

UNITIZED CARTRIDGE FOR T5E & T55E
REFER TO PAGE 14 FOR PARTS LIST

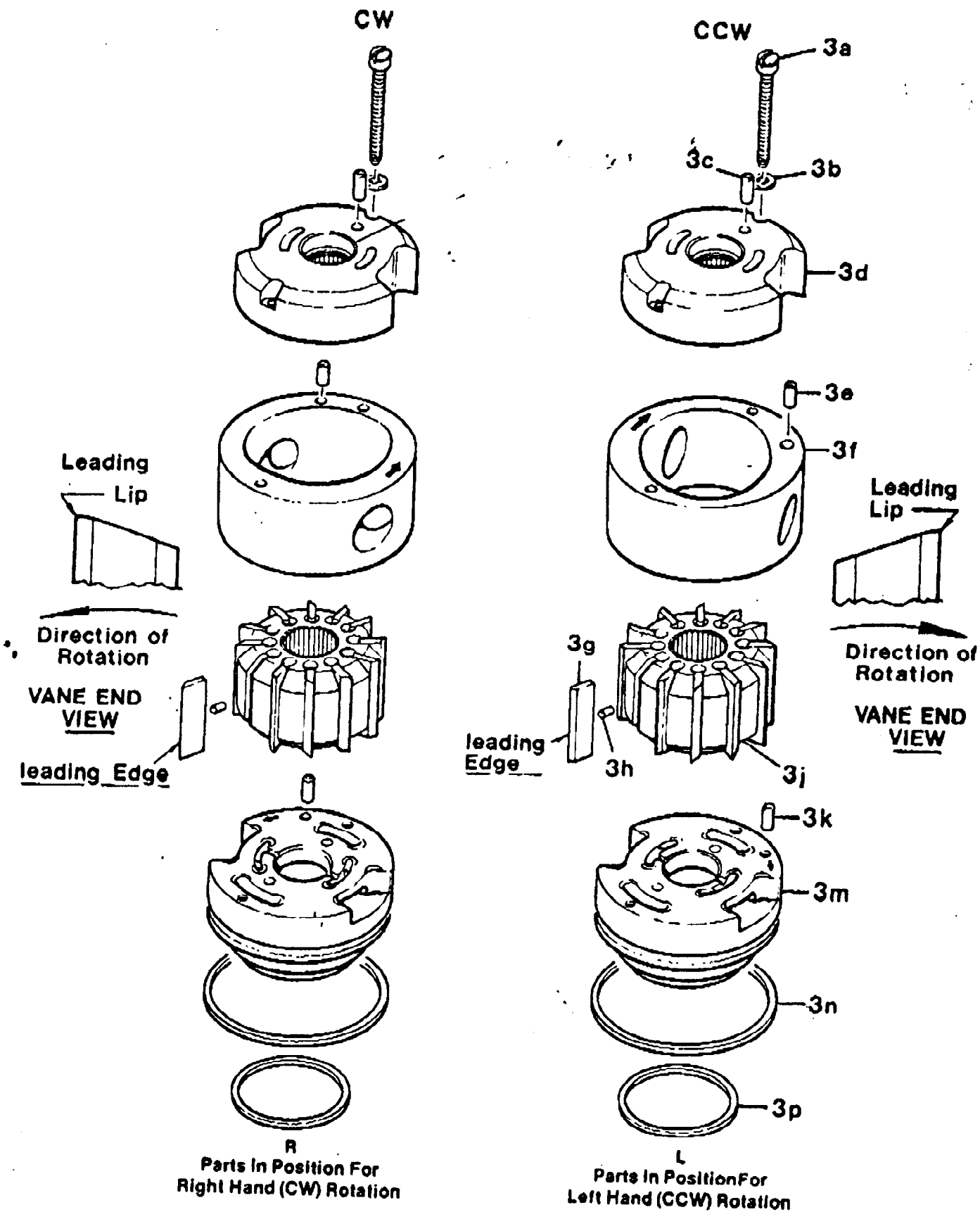


FIG. V

**T5E and T5SE
UNITIZED CARTRIDGE PARTS LIST**

Item 3 Unitized Cartridge Assembly T5E* (FIG. V)		These parts and common parts listed below are a complete T5E Unitized Cartridge Assembly				
Model No.	Code No.	3d Rear Port Plate Assy.	3f Cam Ring	3m Front Port Plate	3n Seal	3p Seal
Right Hand or CW rotation						
T5E-050R	S14-43342	S14-43366	034-72122	034-71429	691-10253	691-10237
T5E-055R	S14-43344		034-72123			
T5E-060R	S14-43346		034-72279			
T5E-066R	S14-43348		034-72280			
Left Hand or CCW rotation						
T5E-050L	S14-43343	S14-43367	034-72122	034-71430	691-10253	691-10237
T5E-055L	S14-43345		034-72123			
T5E-060L	S14-43347		034-72279			
T5E-066L	S14-43349		034-72280			
QTY.	1	1	1	1	1	1

**T5E and T5SE
UNITIZED CARTRIDGE PARTS LIST**

Item 3 Unitized Cartridge Assembly T5SE** (FIG. V)		These parts and common parts listed below are a complete T5SE Unitized Cartridge Assembly				
Model No.	Code No.	3d Rear Port Plate Assy.	3f Cam Ring	3m Front Port Plate	3n Seal	3p Seal
Right Hand or CW rotation						
T5SE-050R	S14-46892-5	S14-46890	034-72278	034-71429	695-20253	695-20237
T5SE-055R	S14-46894-5		034-72277			
T5SE-060R	S14-46896-5		034-72276			
T5SE-066R	S14-46898-5		034-72275			
Left Hand or CCW rotation						
T5SE-050L	S14-46893-5	S14-46891	034-72278	034-71430	695-20253	695-20237
