

CLEAN PUMP NRVS

- 1) REMOVE THE PUMP FLANGES
- 2) CLEAN BOTH NRVS
- 3) REFIT NRVS WITH ARROW POINTING UPWARDS (BALL ON TOP)
- 3) TIGHTEN THE STUDS EQUALLY
- 4) ALSO CLEAN SUCTION STRAINER ELEMENT

DIAPHRAGM PUMP
PLUNGER PUMP

FILL OIL AT COMMISSIONING / AFTER DIAPHRAGM REPLACEMENT (FOR DIAPHRAGM PUMP)

A) TOP UP OIL IN YOKE SUMP

- 1) REMOVE ORANGE OIL FILLER PLUG
- 2) FILL HYDRAULIC OIL TILL HALFWAY OF OIL LEVEL SITE
- 3) REPLACE THE OIL FILLER PLUG

B) BLEEDE HYDRAULIC CIRCUIT

- 5) CHECK IF OIL IS VISIBLE IN TRANSPARENT 6MM TUBE.
- 6) OIL SHOULD MOVE IN SMALL PULSES WITH TINY AIR BUBBLES BEING CONTINUOUSLY THROWN OUT.
- 7) LOOSEN BLEEDE ASSEMBLY SLIGHTLY BY HAND TO 'START-UP' POSITION.
- 8) OBSERVE THAT AIR AND OIL IS VIGOURSLY PASSING OUT THROUGH TRANSPARENT TUBE
- 9) ONCE ALL THE AIR IS THROWN OUT TIGHTEN THE BLEEDE ASSEMBLY BY HAND TO 'NORMAL' POSITION & CHECK THAT CONDITION 6) IS ACHIEVED

SANDWICH DIAPHRAGM VACUUMING AT COMMISSIONING / AFTER DIAPHRAGM REPLACEMENT

- 1) CONNECT VACUUM PUMP TO NEEDLE VALVE (1/4" BSP THREADED)
- 2) LOOSEN NEEDLE VALVE
- 3) START VACUUM
- 4) OBSERVE DIAPHRAGM RUPTURE PRESSURE GAUGE TILL IT GOES TO VACUUM
- 5) TIGHTEN NEEDLE VALVE
- 6) DISCONNECT VACUUM PUMP

DIAPHRAGM RUPTURE PRESSURE GAUGE
GREEN = OK RED = RUPTURE
SANDWICH NEEDLE VALVE (1/4" BSP)

RELIEF VALVE OPERATION (IN DIAPHRAGM PUMP)

- 1) ENSURE THAT RELIEF VALVE INDICATOR STEM IS NOT MOVING AT ALL.
- 2) RECONFIRM THAT NO OIL IS PASSING FROM OIL RECIRCULATE HOLE
- 3) ADJUST RELIEF VALVE SETTING IF FOUND NECESSARY, BUT DISCHARGE PRESSURE MUST NOT EXCEED NAME PLATE VALUE

RELIEF VALVE INDICATOR STEM
RELIEF VALVE ADJUSTMENT
OIL RECIRCULATE HOLE

Recommended Oils for Gear Box Side

(Specifications of oil : Flash P COC, °C: 240, Pour Point °C: -6, K.V. cSt: 152.2 @ 40 °C and 14.8 @ 100 °C, VI: 96)

M/s. Hindustan Petroleum	ENKLO - 85
M/s. Caltex	REGAL OIL 'G'
M/s. I.O.C.	SERVO SYSTEM 533 / 68 SERVOSYSTEM HLP 68
M/S. Bharat Petroleum	CABOL 150
Castrol	HYSPIN EP 150
Shell	TELLUS 150 / 320

RECOMMENDED OILS FOR HYDRAULIC SYSTEM OF DIAPHRAGM PUMPS:

(Specifications of oil : Flash P COC, °C: 196, Pour Point °C: -9, K.V. cSt: 36.1 @ 40 °C and 5.9 @ 100 °C, VI: 196)

