LINATEX SEPARATOR

SAND SEPARATOR

USER MANUAL

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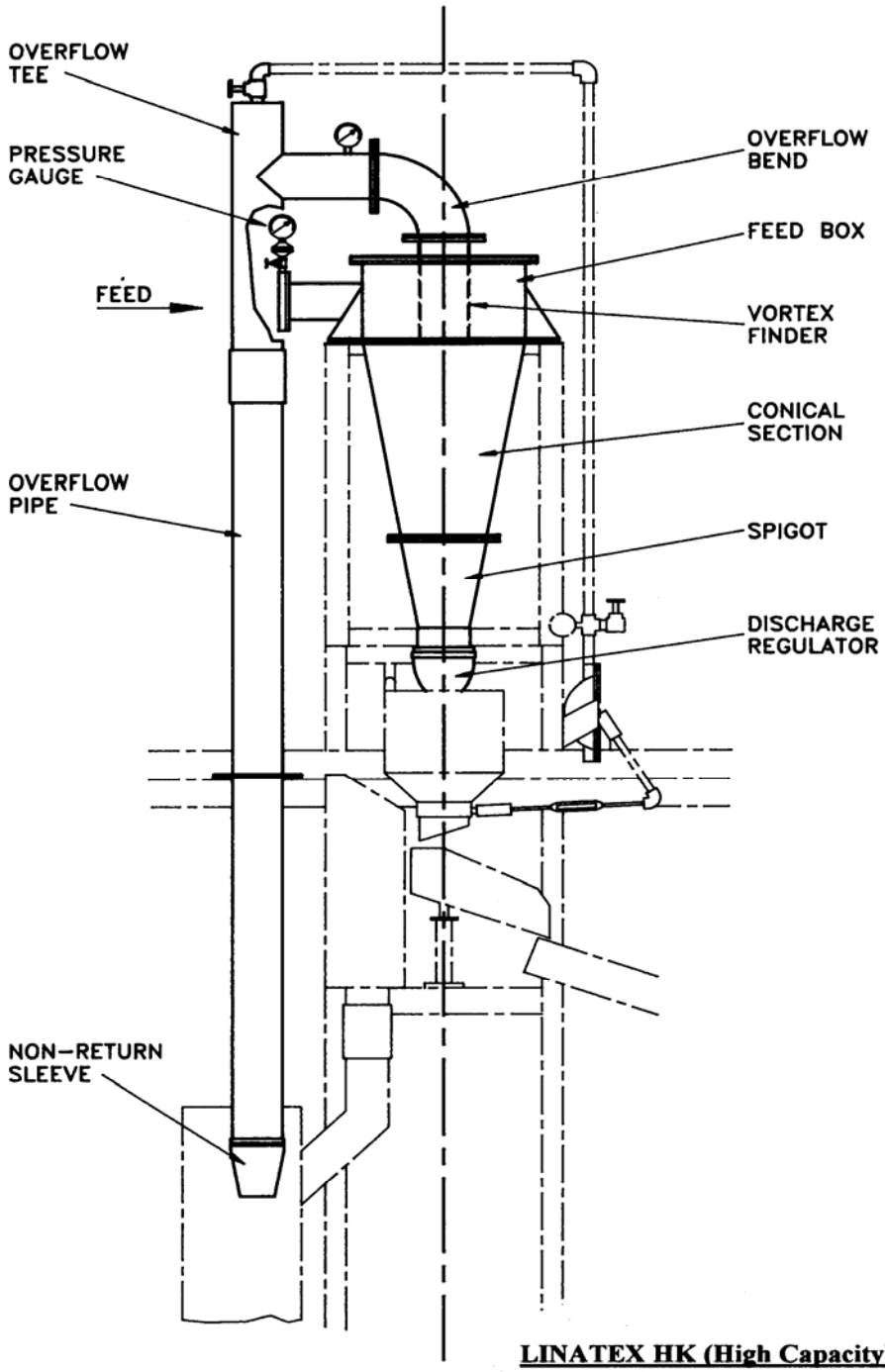

figure 1 **LINATEX HK (High Capacity) SEPARATOR.**

THE LINATEX SEPARATOR

1. HOW IT WORKS

1.1 The Linatex HK Separator (see fig.1) comprises a feed box with a tangential entry. Below this is a cone terminating in a spigot fitted with a discharge regulator. Above the feed box is a plate which supports the vortex finder. The latter projects into the feed box. Above the plate is an overflow bend (or overflow box on a MK II separator) providing an outlet. The overflow pipework leads from the outlet to a point about 2m (6ft) below the discharge regulator.