T5SE-055L	S14-46895-5		034-72277			
T5SE-060L	S14-46897-5		034-72276			
T5SE-066L	S14-46899-5		034-72275			
QTY.	1	1	1	1	1	1

*For use with petroleum base fluids.

**For use with fire resistant fluids and severe duty application.

COMMON UNITIZED CARTRIDGE PARTS FOR ALL MODELS

Item	Qty.	Part No.	Description
3a	2	310-10340	10-24x3½ Rd. Hd. Screw
3b	2	348-10010	No. 10 Lockwasher
3c	1	323-82014	5/16x¾ Driv-Lok Pin
3e	1	324-22016	5/16x1 Dowel Pin

Item	Qty.	Part No.	Description
3g	12	034-70255	Vane
3h	12	034-70259	Vane Holdout Pin
3j	1	S14-28188	Rotor Assy.
3k	1	324-22016	5/16x1 Dowel Pin

**T5E & T5SE
PARTS LIST**

ITEM	PART NO.	DESCRIPTION	QUANTITY
1	306-40159	Hex head cap screw (grade 5) 5/8-11x6½ lg.	4
2	034-70247	Housing	1
3	See Page 14	Pumping cartridge and Seats	1
4	356-30315	Retaining ring	1
5	S14-28173 S14-28174 S14-28175	Splined Shaft Assy. SAE-c (Standard) No. 3 71077 Keyed Shaft Assy. SAE-c-c (Standard) No. 1 71076 1 only Keyed Shaft Assy. Not SAE (Optional) No. 2 71078	
5a	034-70866	Ring, rd. sec. — open type	1
5b	230-03208	Bearing	1
5c	034-70866	Ring, rd. sec. — open type	1
6	*620-82064(s) **620-82072(s)	Shaft Seal Shaft Seal (for T5SE)	1 only
7	*671-10259(s) **695-10259(s)	Seal (sq. section) Seal (sq. section) (for T5SE)	1 only
8	034-70249	Mounting Flange Cap	1
(s)	*S14-28189	Seal Kit	1 only
(s)	**S14-28189-5	Seal Kit (for T5SE)	