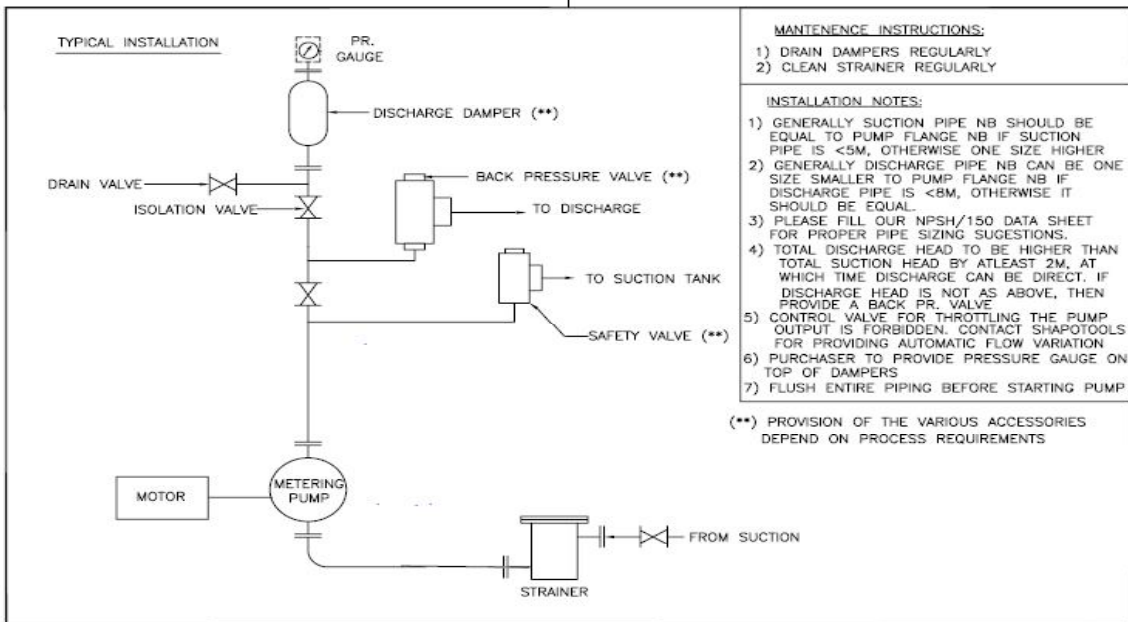
M/s. Hindustan Petroleum	Enklo - 44
M/s. Caltex	Regal Oil 'AA'
M/s. I.O.C.	Servo System 311 / 32 Servosystem HLP 32
M/S. Bharat Petroleum	Hydrol - 37
Castrol	Hyspin EP 32
Shell	Tellus 37 / 22

Note : for Molten Phosphorus use Liquid paraffin/silicon oil for Hyd. Side.

APPROXIMATE QUANTITY OF LUBRICANTS REQUIRED FOR GEAR BOX:

Model DP/12	0.25 Litres	Model DP/60	3.0 Litres
Model DP/20	0.6 Litres	Model DP/90	9.0 Litres
Model DP/30	1.2 Litres	Model DP/70/II	9.0 Litres
Model DP/45	2.5 Litres	Model DP/1.8 & DP/3	0.29 Litres

FREQUENCY : REPLACE / REPLENISH EVERY 6 MONTHS.



MAINTENANCE INSTRUCTIONS:

- 1) DRAIN DAMPERS REGULARLY
- 2) CLEAN STRAINER REGULARLY

INSTALLATION NOTES:

- 1) GENERALLY SUCTION PIPE NB SHOULD BE EQUAL TO PUMP FLANGE NB IF SUCTION PIPE IS <5M, OTHERWISE ONE SIZE HIGHER
- 2) GENERALLY DISCHARGE PIPE NB CAN BE ONE SIZE SMALLER TO PUMP FLANGE NB IF DISCHARGE PIPE IS <8M, OTHERWISE IT SHOULD BE EQUAL.
- 3) PLEASE FILL OUR NPSH/150 DATA SHEET FOR PROPER PIPE SIZING SUGGESTIONS.
- 4) TOTAL DISCHARGE HEAD TO BE HIGHER THAN TOTAL SUCTION HEAD BY ATLEAST 2M, AT WHICH TIME DISCHARGE CAN BE DIRECT. IF DISCHARGE HEAD IS NOT AS ABOVE, THEN PROVIDE A BACK PR. VALVE
- 5) CONTROL VALVE FOR THROTTLING THE PUMP OUTPUT IS FORBIDDEN. CONTACT SHAPOTOOLS FOR PROVIDING AUTOMATIC FLOW VARIATION
- 6) PURCHASER TO PROVIDE PRESSURE GAUGE ON TOP OF DAMPERS
- 7) FLUSH ENTIRE PIPING BEFORE STARTING PUMP

