	1250 [955]	1320	VJ-5XS	60-175#	1150	5.00
HL4195-PHSCCV	2	5	1900 [1600]	1980	VJ-6XS	60-175#	1725	5.00

V-BELT DRIVE - NO. 5 & 6 OIL @ 100 PSI 2500 - 7500 SSU								
PUMP MODEL	PIPING SCHEMATIC FIGURE NO.		(5) PUMP CAPACITY (GPH)		(2) RELIEF/REG. VALVE		PUMP RPM (6) @ 60 HZ	MOTOR H. P.
	SIMPLEX	DUPLEX	DISCHARGE	SUCTION	MODEL	SPRING RANGE		
F432-PHSFCV	1	4	42	43	VJ-3XS	60-175#	725	.33
F432-PHSFCV	1	4	58	60	VJ-4X	60-175#	975	.33
FH432-PHSFCV	1	4	80	82	VJ-4X	60-175#	825	.50
FH432-PHSFCV	1	4	110	112	VJ-4X	60-175#	975	.50
FH432-PHSFCV	1	4	150	153	VJ-4X	60-175#	1300	.75
GG4195-PHSCCV (7)	1	4	205	210	VJ-5XS	60-175#	560	1.0
GG4195-PHSCCV (7)	1	4	270	275	VJ-5XS	60-175#	750	1.5
HJ4195-PHSCCV (7)	1	4	370	377	VJ-5XS	60-175#	560	2.0
HJ4195-PHSCCV (7)	2	5	515	525	VJ-7XS	60-175#	750	2.0
HL4195-PHSCCV (7)	3	6	665	680	VJ-7XS	60-175#	660	3.0
HL4195-PHSCCV (7)	3	6	920	938	VJ-7XS	60-175#	890	5.0

VIKING "432" AND "4195" SERIES

INLET CONDITIONS: -

- 20" HG SUCTION
- 100 PSI POSITIVE INLET PRESSURE (SEE NOTE 4)
- SUCTION CAPACITY DETERMINED AT 15" HG INLET TO ATMOSPHERIC DISCHARGE.

HORSE POWER: PRESSURE TO 150 PSI

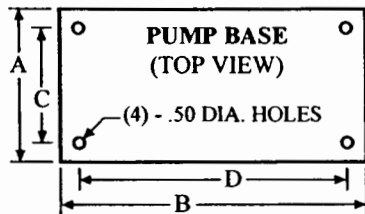
NOTES

1. If voltage is 50 HZ/1450 RPM ILO 1725 RPM or 950 RPM ILO 1150 RPM, deduct 17% from listed suction and discharge capacities. Also see note 6.

2. When Fulflo valves (P/N VJ-XXX) are installed as relief valves, divide the maximum spring range by 1.25 to determine maximum set point.
3. Discharge capacities given in brackets [] are for No. 2 oil.
4. NFPA-31 or local codes may limit inlet pressures on some installations.
5. Pump RPM too slow to deliver a reliable flow of No. 2 oil @ 100 PSI.
6. Pump RPM listed based on 1725 RPM motors @ 60 HZ with V-belt drive and driven sheaves supplied as standard. Variable drive sheave will provide 17% plus or minus from RPM's listed. Also see note 1.
7. Pump gears require extra clearance for viscosities above 2500 SSU. See Viking technical Service Manual TSM144 for the adjustment procedure.

SIMPLEX PUMP SET DIMENSIONS (Dashed lines are field piping)

NOTE: Alternate mounting brackets available on request (Qty. 2 per base) for welding to metal support or drip pan. Supplied as standard on duplex pump sets.



CAUTION: Pump and motor shafts are factory aligned to within acceptable tolerances. When mounting the pump base to an uneven surface using the top (4) .50 dia. holes; the base can be pulled into a warped position. This will cause misalignment of the above mentioned shafts producing noise and shorter life of the pump and drive couplings.

Figure 7 - Viking "432" Series Direct Drive

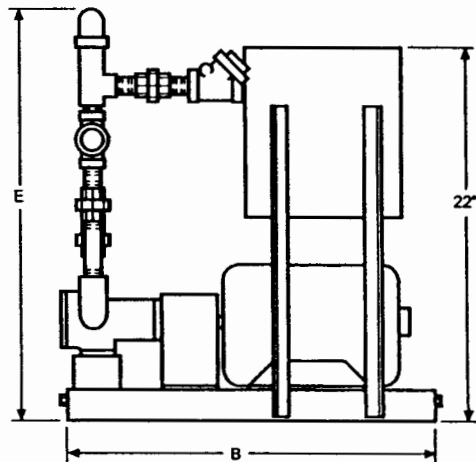
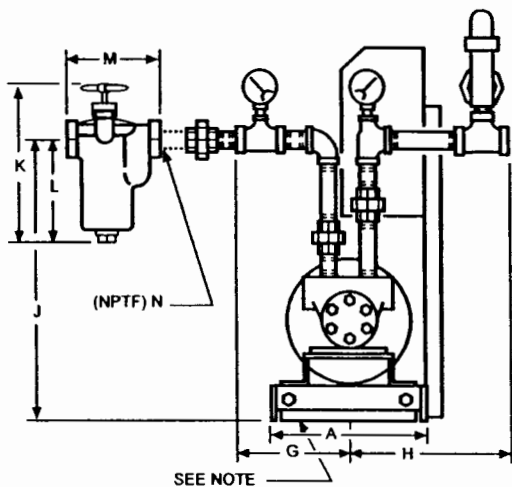