**FLUID CONNECTION KITS (Optional)
T5E & T5SE**

PORT SIZE & LOCATION	MODEL*** NUMBER	CODE*** NUMBER	TYPE (Thread Size)
Pressure 1½"	FS4-P-24-19-58	S14-07429	1½" NPTF
	FS4-W-24-19-60	S14-07431	1½" Soc. Weld
	FS4-S-30-17-57	S14-08453	SAE-24
Suction 3"	FS4-P-48-12-34	S14-07428	3" NPTF
	FS4-W-48-12-37	S14-07430	3" Soc. Weld

Foot mounting bracket kit (optional): Code No. S14-28966

- *For use with petroleum base fluids.
- **For use with fire resistant fluids and severe duty applications.
- ***For T5SE add -5 to model no. and code no. when ordering fluid connection kit.

SERIES T5E & T5SE

OPERATING SPECIFICATIONS

Fluid Type	Denison Fluid Spec.	T5E Continuous			T5E Intermittent*			T5SE Continuous			T5SE Intermittent*		
		Speed RPM	Pressure PSI	Bar	Speed RPM	Pressure PSI	Bar	Speed RPM	Pressure PSI	Bar	Speed RPM	Pressure PSI	Bar
Antiwear Petroleum Base	HF-0	2200	2500	172	2200	3000	207	2200	3000	207	2200	3500	241
	HF-2, 2A	2200	2500	172	2200	3000	207	2200	2500	172	2200	3000	207
Non Antiwear Petroleum Base	HF-1, 1A	2200	2000	138	2200	2500	172	2200	2500	172	2200	3000	207
Water-in-Oil Emulsions	HF-3	—	—	—	—	—	—	1800	2000	138	1800	2500	172
Water Glycols	HF-4	—	—	—	—	—	—	1800	2000	138	1800	2500	172
Synthetic Fluids	HF-5	—	—	—	—	—	—	1800	2500	172	1800	3000	207

*These units may be operated intermittently at pressures higher than the recommended continuous rating when the time weighted average of the pressure is less than or equal to the continuous duty pressure rating.

Example: Duty cycle — 4 min @ 3500 psi, 1 min @ 500 psi and 5 min @ 2000 psi

$$\frac{(4 \times 3500) + (1 \times 500) + (5 \times 2000)}{10} = 2450 \text{ psi}$$

Mounting Pad — Full conformance to SAE-C 2-bolt (and NFPA, ANSI) standards including pilot boss recess.

Foot Bracket S14-28966 (including pump/ bracket mounting screws)

Weight Pump, basic T5E 82 lbs. (37.2 Kg)
 Weight Foot Bracket 28 lbs. (13 Kg)
 Moment of Inertia 17.59 LB-IN²

Shaft Torque Limits

The Code #1, #3 and #4 shafts can drive these pumps at maximum pressure and displacement. Code #2 shaft is limited as follows:

Shaft Code	Displ.	Pressure	Max.
#2 Keyed Non SAE	in ³ /rev ml/rev	psi BAR	33137 37445

