



GRAM : "MILLITORR"

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H.K.Industries

VACUUM ENGINEERS

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YOUR REF.:-

OUR REF.:-

DATE :-

"MANUAL"

SYSTEM : LIQUID RING VACUUM PUMP

SEALING LIQUID : WATER AT 32⁰C

- ★ BETORE STARTING THE SYSTEM
- ★ CHECK LIQUID LEVEL IN VOLUME TANK
- ★ CHECK EXHAST OF PUMP IS FREE FROM RESTRECTION
- ★ **TO START THE SYSTEM**
- ★ KEEP SUCTION VALVE CLOSE
- ★ OPEN SEALING LIQUID INLET VALVE
- ★ START MOTOR
- ★ OPEN SUCTION VALVE SLOWLY
- ★ **TO STOP THE SYSTEM**
- ★ CLOSE SUCTION VALVE
- ★ STOP MOTOR
- ★ CLOSE SEALING LIQUID INLET VALVE

GENERAL -

- ★ LIQUID LEVEL SHOULD BE ½ LEVEL OF THE PUMP
- ★ LIQUID TEMPRATURE SHOULD BE BELOW 32 DEG.C AT INLET OF THE PUMP
- ★ IF LIQUID IS CONTAMINATED DRAIN AND REFILL FRESH LIQUID IMMEDIATELY.

IMPORTANT -

- ★ DO NOT RUN PUMP IN BLANK VACUUM CONDITION FOR A LONG TIME WHICH MAY DAMAGE THE PUMP INTERNAL PARTS.
- ★ PROVIDED AIR BLEED VALVE AT THE SUCTION AND OPEN WHENEVER NECESSARY ie TO AVOID WRATTING NOICE AT BLANK VACUUM.



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SOME COMMON CAUSES AND REMEDIES OF THE PUMP WERE DISCUSSED BELOW.

1. WHILE THE FIRST START IF THE VACUUM HAS NOT ACHIEVED:

CHECK SEALING WATER SUPPLY VALVE IS PROPERLY OPEN AND WATER IS CIRCULATING THROUGH THE PUMP.

CONFORM THE FLOW AS PER THE REQUIRMENT BY MEASURING THE SAME.

CONFORM THE SEALING LIQUID TEMPRATURE IS MAINTAINED BELOW 32 DEG. C.

CHECK THE VACUUM VALVE AND OTHER RELATED CONNECTIONS FOR LEAKAGE.

CHECK THE GLAND FOR LEAKAGE AND TIGHTEN GRADUALLY AS REQUIRED.

2. IF THE PUMP CREATES WRATTLING NOICE AND THE GAUGE DOES NOT SHOWS THE VACUUM:

CHECK THE GAUGE FOR FAULT FREE.

CHECK THE FLOAT OF NON RETURN VALVE MIGHT HAVE LOCKED UPWARD. OPEN AND CLEAR IT FOR FREE MOVEMENT.

CHECK FOR ANY BLAIND OR CLOSINGS AT THE SUCTION.

NOTE: IT IS BETTER TO CHECK THE VACUUM WITH A GOOD MANOMETER.

**3. IF THE PUMP CREATES BLANK VACUUM AND THE FULL VACUUM HAS BEEN
NOT ACHIEVED AT PLANT:**

CHECK FOR LEAKAGES STARTING FROM THE SUCTION VALVE CONNECTION TO THE UTILITY END.

THE ABOVE CAN BE IDENTIFIED BY THE VIEW OF LOT OF AIR BLOWING FROM THE EXHAUST OF THE PUMP ie FROM THE SILENCER CUM SEPRATOR.

CHECK FOR ANY FAULTY CONNECTIONS AND IMPROPER GASKETS AT THE SUCTION AND ALSO CHECK FOR OBSTRUCTION, RESTRICTION AND ANY ACCUMULATION IN THE SUCTION LINE.



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MAINTAIN THE FOLLOWING EQUIPMENTS PROPERLY IF PROVIDED ALONG WITH
THE PUMP AS ACCESSORIES:

- A. VACUUM TRAP.
- B. VOLUME TRAP.
- C. CAUSTIC TRAP.
- D. CYCLONE SEPERATOR.

4. IF THE PUMP DRAWS MORE CURRENT:

CHECK FOR EXCESSIVE WATER FLOW THAN THE RATED FLOW REQUIRMENT FOR
THE WATER RING VACUUM PUMP AND REGULATE RESPECTIVELY.

CHECK FOR FREE ROTATION OF THE PUMP FROM COUPLING AND BEARING END.

CHECK FOR ANY RESTRICTION OR BLANK AT THE EXHAUST OF THE PUMP. THIS
MAY LEAD THE MOTER TO DRAW MAXIMUM CURRENT AND TRIPAGE OF MOTER.
IF CRITICAL PROBLEM NOTED PLEASE CONSULT H.K.INDUSTRIES.

5. COMMON PARTS TO KEEP AS SPARES:

- A. GASKETS AND 'O' RING (2 SETS).
- B. BEARINGS. (2 NOS)
- C. GLAND OR MECHANICAL SEAL. (1 SET)
- D. IMPELLER (ROTOR) (2 NOS)
- E. INTER AND END PLATES (4 NOS)
- F. SHAFT ASSEMBLY (1 NO)

NOTE: D, E AND F ARE MAJOR PARTS OBTIONAL TO KEEP AS SPARES.

REFER THE GENARAL ASSEMLY DRAWING ENCLOSED HEREWITH.

**NOTE: SYSTEM SHOULD BE OPERATED AS PER THE S.O.P. TO AVOID ANY
ABNORMALITIES AND BREAK DOWN.**