Figure 8 - Viking "4195" Series Direct Drive

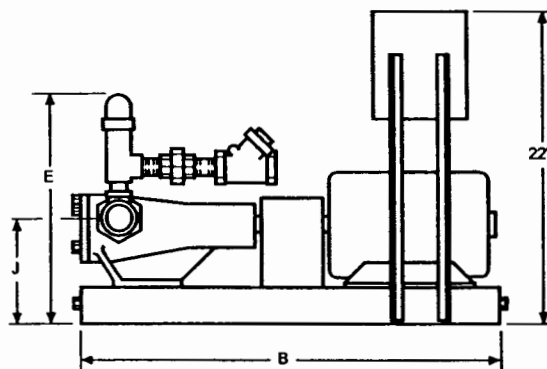
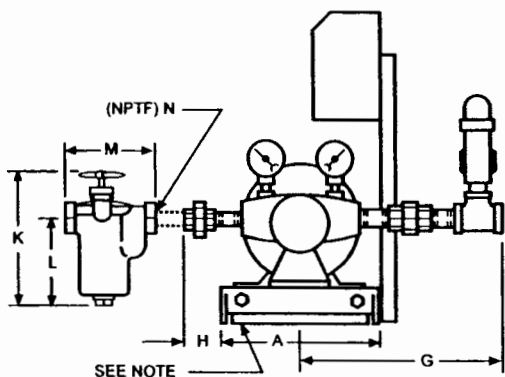
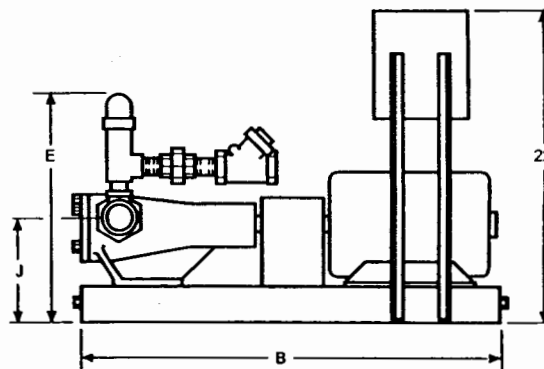
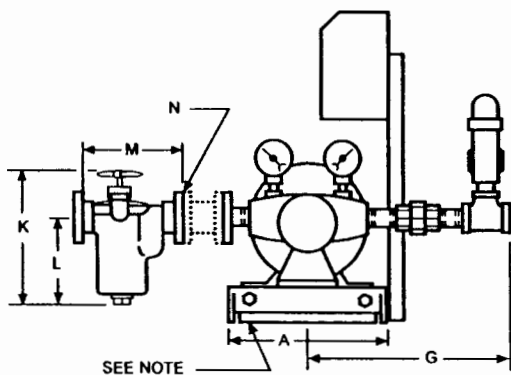


Figure 9 - Viking "4195" Series Direct Drive



SIMPLEX PUMP SET DIMENSIONS (Dashed lines are field piping)

Figure 10 - Viking "432" Series V-Belt Drive

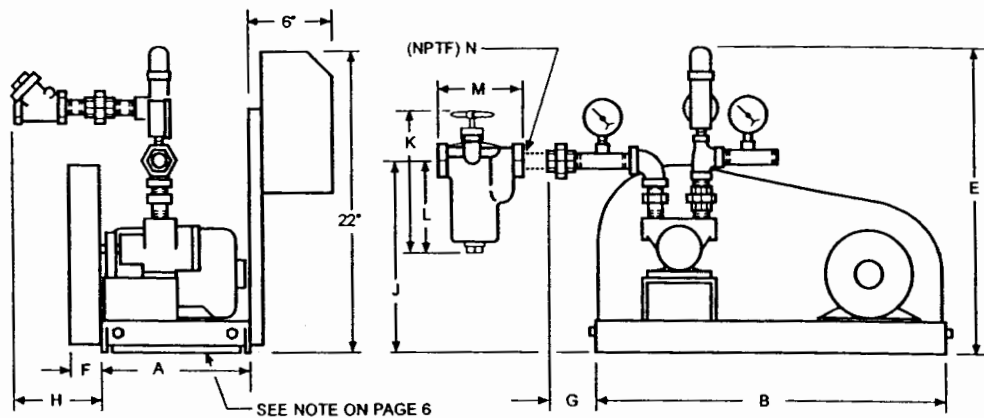


Figure 11 - Viking "4195" Series V-Belt Drive

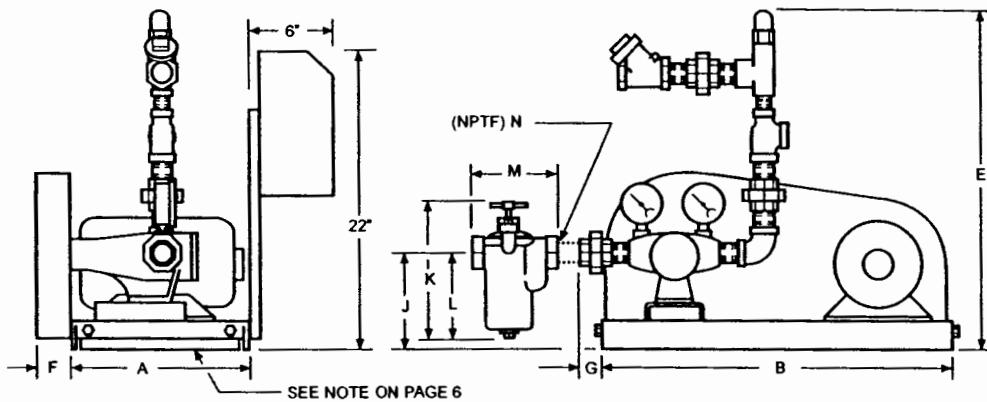


Figure 12 - Viking "4195" Series V-Belt Drive

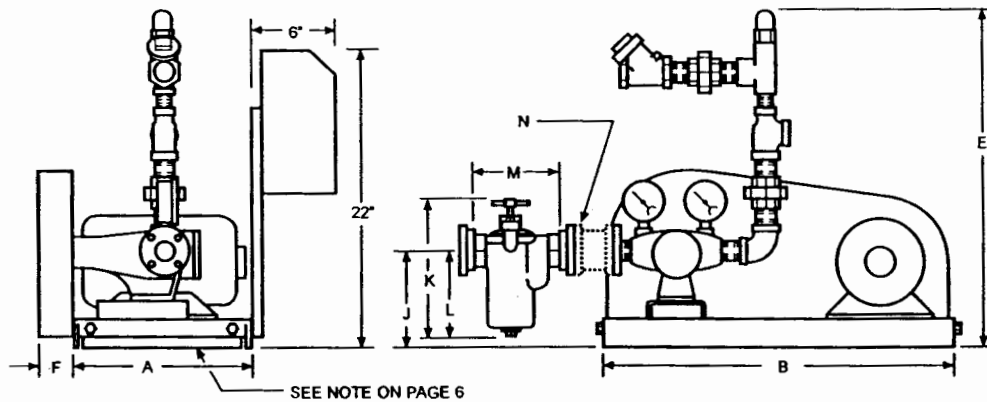
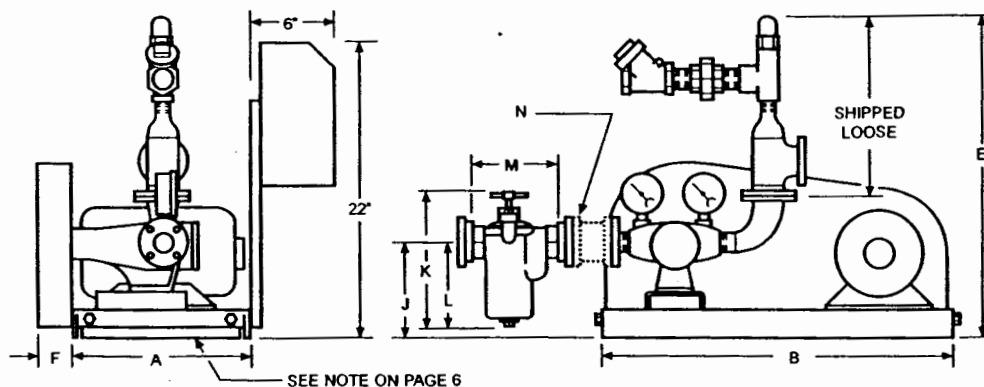