OPERATING CHARACTERISTICS — TYPICAL

Speed RPM	Code	Theo. Displ.		Theo. Delivery		Input Power vs. Pressure							
		in ³ REV.	ml REV.	gal. ³ min.	liter ³ min.	1000 psi	69 bar	2000 psi	138 bar	3000 psi	207 bar		
						HP	KW	HP	KW	HP	KW	HP	KW
1200	050	9.68	158.7	50.3	190.4	34.1	25.4	62.2	46.4	92.1	68.7		
1800				75.4	285.4	51.2	38.2	93.3	69.6	138.1	103.0		
2200				92.2	349.0	62.6	46.7	114.0	85.0	168.8	125.9		
1200	055	10.64	174.3	55.3	209.0	38.1	28.4	68.3	51.0	101.1	75.4		
1800				83.0	314.2	57.1	42.6	102.5	76.5	151.7	113.2		
2200				101.3	383.4	69.8	52.1	125.3	93.5	185.4	138.3		
1200	060	11.58	189.9	60.2	227.5	41.4	30.9	74.4	55.5	110.1	82.1		
1800				90.2	341.8	62.1	46.3	111.6	83.3	165.2	123.2		
2200				110.3	417.5	75.9	56.6	136.4	101.8	201.9	150.6		
1200	066	12.73	208.8	66.1	250.1	45.9	33.6	80.6	60.1	120.2	89.7		
1800				99.2	375.4	68.3	51.0	122.7	91.5	181.6	135.5		
2200				121.2	458.7	83.0	61.9	150.0	111.9	220.0	164.1		

* Actual flow is determined by subtracting internal lost flow (p. 6) from theoretical values above.

Inlet Pressure, Minimum — as measured at pump inlet flange (see p. 3) with petroleum base fluids. Multiply Absolute Pressures by Multiplier shown in chart in Fluids Section to find Inlet pressure for Fire Resistant Fluids.

Absolute Inlet Pressures are the pressures required to fill the cartridges. The difference between inlet pressure at the pump flange and atmospheric pressure must not exceed -3 psi to prevent aeration.

Maximum inlet pressure must not exceed 35 psi except to T5S pumps. These must not exceed 50 psi inlet pressure.

INLET CONDITION CHART

Speed RPM	Gage Pressure				Absolute Pressure	
	PSIG	BAR	in Hg	mm Hg	PSIA	BAR
1200	-3	-0.20	(-3)	(-76)	10.0	0.69
1500	-3	-0.20	(-3)	(-76)	10.5	0.72
1800	-3	-0.20	(-3)	(-76)	11.0	0.76
2000	-2	-0.10	(-3)	(-76)	12.5	0.86
2200	0	0	0	0	14.5	1.00

Model Number Code

T5E — 066 — 1800 — C1 — **

Vane pump series. Insert an "S" at the asterisk (*) for the severe duty pump.

Cartridge Size — (gpm at 1200 rpm reference)

Code	gpm	L/min	Code	gpm	L/min
050	50	189	060	60	227
055	55	208	066	66	250

Shaft

1. Keyed SAE — CC
2. Keyed Non SAE
3. Splined SAE — C
4. Splined SAE — CC

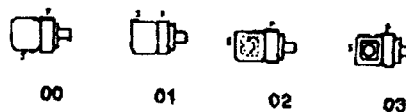
Special Modification

Fluid Class

1. Compatible with Buna N
5. Compatible with Viton

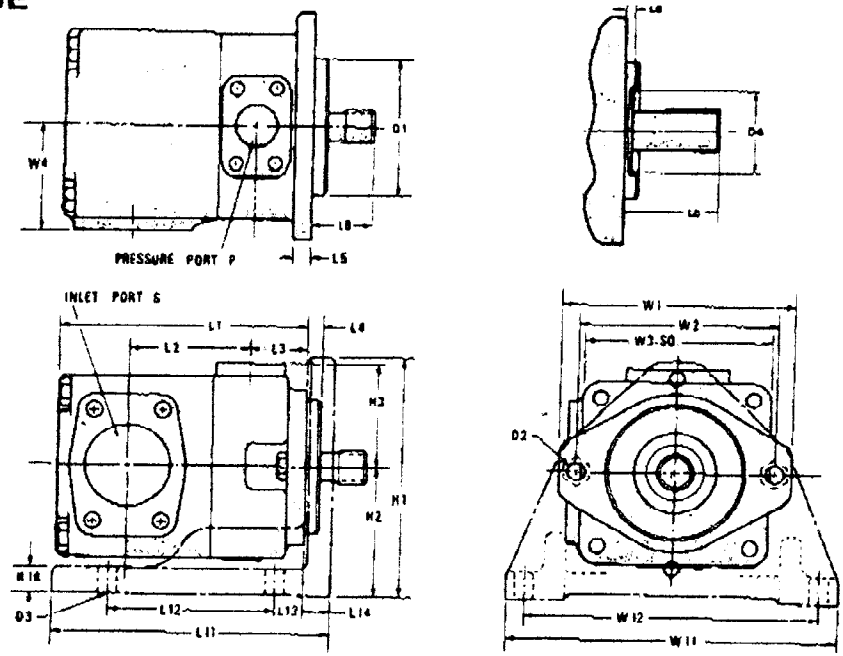
Design letter — Subject to change by mfr.