1.2 The sand and water slurry to be treated is introduced at a pressure of between 0.15 to 0.45 bars (5 to 15 ' of water) into the feed box through a tangential entry at a consistency suitable for pumping i.e. around 20% to 35%. In the feed box the rotation imparted by this tangential entry causes the solids in the slurry to be thrown outwards by centrifugal force, and to pass downwards under gravity, into the cone and out through the discharge regulator. The material produced at the discharge regulator is referred to as the underflow and is, in the majority of cases, the product. The water together with the fine organic matter and clays passes upwards through the vortex finder and via the overflow box or bend to waste.

1.3 When in operation the overflow pipework acts as a syphon creating a negative pressure in the separator, this holds the discharge regulator closed (see fig.2.i) unless solids are present when it is opened by the weight of the solids themselves (see fig 2,ii).

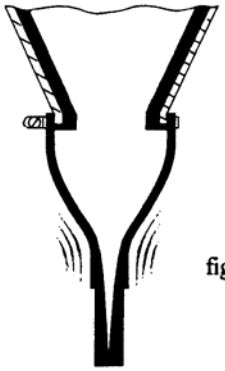

figure 2 , i

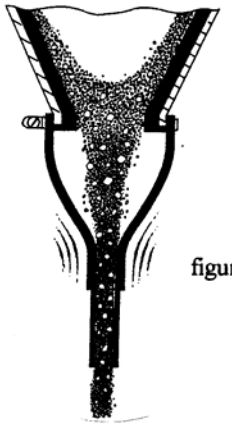

figure 2 , ii

1.4 In practice, the underflow comprises the whole of the solids fed with the exception of the silts and clays. The proportions of water with the underflow depends on the grading of the solids and in most cases is of the order of 20% by weight, or little more than is required to fill the voids between the solids. The overflow comprises the greater part of the water in the feed together with most of the silts and clays.

1.5 The correct operation of the discharge regulator is dependant on the maintenance of the negative pressure in the separator created by the syphon effect of the overflow pipework. On start-up and shut-down the syphon effect is lost for a short time and there is a flow of water from the discharge regulator. To avoid this flow of water passing to the dewatered material on the stockpile (or bin) a special water transfer system has been developed and is offered as an optional.

2. WATER TRANSFER SYSTEM (optional)

2.1 The water transfer system (see Fig. 3) is designed to be fitted to the separator supporting structure and diverts the water flush away from the stockpile to the overflow collecting tank normally situated on the side of the tower. The water is diverted by means of a hinged water transfer box fitted to collect the underflow from the discharge regulator. The action of the water transfer box is controlled by the use of the negative pressure created by the separator when in operation. A series of mechanical linkages attached to a vacuum diaphragm connected to the separator overflow pipework automatically locates the water transfer box in the correct position for the underflow condition.

3. INSTALLATION

3.1 Linatex Separators are simple to install, but to obtain the best performance certain precautions should be taken.

3.2 All units are provided with brackets on the body to enable them to be secured to the supporting steelwork. The separator is not designed to support the weight of the interconnecting pipework. This should be independently supported local to the unit. If possible short lengths of pipework adjacent to the separator ease dismantling for maintenance.

3.3 The unit should always be installed with a pressure flange and pressure gauge fitted immediately before the inlet flange. This enables confirmation and monitoring of the correct inlet pressure.

3.4 The overflow from the unit should be installed to discharge into a collecting tank ensuring a break to atmosphere at this point. This ensures that the overflow is not restricted in any way. Under no circumstances must the overflow pipework supplied with the separator be modified as this may result in performance problems.

3.5 Figure 3 shows a MK II Separator installed in a standard Linatex separator supporting tower assembled in its standard orientation and fitted with the optional water transfer system. The necessary drawings are provided for correct assembly and these should be carefully studied before erection is started.