Figure 13 - Viking "4195" Series V-Belt Drive



SIMPLEX PUMP SET DIMENSIONS - DIRECT DRIVE (Inches)

PUMP SET MODEL	FIG. NO.	MOTOR FRAME	BASE DIMENSIONS				OVERALL DIMENSIONS					OIL STRAINER DIMENSIONS			
			A	B	C	D	E	F	G	H	J	K	L	M	N (2)
IS4D-34/25-C432	7	48	7.5	15.25	6.0	13.75	18.75	--	0.38	7.11	11.12	9.63	5.69	5.38	0.75
IS4D-65/45-F432	7	56	8.5	16.00	7.0	14.5	19.50	--	1.57	7.76	11.71	9.63	5.69	5.38	1.00
IS4D-100/80-F432	7	56	8.5	16.0	7.0	14.5	19.50	--	1.57	7.76	11.71	9.63	5.69	5.38	1.00
IS4D-130/95-FH432	7	56	8.5	16.0	7.0	14.5	19.50	--	1.75	8.06	11.85	10.5	5.94	7.00	1.25
IS4D-200/165-FH432	7	56	8.5	16.0	7.0	14.5	19.50	--	1.75	8.06	11.85	10.5	5.94	7.00	1.25
IS4D-430/275-GG4195	8	145T	8.5	21.0	7.0	19.5	14.62	--	10.31	3.91	4.25	12.0	7.44	7.00	1.50
IS4D-670/525-GG4195	8	145T	8.5	21.0	7.0	19.5	15.88	--	10.31	3.91	4.25	12.0	7.44	7.00	1.50
IS4D-840/685-HJ4195	8	213T	12.0	28.0	10.0	26.0	19.00	--	11.96	5.50	8.25	13.75	7.81	9.00	2.00
IS4D-1250/955-HL4195	8	215T	12.0	28.0	10.0	26.0	19.00	--	11.96	5.50	8.25	13.75	7.81	9.00	2.00
IS4D-1320/1150-HJ4195	8	184T	9.5	23.75	8.0	22.25	19.00	--	11.96	6.75	6.0	13.75	7.81	9.00	2.00
IS4D-1900/1600-HL4195	9	184T	9.5	23.75	8.0	22.25	20.50	--	--	--	6.0	16.00	10.31	9.25	2.50

8

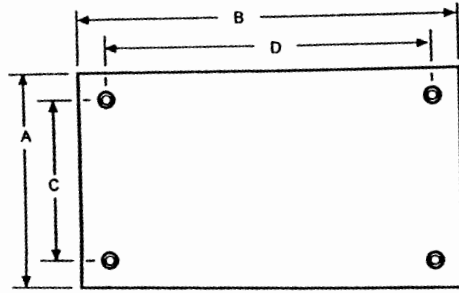
SIMPLEX PUMP SET DIMENSIONS - V-BELT DRIVE (Inches)

PUMP SET MODEL	FIG. NO.	MOTOR FRAME	BASE DIMENSIONS				OVERALL DIMENSIONS					OIL STRAINER DIMENSIONS			
			A	B	C	D	E	F	G	H	J	K	L	M	N (2)
IS6V-42-F432	10	56	9.5	21.25	8.0	19.75	19.3	3.25	2.16	2.6	10.33	9.63	5.69	5.38	0.75
IS6V-58-F432	10	56	9.5	21.25	8.0	19.75	20.0	3.25	3.9	5.19	10.4	9.63	5.69	5.38	1.00
IS6V-80-FH432	10	56	9.5	21.25	8.0	19.75	20.0	3.25	3.9	5.19	10.4	9.63	5.69	5.38	1.00
IS6V-110-FH432	10	56	9.5	21.25	8.0	19.75	20.0	3.25	3.1	5.6	10.5	10.5	5.94	7.0	1.25
IS6V-150-FH432	10	56	9.5	21.25	8.0	19.75	20.0	3.25	3.1	5.6	10.5	10.5	5.94	7.0	1.25
IS6V-205-GG4195	11	143T	9.5	23.5	8.0	22.00	23.0	3.25	1.5	--	4.25	12.0	7.44	7.0	1.50
IS6V-270-GG4195	11	145T	9.5	23.5	8.0	22.00	23.0	3.25	2.62	--	4.25	13.75	7.81	9.0	2.00
IS6V-370-HJ4195	11	145T	11.0	27.25	9.5	25.75	26.19	3.25	3.0	--	7.75	13.75	7.81	9.0	2.00
IS6V-515-HJ4195	12	145T	11.0	27.25	9.5	25.75	27.5	3.25	--	--	7.75	15.56	9.75	13.0	2.50
IS6V-665-HL4195	13	182T	11.0	27.25	9.5	25.75	38.5	3.25	--	--	7.75	16.25	10.12	17.75	3.00
IS6V-920-HL4195	13	184T	11.0	27.25	9.5	25.75	40.0	3.25	--	--	7.75	21.38	14.88	17.75	4.00

PUMP SET DIMENSIONAL DATA

PUMP SET DIMENSIONAL DATA (Continued)