Porting Combination



Pump Rotation (viewed from shaft end)
 R: CW, L: CCW

T5E & T5SE



Inst. Dwg.
23-7593D
Assy. Dwg.
SD-01289D

Installation Dimensions

	L1	L2	L3	L4	L5	L6	L8	L11	L12	L13	L14
Inch	8.88	4.34	2.06	0.49	0.69	0.31	SEE SHAFT TABLE	10.00	6.00	1.00	1.00
mm	225.5	110.2	52.3	12.4	17.5	7.9		254.0	152.4	25.4	25.4

	W1	W2	W3 Sq	W4	W11	W12	H1	H2	H3	H14	D1	D2	D3	D4
Inch	8.38	7.125	6.82	3.88	12.00	10.62	8.94	4.75	3.88	1.00	5.000 4.998	0.69 thru 2-Holes	0.69 thru 4-Holes	3.00
mm	212.9	181.0	173.2	98.5	304.8	269.7	227.1	120.1	98.6	25.4	127.00 126.95	17.5	17.5	76.2

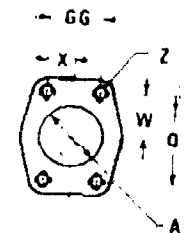
Shaft Dimensions

Code	Type	Dim.	Lgth. L8	Key Shaft Dimensions				Spline Shaft Dimensions					
				Dia.	Sq. Key Section	Dim. over Key	Key Lgth.	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	Spline Lgth.
1	Keyed — SAE-CC	inch	3.56	1.500	.375	1.668	2.00	X	X	X	X	X	X
		mm	90.4	1.498 38.10 38.05	9.52	42.36	50.8						
2	Keyed — non SAE	inch	2.44	1.250	.3125	1.388	1.00	X	X	X	X	X	X
		mm	62.0	1.248 31.75 31.70	7.93	35.25	25.4						
3	Splined — SAE-C	inch	2.19	X	X	X	X	1.229	1.0627	14	12/24	30°	0.94
		mm	55.6					1.224 31.22 30.96	1.0497 26.99 26.66				
4	Splined — SAE-CC	inch	2.44	X	X	X	X	1.479	1.312	17	12/24	30°	1.25
		mm	62.0					1.469 37.57 37.31	1.299 33.32 32.99				