(**) PROVISION OF THE VARIOUS ACCESSORIES DEPEND ON PROCESS REQUIREMENTS

	<p>SHAPOTOOLS BAJSONS INDUSTRIAL ESTATE, CHAKALA ROAD, ANDHERI (E), MUMBAI -99</p>	<p>DATA SHEET DATA/NPSH/150 SHEET 1 OF 1</p>	<p>MADE BY : Lavina DATE : CHK. BY : <i>SMC</i> DATE :</p>
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PURCHASER M/S.			
1.	PO NO.	2.	ITEM NO.
2.	CAPACITY (LPH)	4.	PRESSURE (KG/CM ²)
5.	OFFER NO.—	6.	MODEL
7.	SPM:	8.	M.O.C. (WET)
		DATE:	
		AUTH.BY	CHK. BY
		MADE BY	

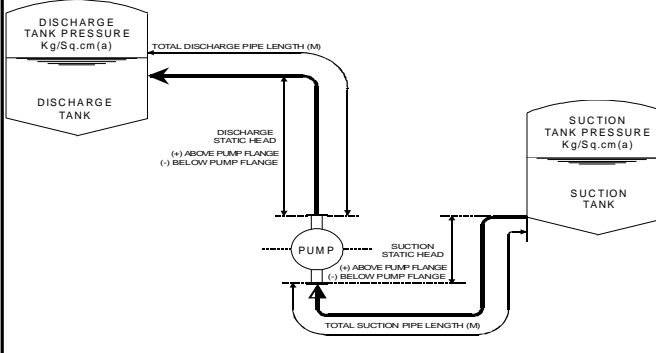
THE FOLLOWING INFORMATION IS TO BE PROVIDED BY THE PURCHASER

LIQUID SPECIFICATIONS (Purchaser to specify)

9.	LIQUID PUMPED :	10.	VISCOSITY AT P.T. (CP/SSU.)
11	P.T. (°C) 30	12.	BOILING POINT (°C)
13	VAPOR PR. AT PT. (m.m. of Hg.)	14.	SP.GR. AT P.T.
15	CORROSION CAUSED BY	16a	SOLIDS PRESENT (YES / NO)
16b	PARTICLE SIZE / CONCENTRATION	16c	ABRASIVE NATURE OF PARTICLE (YES/ NO)

SUCTION & DISCHARGE CONDITIONS (Purchaser to specify)

CONDITIONS					SUCTION			DISCHARGE		
17.	PRESSURE IN TANK (KG/CM ² a)									
18.	STATIC HEAD ABOVE PUMP FLANGE (MLC)				(+/-)			(+/-)		
19.	TOTAL LENGTH OF PIPE (M)									
20.	PIPE NOMINAL BORE									
21.	STRAINER PROVIDED (YES / NO)									
22.	BACK PRESSURE VALVE PROVIDED (YES/NO)				N.A.					
23.	RELIEF VALVE SET PRESSURE (KG/CM ² a)				N.A.					
24.	PULSATION DAMPER PROVIDED (YES / NO) / VOLUME (LIT)									
25.	SUCT. FITTING	SIZE	QTY	EQUIV. LG. (M)	DISCH. FITTING	SIZE	QTY	EQUIV. LG (M)		
	ELBOW									
	TEE									
26.	NPSHA (MLC)									
27.	REMARKS									



- NOTES:**
- Discharge head to be higher than suction head by atleast 2 mt.
 - Control valve on disch. side for throttling the pump output is forbidden.
 - Purchaser to provide Pressure Gauge on discharge side of pump immediately after pump discharge flange before any other valve.
- It is imperative that suction line should be atleast one size higher than pump suction flange NB (assuming suction pipe length is nominal). If this not implement pump will not perform correctly and can even result in serious damage because of cavitation.**