BONDED FOAM PLANT (CHIP FOAM)
TYPE BFH (STEAM CURE SYSTEM)
FOR PRODUCTION OF BONDED FOAM BLOCKS

INTRODUCTION

Bonded Foam is a type of flexible foam, with the density normally ranging between 40 and 250 kilos per cubic meter and up to 550 kilos per cubic meter in special cases.

Bonded Foam is considered a high quality product complementing flexible foam of lower densities, in spite of it being a product based on waste.

Bonded Foam commands a very good price due to its excellent characteristics, mainly its high density and resilience.

The potential earnings per kilo of Bonded Foam can be higher than for virgin foam, depending on demand and availability of waste material.

Using the foam waste for Bonded Foam improves the environment in a sensible way -with proven benefits.

HYMA Bonded Foam Plant Type BFH-3 with three Press Stations

TYPICAL APPLICATIONS

- ***Seats for cars, buses, aeroplane, etc.,***
- ***Quality upholstered furniture, spring mattresses, Arab furniture, sports mats,***
- ***Carpet underlay.***
- ***Sound insulation and packing material.***

PRODUCT COMPOSITION

In principle chip foam is simply composed of about 90 per cent foam granules (scrap foam) and about 10 per cent chemicals, having reacted chemically with each other under pressure.

The granules are thus bonded together by the new formed foam.

PRODUCT QUALITY

The quality of the finished product depends mainly on the quality and suitability of the raw materials and the production machinery, i.e. how well the production process can be controlled.

By using the HYMA expertise your Bonded Foam project can be made to meet the quality demanded and secure rational production, - and not least profitability.

FOAM GRANULES/WASTE

The foam granules constitute about 90 per cent of the finished Bonded Foam and are usually made from foam conversion waste.

When foam blocks are converted into finished foam products 10 to 25 per cent waste is generated and this waste represents a storage and transport problem, but also a substantial value.

This considerable amount of waste can most profitable be utilized in Chip Foam production and some factories even buy foam waste from outside sources to make granules, and from virgin foam, in order to fill the demand of their market.

PRODUCTION PROCESS

GRANULATION / SHREDDING

The waste foam must be converted into granules (crumbs) of a suitable size and generally it must be said that the higher a density of the finished foam, the smaller the granules required. Thus, by manufacturing several densities it is advantageous to be able to produce granules of various sizes.

The HYMA Type GMP granulating machines are specially designed for granulation of foam into granule sizes between 8 and 35 mms.

In case smaller granules are required two granulating machines may be connected so that the first one will produce granules with a diameter of say 25 mms and the second one will reduce this diameter further. Or better still to replace the second granulator with a Hammer Mill (e.g. HYMA Type HMP).

A third possibility is to connect the granulating machine with a HYMA Pre Breaker Type GFB in line.

The BFH-2 with Two Press Stations and Granule Silo System.

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HYMA Sheet no: BFH Sytem 92/42 gb

HYMA

COMPLETE SERVICE
FOR THE FOAM INDUSTRY

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FOR PRODUCTION OF BONDED FOAM BLOCKS

GRANULE HANDLING & STORAGE

The granulation process is rather time-consuming and will often be a bottle-neck in the production.

Three different methods of handling the granules can be suggested:

METHOD NO. 1

a) The amount of waste required is weighed out.

b) The waste is granulated and blown directly to the mixing chamber of the plant.

This method is recommended only for a small production such as 1 to 2 blocks per hour, as it is very time-consuming, and the capacity of the plant depends entirely on the capacity of the granulation process. The advantage of this method is the small investment required.

METHOD NO. 2

a) The waste is granulated and blown into a silo unit.

b) The granules are blown from the silo into the mixing chamber of the plant (controlled by timer).

This method is recommended for a medium to large scale production, as the granulation process is independent of actual plant production. the granulation can be made when convenient in a separate room or building, the granules being blown into the silo.

The silo will provide a buffer stock from which the mixing chamber of the plant can be very quickly filled, thus reducing the idle time to a minimum.

METHOD NO.3

a) The waste is granulated and blown into a silo unit.

b) The granules are blown from the silo into a weighing-box on top of the mixing chamber of the Chip Foam Plant.

c) The granules are filled into the mixing chamber by opening the bottom of the weighing-box.

This method is recommended for a large scale production, as the filling of the weighing-box can be made while the mixing chamber is in operation, and the refilling of the latter can be made immediately after it has been emptied and in a matter of seconds.