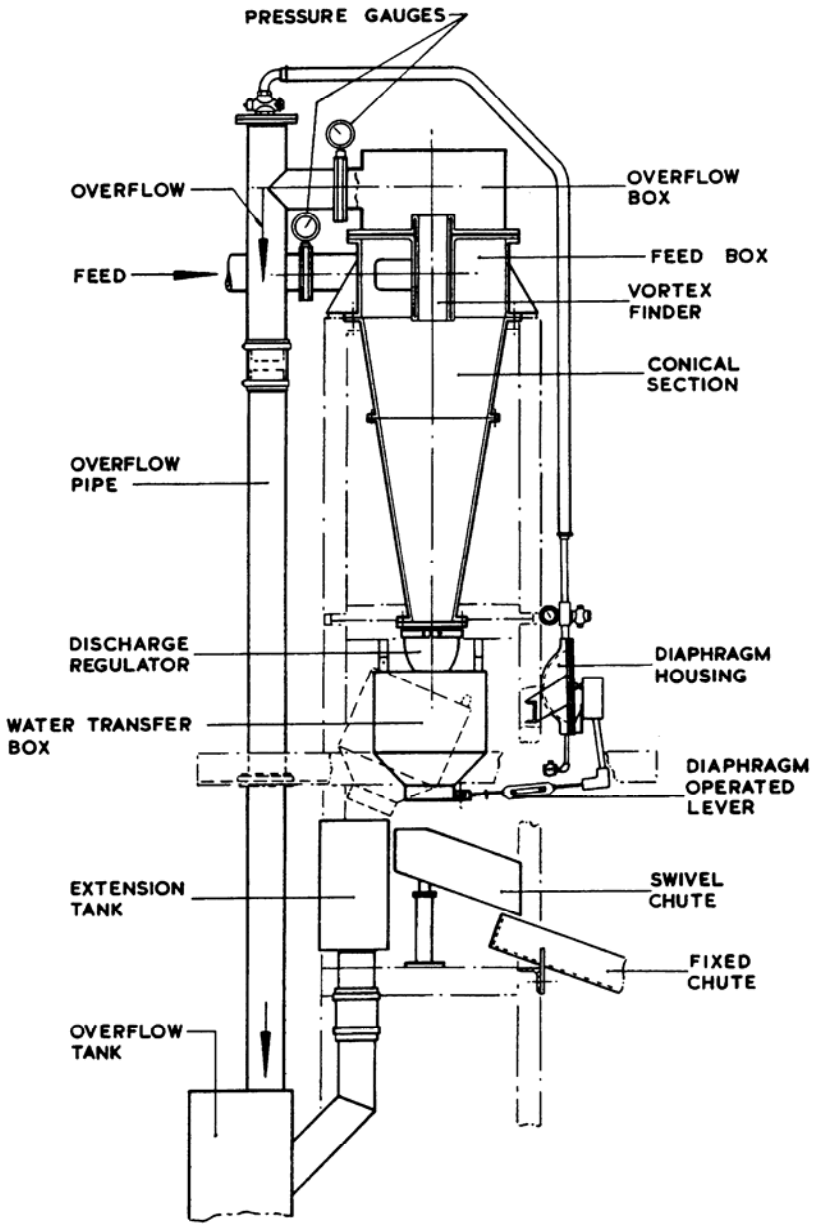

figure 3 **LINATEX MKII SEPARATOR & WATER TRANSFER SYSTEM**

3.6 If the optional water transfer system is also supplied, on assembly the pins and forks of the joints on the diaphragm operating lever should be lubricated with the special grease provided. Ordinary mineral based grease should not be used as this will damage the rubber dust covers.

3.7 It is important that all joints in the overflow pipework are airtight and that the water transfer box swings freely and evenly on its hinges. If for any reason a defect develops in the mechanism and the water transfer system will not operate, the transfer box may be raised by hand and secured into the stockpiling position by bolting to the bracket provided.

4 SETTING TO WORK

4.1 Once the separator is correctly installed, the feed equipment should be started up on water only. While this is happening the separator and the water transfer system (if fitted) should be observed to ensure that once the unit reaches the correct inlet pressure, the discharge regulator closes and the water transfer box swings into the stockpiling position.

4.2 The negative pressure registering on the gauge fitted either at the overflow pipe or at the water transfer diaphragm housing should be about -0.25 to -0.30 bars (-8 to -10 ft of water).

4.3 A lower degree of vacuum could lead to a higher moisture content in the underflow.

4.4 Should the water transfer box fail to swing up to the stop provided, the connecting rod requires shortening using the adjusting nut at its centre.

4.5 It should be ensured that the correct inlet pressure and conditions of feed are being provided for the specified duty.

4.6 Once the separator is in operation, samples should be taken of feed, overflow and underflow and analysis carried out to ensure satisfactory performance is being achieved. If these results are not satisfactory then contact Linatex Limited immediately for advice. Under no circumstances should modifications or changes to the unit's specification be made. The following table shows possible faults and actions to take should they occur.

FAULT	ACTION TO TAKE
1. Discharge regulator fails to close when handling water only.	Check negative pressure at overflow from separator. If below 0.25 bars (8') close valve in line to water transfer system. If pressure still below 0.25 bars (8') check for leaks in line to water transfer system or for fracture in diaphragm
2. Discharge regulator blocks with sand and/or sand lost in overflow.	The separator is overloaded and the feed must be reduced.
3. Collecting box fails to operate.	Check that collecting box swings freely and evenly by hand. Remove any cause of stiffness. Check for air leaks as in (1) above. Adjust length of connecting rod if required.
4. Discharge from regulator too dry, causing sand to block swivel box.	Slightly increase opening of valve in line to water transfer system.
5. Water continues to flush from discharge regulator with loss of vacuum.	Inspect lining of separator parts for wear or damage and replace as required