

TECHNICAL SPECIFICATION

(Preparation plant for CERTAIN TEED)

To secure the capacity of a preparation plant according to the mixture and production time set out in your letter of 31st October, 1979 our company Bell would normally propose for the refining of asbestos and mixing with cement, silica and ground asbestos cement scrap in water:

- Pan Grinder to crush and mix the different moistened fibres
- Turbo Refiner to open asbestos alone in water, to the highest degree of desintegration.
- Counterflow Mixer to mix and homogenize asbestos, cement, silica and scrap in the desired quantity of water
- Stuff Chest to feed the slurry continuously into the sieve cylinder vat of the pipe machine.

The working program of the required capacity would be as follows:

		Pounds/min	=	kg/hour
Cement	45,6 %	196		5340
Silica	30,4 %	131		3570
Scrap	8,0 %	34		930
	<u>84,0 %</u>	<u>361</u>		<u>9840</u>
Asbest	16,0 %	69		1860
	<u>100,0 %</u>	<u>430</u>		<u>11700</u>
Water		1650		45000

(1 kg = 2,2 pound)

Density of asbestos cement in water = 3 gr/cc

CTD029089



The density of 1,15 gr/cc results of 225 gr solids in a liter.

according to: 925 cc water + 75 cc solids

925 gr water + 225 gr solids

For the concentration as stated in the enquiry result 11700 kg/hour of solids in 52'000 l/hour of mixture, thus results in 48'000 l/hour of water + 3900 l/hour of solids.

- A BELL-Pan Grinder Size 1000 will prepare 930 kg different asbestos in 30 minutes corresponding to 1860 kg/hour. For moistening to prevent dust and brackage of fiber we add 15 % water, $2 \times 140 = 280$ Liter/hour.

The pan grinder is provided with feed hoper, dust exhaust unit, water container for moistening with level control.

The crushed asbestos is collected in a silo and from there a weighing device distributes the asbestos into the

- Turbo refiner with water. If the capacity stated above is handled by one turbo refiner only the consistency results to approx. 6 %, but a proper desintegration at a consistency of 6 % can not be guaranteed. We therefore suggest the use of two turbo refiner in parallel, each having an operating cycle of 5 minutes for refining of 77,5 kg asbestos, thus to total capacity of two turbo refiners will be
 $(2 \times 77,5 \text{ kg}) \times 12 = 1860 \text{ kg/hour of asbestos}$
 $(2 \times 1992,5 \text{ kg}) \times 12 = 47820 \text{ kg/hour of water}$

Consistency in turbo refiner will be approx. 3,8 %.

The use of two turbo refiner is only required in case the capacity stated in your enquiry is for continious operation, that means a production of approx. 14 tons/hour of finished pipes. If the capacity is lower as stated it must be chequed whether one only turbo refiner will be sufficient.

The mixture in water is pumped from the turbo refiner into the



- Counterflow mixer having a capacity of approx. 4,5 m3 and an operation cycle of approx. 5 minutes:

Cement	445 kg
Silica	297 kg
Scrap	<u>78 kg</u>
	820 kg x 12 = 9840 kg/hour

From the counterflow mixer the mixture is pumped into the

- Stuff chest, feeded each hour with
 - Asbestos = 1860 kg/h
 - Cement+Silica+Scrap = 9840 kg/h
 - 11700 kg/h at SG 3,0 = 3900 l/h
- Water 280 l/h + 47820 kg = 48100 l/h

From the stuff chest the prepared slurry can be fed continuously into the sieve cylinder vat of the pipe machine.

Note:

The operating treatment time of the turbo refiner and counterflow mixer have to be adjusted according to the quality of the asbestos used, in order to obtain the highest degree of desintegration with the maximum surface value of the fiber, the highest degree of homogenizing of asbestos cement slurry and to assure the required strength of the finished products with an economical asbestos consumption together with a high output of the plant.

Such a plant is normally able to save 1 to 2 % asbestos compared with other systems.

Bell undertake complete redesign, modification, and modernisation of existing plants of any make. In the other way we suggest to study your preparation plant and discuss with you the possible improvement by introduction of new apparatus such as turbo refiner and or counterflow mixer.



Continuous feeding:

The counterflow mixer could also be fed continuously from one side with the required quantity of prepared asbestos, solids and water. On the other side, on a sliding up and down way out, the level and so the volume in the mixer would be adjusted according to the necessary time of refining.

However, a discontinuous process occurs always with the weighing of raw material, and so the preparation of components and control of treated material after each operation is much easier.

MV-Ba/bo

CTD029092