PREPARATION OF CHEMICALS

The chemicals required for the making of chip foam are the same as for flexible PU-foam and can be injected in separate streams as on foaming machines for this production.

This, however, demands extensive controls and consequent maintenance and the risk of errors is also imminent, - and it is an expensive solution too.

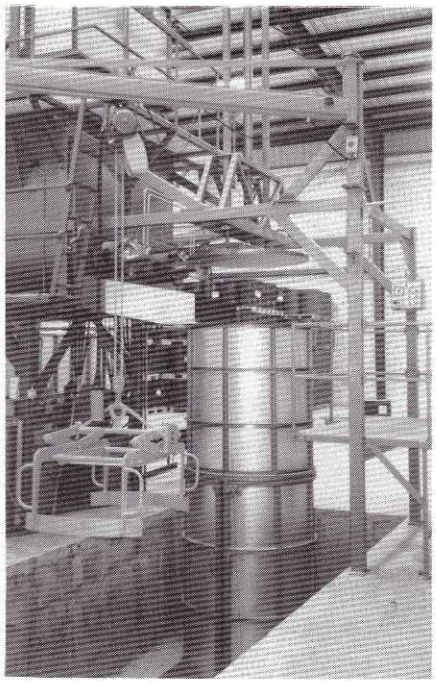
To utilize the "**Prepolymer System**" is much simpler and safer to operate, as the chemical components are made to interact before being dosed into the process in one stream only.

BONDED FOAM BLOCK MAKING

The prepared granules and prepolymer are mixed carefully together in the mixing chamber of the plant, and are then filled into the mould, where they are subjected to pressure and steam.

The necessary reaction will take place in the cause of a few minutes, after which the finished blocks may be removed and left for curing for about 8 hours before conversion.

The HYMA program of bonded foam plants comprises several types and configurations. With one block compressing station, with two, three or four stations, utilizing rectangular or circular moulds. Ask for specific information based on your actual demand.



Vertical Mould for Round Block with Block Lifting

CONVERSION

Low to medium density chip foam can be converted on ordinary cutting machines.

High density qualities (more than 200 kilos/cubic meter), however, require special heavy-duty conversion machines.

BONDED FOAM MOULDING

Special equipment with various degrees of automation is available for moulding of shaped items such as seats, back-rests, cylindrical insulation tubes and similar products.

One important advantage of this type of production is that different parts of a produced item can be made to have different densities according to the design of the mould.

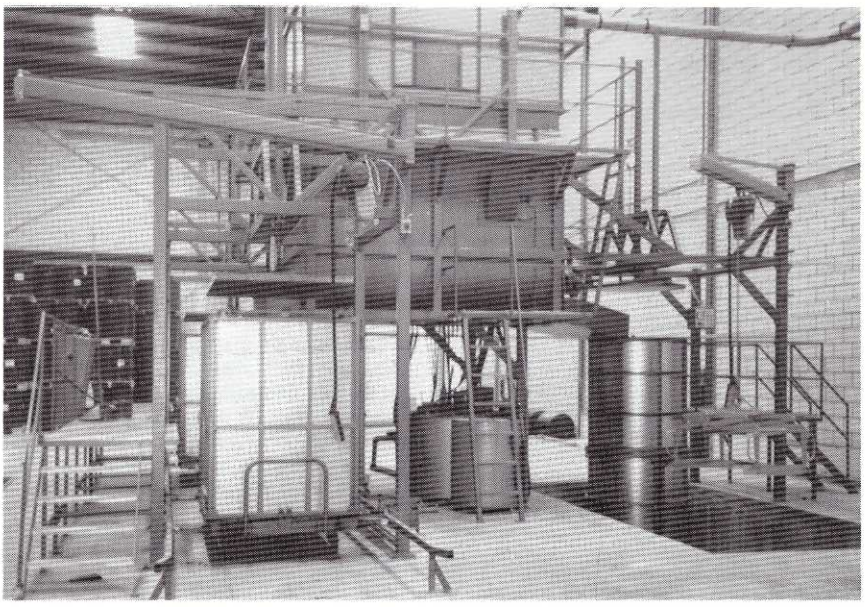
This equipment can be connected to a Chip Foam plant for Block-making, and may thus be considered optional extra equipment utilizing the facilities of the basic plant.

The investment necessary to have a two line operation is thereby reduced.

Utilize HYMA's proven experience for your bonded foam project.

Contact HYMA at your convenience for further information..

BFH-3 with Press Stations for one Round & two Square Blocks.



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