Port Dimensions

4-bolt pads per SAE-J510B

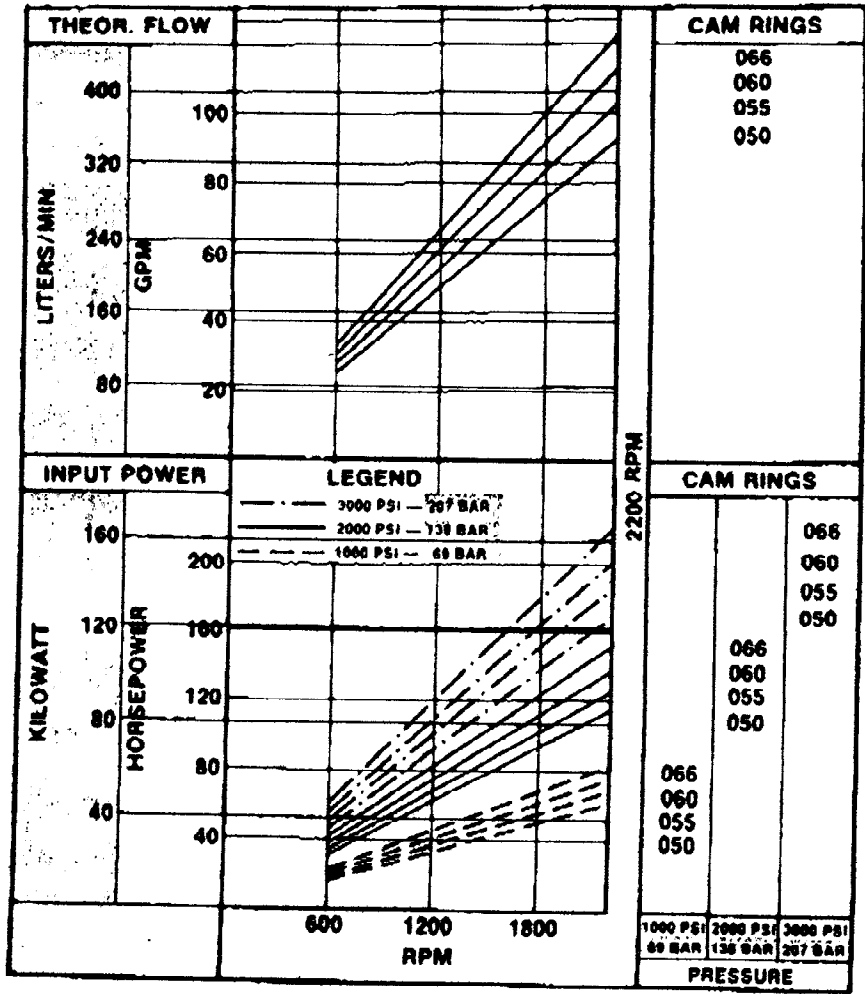
Connection	Dim.	A	W	V	X	GG	Z
1 1/2" Pressure Port P	inch	1.46	1.38	2.750	0.70	1.406	1/2-13 UNC-2B x 0.94 DP.
	mm	37.1	35.1	69.9	17.8	35.7	24 DP.
3" Inlet Port S	inch	2.96	2.09	4.188	1.22	2.438	3/4-11 UNC-2B x 0.94 DP.
	mm	75.2	53.1	106.4	31.0	61.9	24 DP.



"E" PUMPS

PERFORMANCE CURVES

Theor. Flow and Input Power



INTERNAL FLOW LOSS

Operating Viscosity	Term	Pump Cartridge Group						
		C		D		E		
		120 ^a	60 ^b	120 ^a	60 ^b	120 ^a	60 ^b	
Typical Loss at Pressure	1000 psi	gpm	1.1	2.0	2.0	3.6	2.5	4.5
	69 BAR	L/min	4.2	7.6	7.6	13.6	9.5	17
	2000 psi	gpm	2.2	4.0	4.0	7.2	5.0	9.0
	138 BAR	L/min	8.3	15.1	15.1	27.3	18.9	34.1
	3000 psi	gpm	3.3	6.0	6.0	10.8	7.5	13.5
	207 BAR	L/min	12.5	22.7	22.7	40.9	28.4	51.1

(a) Equivalent to SAE 10 at 120° F (49°C)
 (b) Equivalent to SAE 10 at 180° F (82°C)

Actual Flow is equal to the theoretical flow (curves) minus the internal flow loss (chart). It may be computed for the operating conditions for each pump section.

Total Input Power is the sum of the input power required by each of the pump sections at the speed and pressure of its operating conditions as determined from the curves or the table.