DUPLEX PUMP SET DIMENSIONS - DIRECT and V-BELT DRIVE (Inches)



PUMP SET MODEL	BASE PAN DIMENSIONS (1)			
	A	B	C	
ID4D-34/25-C432	30.0	36.0	20.88	3
ID4D-65/45-F432 ID4D-100/80-F432 ID4D-130/95-FH432 ID4D-200/165-FH432 ID4D-430/275-GG4195 ID4D-670/525-GG4195	36.0	45.0	26.88	42
ID4D-840/685-HJ4195 ID4DP1250/955-HL4195 ID4D-1320/1150-HJ4195 ID4D-1900/1600-HL4195	42.0	54.0	37.88	49
ID6V-42-F432 ID6V-58-F432 ID6V-80-FH432	30.0	36.0	20.88	3
ID6VP110-FH432 ID6V-150-FH432 ID6V-205-GG4195 ID6V-270-GG4195 ID6V-370-HJ4195	36.0	45.0	26.88	4
ID6V-515-HJ4195 ID6V-665-HL4195 ID6V-920-HL4195	42.0	54.0	37.88	4

NOTES

1. Base pans listed are for standard pump sets as priced. Check with factory when specialment (eg: larger control cabinets or added components) are required for correct base pa
2. Strainers 2.5 NPS and larger are 125# FF flanged.

HEAVY OIL LINE SIZING

... deliver oil to the burner for firing are usually sized 1-1/2 times the burner requirement. Suction and circulating pump set selections are often based on different requirements. There is a relatively small difference between suction and discharge capacities and the efficiency of pumps handling heavy oils.

Equivalent suction line length includes the measured length of the suction line from the point of entry (bottom of tank) to the pump, plus the friction loss equivalent length of valves, fittings, etc. installed in the suction piping (see table).

In installations where suction lift is not required, use the upper portion of the chart, eg. a 100 ft. line flowing 10 GPM will intersect at the 1-1/4" pipe size on the 7500 SSU chart. When three points intersect on the charts (flow rate, line length and pipe size), the requirement will be met at that PSI pressure or 10" Hg suction.

In sizing suction lines, DO NOT exceed the recommended oil velocity. For example: On the 5000 SSU chart and the chart for maximum recommended velocity by viscosity, a 30 ft. suction line flowing 10 GPM of 7500 SSU oil will intersect at the 2" pipe size. Move horizontally to the right and find a pipe size with an acceptable velocity for 7500 SSU (.5 ft./sec.). A 3" pipe size would be required.

Strainer sizes listed on the charts and included on standard material lists are sized by velocity for the purpose of straining, since job site conditions are unknown. Strainers one line size smaller are also acceptable unless they produce an equivalent suction line length that is acceptable due to the job site layout. Select a strainer that is the same as the adjusted suction line size.

Large lines can normally be one pipe size smaller than suction lines at higher pressures. Pipe sizes for circulating loops with return lines should be not less than one line size. Use the upper portion of the charts to size circulating loops to limit friction loss where no lift is involved.

The term "suction lift" is often used in reference to the distance or length of pipe below the inlet port of the burner. Technically, we do not "lift" a liquid. On the surface, at sea level, there is 14.7 PSIA atmospheric pressure (29.9" Hg vacuum). Atmospheric pressure decreases at higher elevations. It is not practical to develop a complete vacuum (29.9" Hg vacuum).

By design, we can only use about half of the atmospheric pressure, 7-1/2 PSIA or 15" Hg. Viking pumps can operate at 20" Hg but this should be considered only under controlled conditions that demand this high of vacuum.

When a pump starts, it reduces the pressure inside the pipe at the inlet port below atmospheric pressure. This is normally registered by a vacuum gauge in inches of Hg. [Divide in. Hg by 2.035 to determine PSIG (gauge pressure)]. It is the difference between the reduced pressure (PSIG) at the pump inlet port and the atmospheric pressure (PSIA) available that pushes the liquid through or up the pipe.

Use the lower portion of the charts to compensate for suction lift, eg. ref. the 2500 SSU chart. A suction line with an equivalent length of 60 ft., 15 ft. of lift and flowing 7 GPM will require a 3" pipe size.

In the above example, a major portion of the pumps suction ability has been consumed in static lift and a small portion remains for friction loss. We cannot change the static lift requirement, but we can change the friction loss per foot by increasing the pipe size. For the 3" pipe size, velocity is not a concern, but the increased pipe size will require a larger strainer than listed on the charts as a standard and for example may change the piping schematic from Fig. 4 to Fig. 5 and the dimensional drawing from Fig. 11 to Fig. 12 for the inlet piping.

Friction losses for the pipe sizing charts are with new Sch. 40 pipe. Heavy oils, especially residual heavy oil, tend to leave a deposit on the walls of the pipe reducing the internal diameter: increasing velocities and friction loss. Consideration should be given to adding 20% to the measured length of the suction line. Some codes require threaded piping inside boiler rooms to be Sch. 80. Add 10% to the measure length of the suction line for this portion of the piping.

FRICION LOSS IN STANDARD VALVES AND FITTINGS
TABLE GIVEN EQUIVALENT LENGTHS IN FEET OF STRAIGHT PIPE

PIPE SIZE NPS	TYPE OF FITTING OR VALVE (1)						
	GATE VALVE (OPEN)	GLOBE VALVE (OPEN)	CHECK VALVE (OPEN)	ELL (2) STANDARD 90°	ELL STANDARD 45°	TEE SGT. THRU FLOW	TEE (2) RGT. ANGLE FLOW
1/2	0.35	17	4.0	1.5	0.8	1.0	3.2
3/4	0.50	22	5.5	2.2	1.0	1.3	4.5
1	0.60	27	6.0	2.7	1.3	1.7	5.7
1-1/4	0.80	38	9.0	3.6	1.7	2.3	7.5
1-1/2	1.20	44	11.0	4.5	2.0	2.8	9.0
2	1.20	53	14.0	5.2	2.6	3.5	12.0
2-1/2	1.40	68	17.0	6.5	3.0	4.3	14.0
3	1.70	80	20.0	8.0	4.0	5.2	16.0
4	2.30	120	25.0	11.0	5.0	7.0	22.0
5	2.80	140	34.0	14.0	6.2	9.0	27.0
6	3.50	170	40.0	16.0	7.8	11.0	33.0
8	4.50	220	54.0	21.0	11.0	14.0	43.0
10	5.70	280	67.0	26.0	14.0	17.0	53.0

