

HAYER & BOECKER



DIE DRAHTWEBER



**PLYMESH.
WOVEN WIRE CLOTH LAMINATED PANELS
FOR FLUIDIZATION.**

HAYER & BOECKER

PLYMESH LAMINATED PANELS.

HAYER PLYMESH are woven wire cloth laminated panels. The individual wire cloth layers are bonded together by means of a special manufacturing process.

PLYMESH is a porous, sheet metal like medium for fluidization and filtration applications.

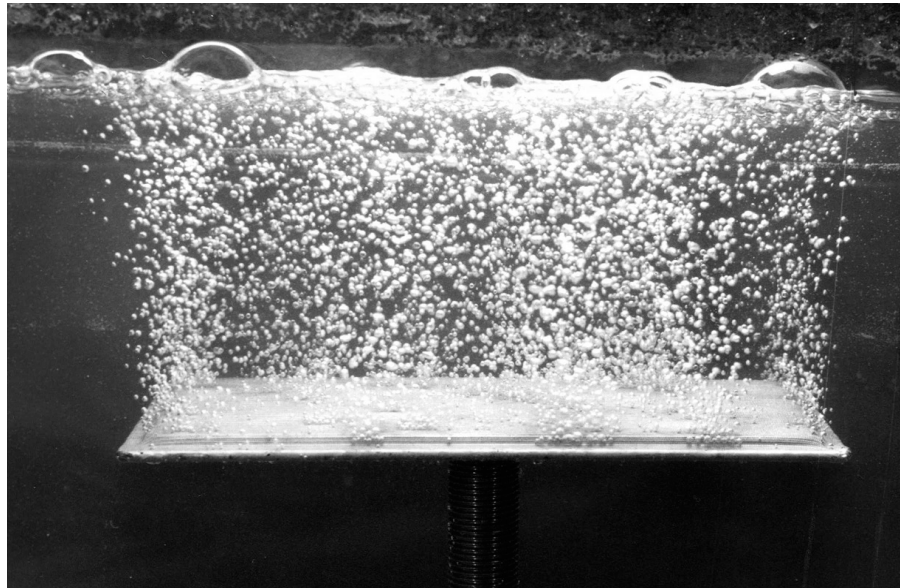
These laminated panels can be made up of woven wire cloth layers with square openings or MINIMESH filter cloth specifications or a combination of both types.

PLYMESH has a defined pore size ranging from 5 to 500 micrometres.

The geometry of the pores is uniform, and unlike powdered metal products, there are no blind holes. The surface of PLYMESH is smooth, with flattened knuckles on the outer wire cloth layers.

The physical characteristics of the individual PLYMESH types as far as their pore size and flow capacity are concerned, can be pre-determined. PLYMESH can also be supplied in panels and shaped parts in ready to be installed components such as candles, cylinders, cones and aeration pads.

The standard size of PLYMESH sheets is 500 x 1,000 mm. Special sizes upon request.



Uniform penetration of air through the PLYMESH aeration pad demonstrated in a water bath.

Application:

PLYMESH aeration pads are a highly efficient discharging aid in silos, in air conveying troughs, especially in the high temperature field. PLYMESH is a proven separating element between air and the material to be conveyed. Other applications are: flow regulator in water pipes, drinking water filtration, sound attenuation for air outlets, filter inserts for air aspirating holes, water separators for fuel, hydraulic filtration especially for aviation and aerospace.

Physical Data:

Material:

Chromium nickel steel 1.4301, AISI 304, maximum service temperature 600°C. Porosity according to specification 20% to 40%.

The equations for the air permeability of the individual PLYMESH types are outlined in the following formula:

$$DP = Y \cdot V + M \cdot V^2$$

V = air velocity in cm/s

DP = pressure build up in mbar · 10⁻³

The values for the air-flow resistance can be converted to any other fluid according to the following formula:

$$DP (\text{Fluid}) = DP (\text{Luft}) \cdot \frac{\eta (\text{Fluid})}{\eta (\text{Luft})}$$

η = dynamic viscosity of the fluid in cPoise.

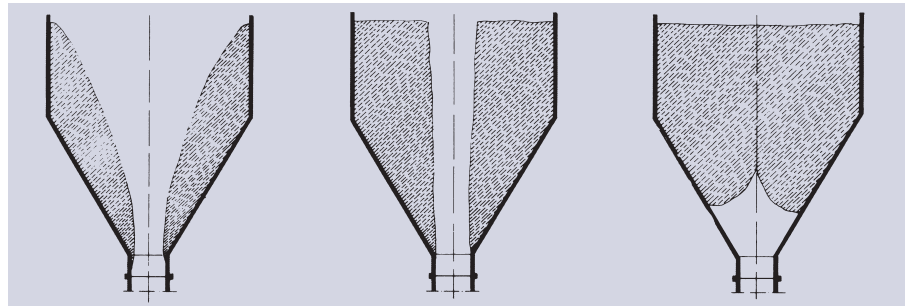
The proportionality of the pressure is not applicable for so-called Non-Newtonian-Media (i.e. polymer melt).