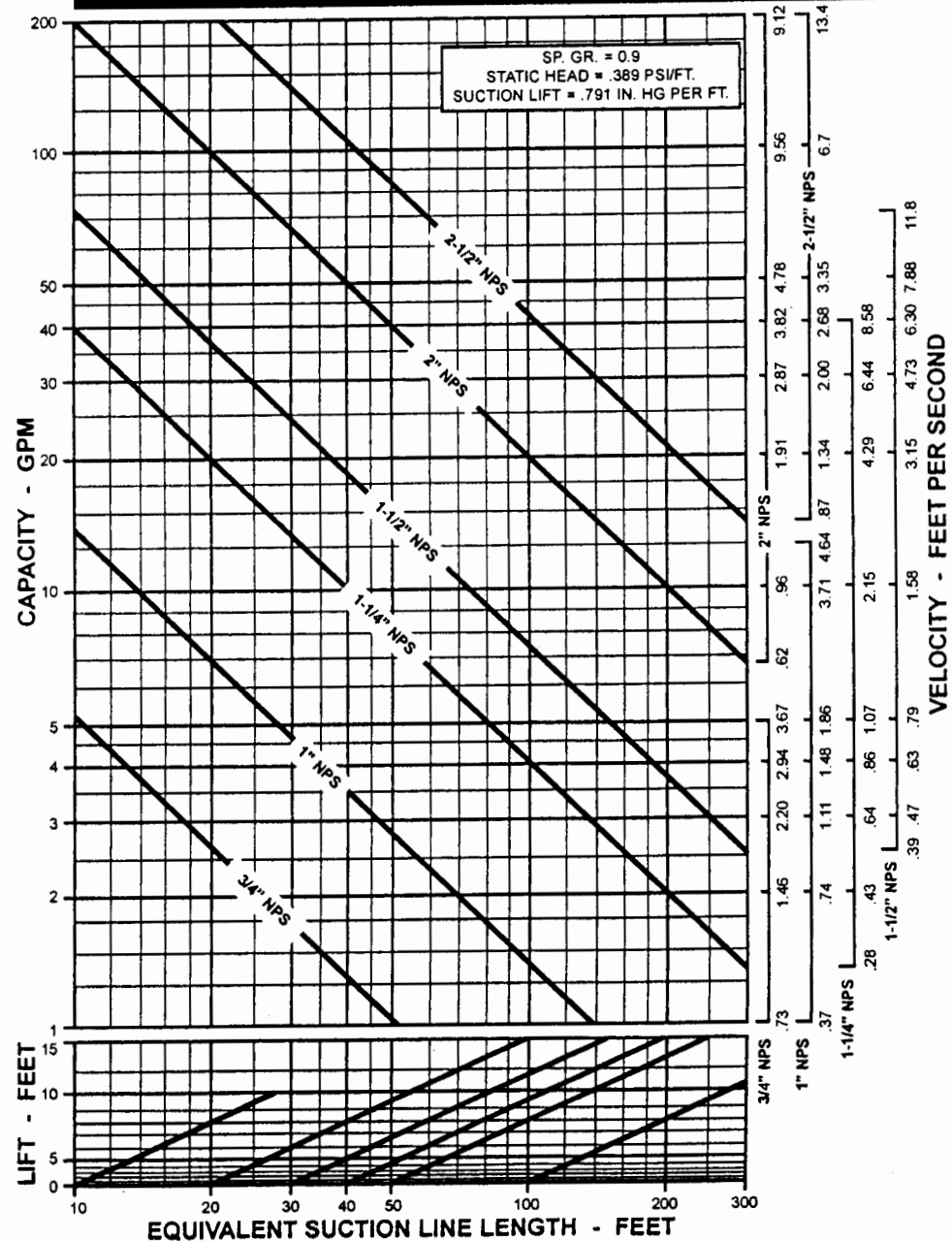
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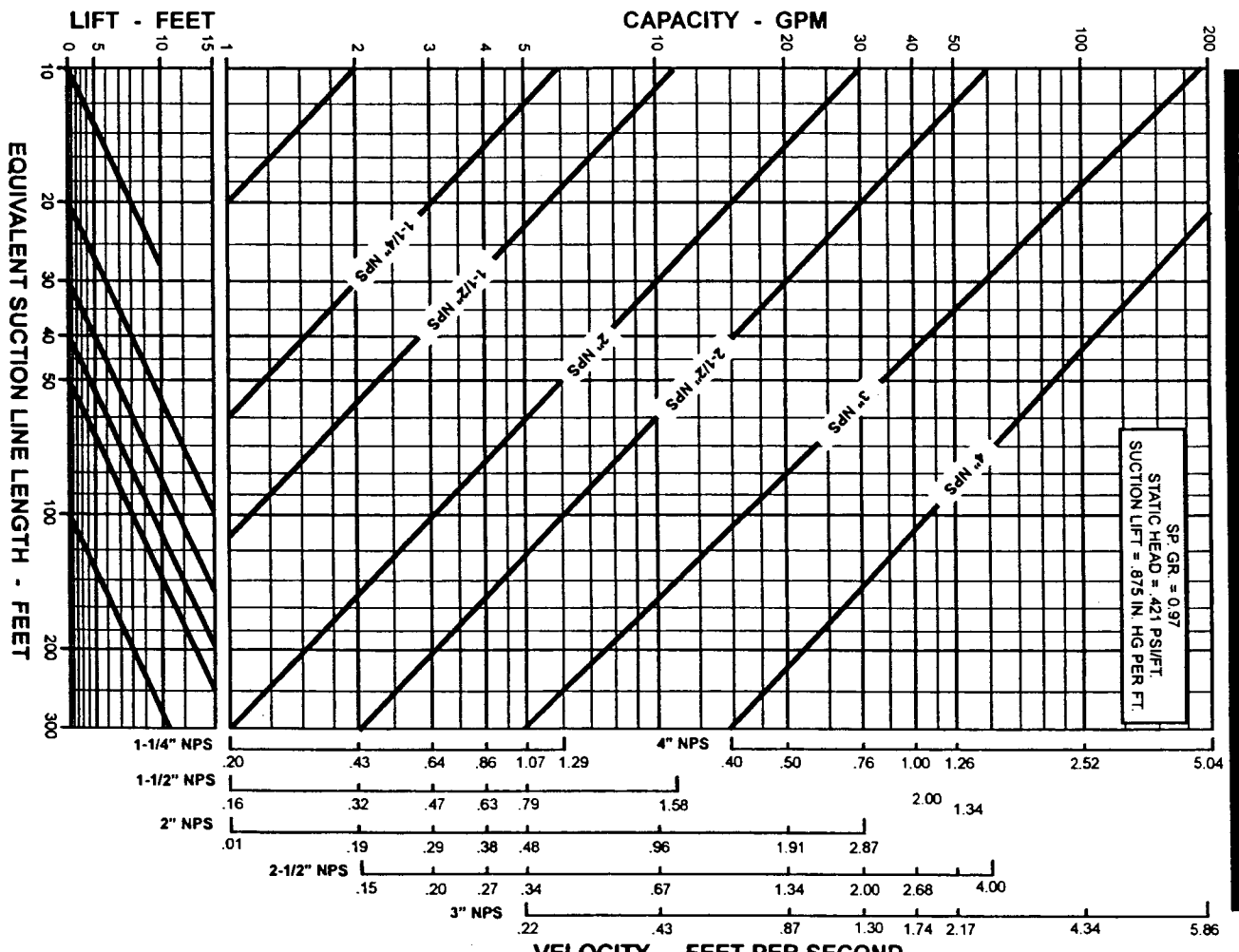
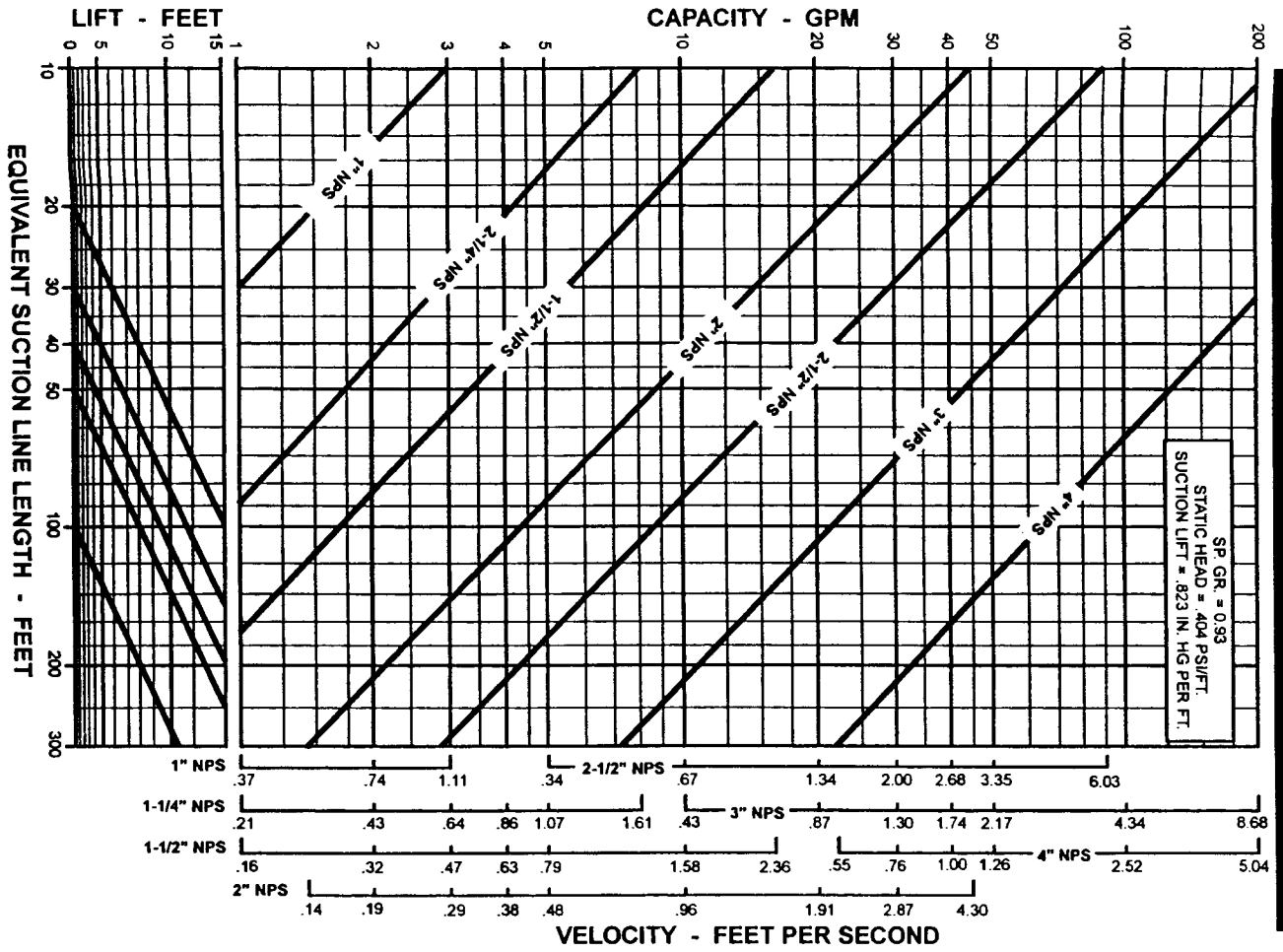
- (1) PREFERRED ANTI-SIPHON VALVES REQUIRE A MINIMUM OF 2" HG TO OPERATE.
- (2) BASKET TYPE STRAINERS THAT ARE LINE SIZE HAVE A FRICTION LOSS SIMILAR TO A 90° ELL. STRAINERS ONE LINE SIZE SMALLER ARE SIMILAR TO A RIGHT ANGLE TEE.

MAXIMUM RECOMMENDED VELOCITIES
IN FEET PER SEC. BY VISCOSITY

VISCOSITY		VELOCITY IN FT./SEC.	
SSU	CS	SUCTION	DISCHARGE
400	88	4.0	6.8
750	166	3.5	5.6
1500	330	2.5	4.3
2500	550	1.6	2.7
5000	1100	.85	1.5
7500	1650	.60	.85

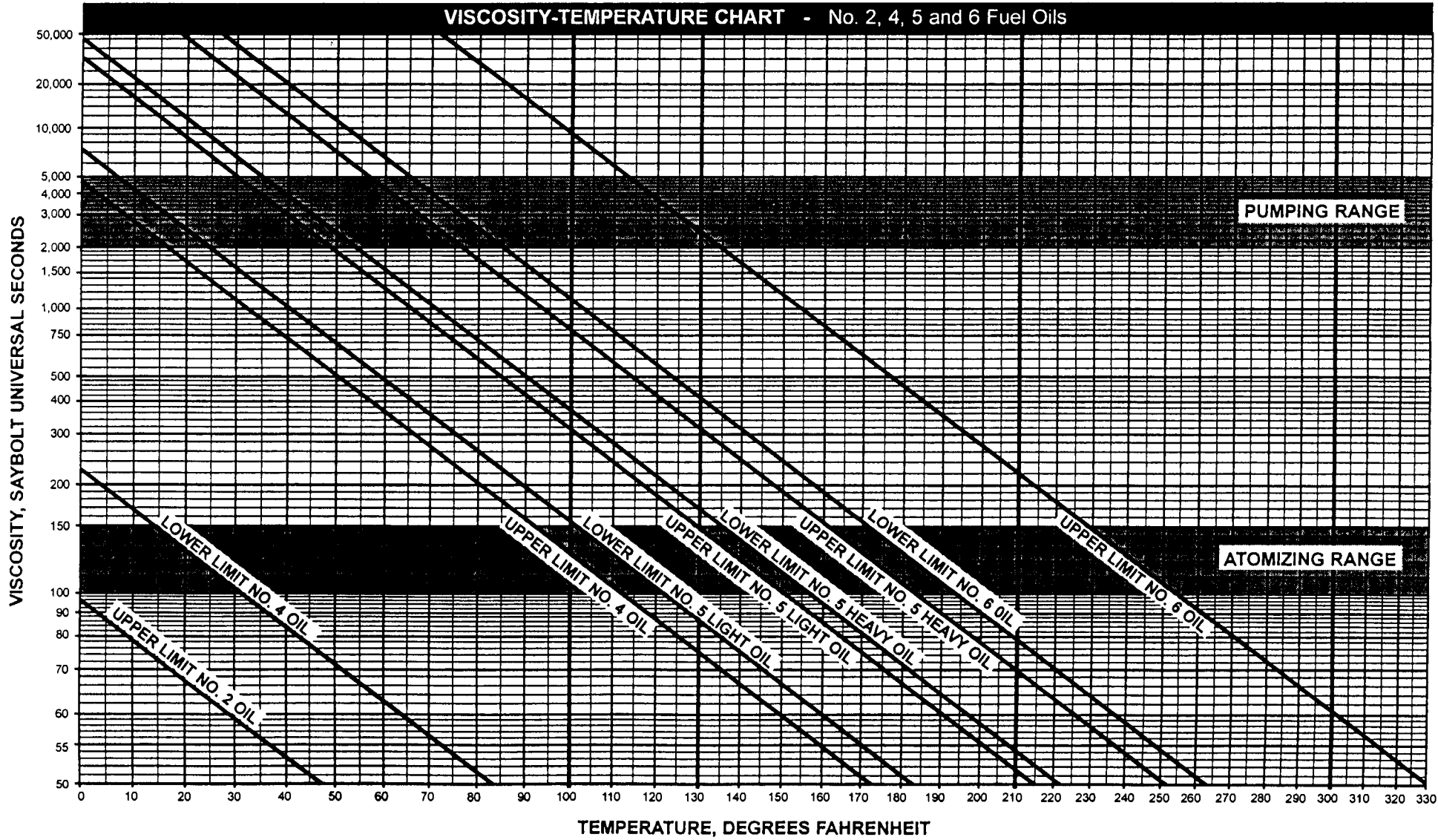
PIPE SIZING CHART - Sch. 40 NPS - 750 SSU - 165 CS



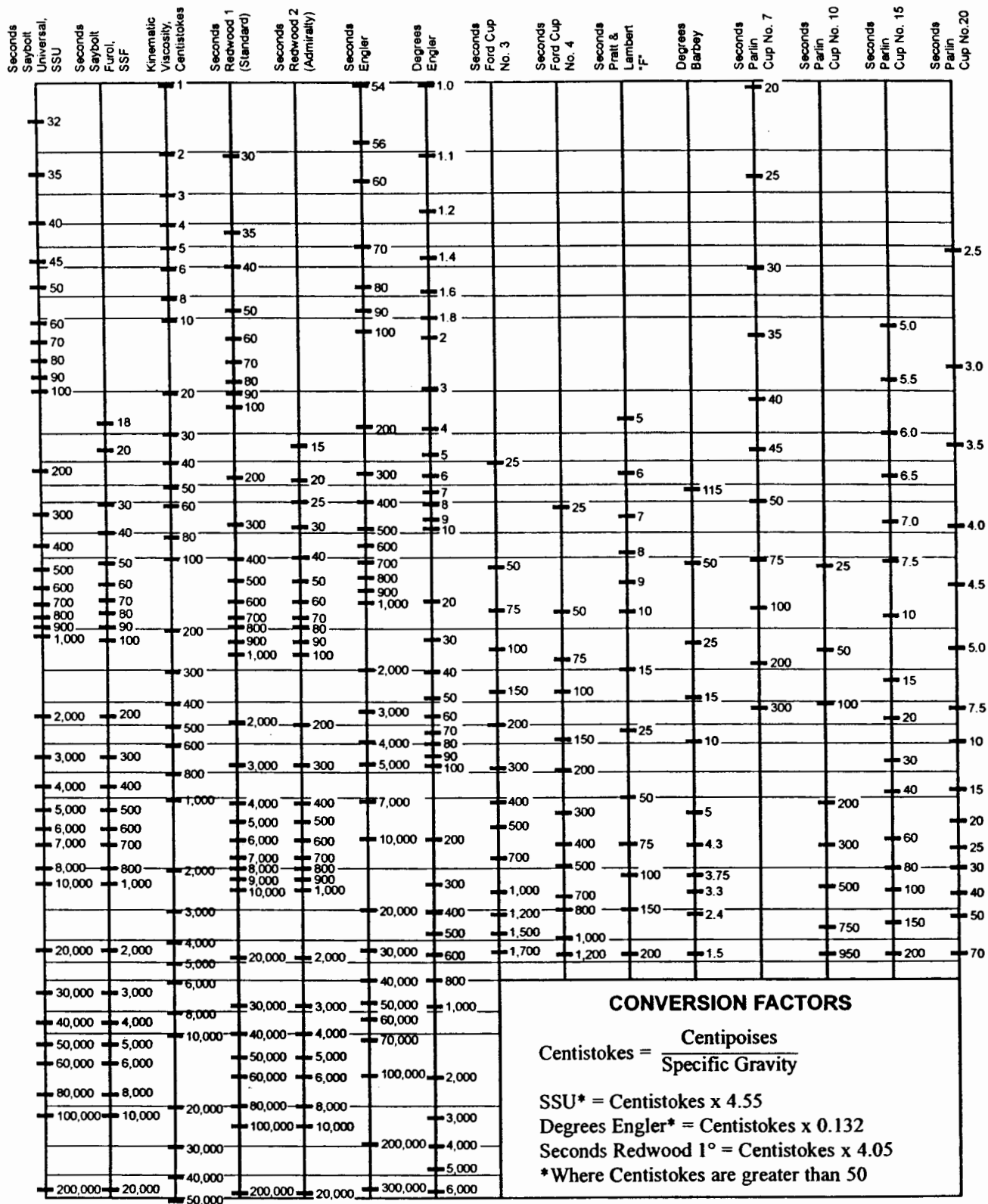


PIPE SIZING CHART - Sch. 40 NPS - 2500 SSU - 550 CS

PIPE SIZING CHART - Sch. 40 NPS - 5000 SSU - 1100 CS

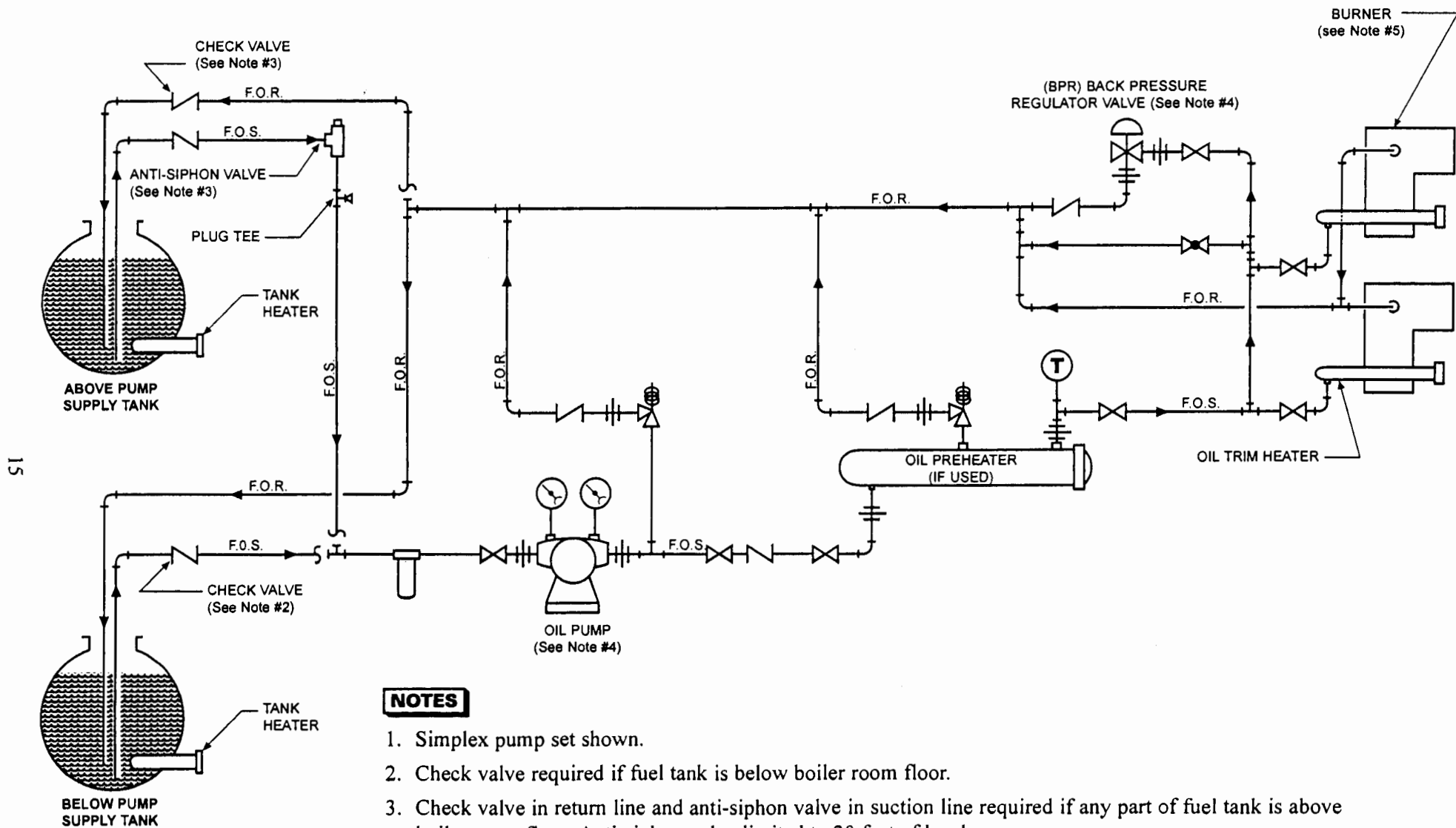


VISCOSITY CONVERSION CHART



VIKING PUMP, INC. ● A Unit of IDEX Corporation ● Cedar Falls, Iowa 50613 U.S. A.

TYPICAL HEAVY OIL SYSTEMS PIPING SCHEMATIC



NOTES

1. Simplex pump set shown.
2. Check valve required if fuel tank is below boiler room floor.
3. Check valve in return line and anti-siphon valve in suction line required if any part of fuel tank is above boiler room floor. Anti-siphon valve limited to 20 feet of head.
4. Oil pump shown is supplying the burner firing rate and the BPR is maintaining pressure to the burner(s). If the burner(s) are equipped with individual pump sets to deliver the firing rate then the oil pump shown becomes a circulating oil pump and the BPR (depending on job site conditions) is not required.
5. Refer to Section 1-gen-80.xx for fuel system used.