PLYMESH Code	Pore-size µm	Equation Factors for Flow Rate		Plate Thickness mm
		Y	M	
5 Ply 28-60	28	216	2	1.50
5 Ply 12-20	12	423	5	1.45
3 Ply 71-10	71	337	30.5	1.20
3 Ply 50-25	50	360	13.5	1.24
6 Ply 12-30	12	790	7	1.10
3 Ply 40-60	40	180	2.5	0.92

Physical Data (standard specifications)

PLYMESH AERATION PADS.

PLYMESH aeration pads are used to fluidize and to optimize the flow rate of powdered and pulverized products in silos and in bunkers. Pulverized goods stored in silos have to be easily extracted for further processes. Often, however, the powdered material tends to densify during the storage and becomes solid. Therefore it is no longer possible to rely on gravity alone for extraction. To ensure the flow, PLYMESH aeration pads are used



By installing PLYMESH aeration pads it is possible to avoid problems, such as funnelling, ratholing and bridging formation.

with success. PLYMESH aeration pads and candles can easily be installed, even in silos already in operation.

Function:

The PLYMESH aeration pad is installed internally in the cone of, for example, a silo. Air is continuously or intermittently blown through the PLYMESH into the pulverized substance. The air requirement for a silo depends on the chosen PLYMESH type and the number of aeration pads.

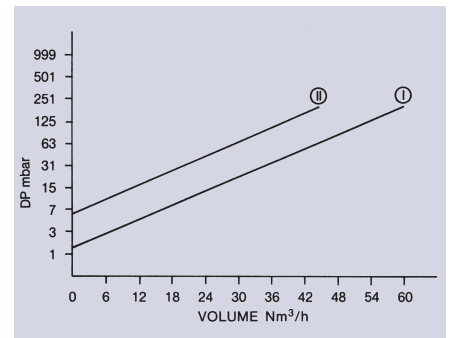
As a standard value we recommend 40 – 60 m³ of air per hour at a pressure of 500 mbar.

For different service conditions the values can be taken from the diagram in which the air requirement for PLYMESH aeration pads is given as a function of the pressure.

The values have been determined under the following conditions:
outer dimension 100 x 200 mm
PLYMESH material

(I.): 3 Ply 40–60

(II.): 6 Ply 12–30



Air requirement for PLYMESH aeration pads

Configuration:

PLYMESH aeration pads are temperature and corrosion resistant. The standard dimensions are 100x200 mm and 120 mm diameter. Other shapes and sizes upon request.

PLYMESH: standard specifications are 6 Ply 12-30, 3 Ply 40-60 and 3 Ply 71-10.

EGLA-SCREEN: stainless steel screen

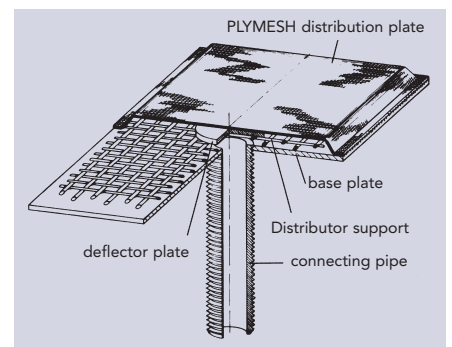
with a smooth surface on one side as distribution backing support.

DEFLECTOR PLATE: required to deflect the compressed air.

BASE PLATE: stainless steel, 2 mm thick.

PIPE UNION: steel, galvanized inside.

Can also be supplied in stainless steel at a surcharge.



Configuration of a PLYMESH aeration pad

PROJECT PLANNING WITH PLYMESH AERATION PADS.

Besides supplying of PLYMESH aeration components we develop complete silo aerations. Depending on the form and size of the silo as well as on the specific properties of the product.

PLYMESH aeration pads are mounted at different levels one upon another on the inside of the silo cone.

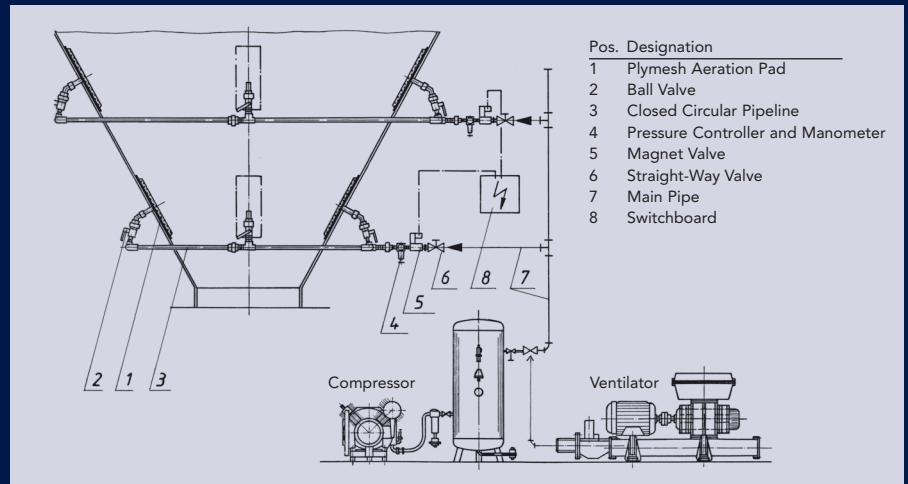
One or several closed circular pipelines supply the air for PLYMESH aeration pads. Air supply can be controlled manually or automatically by a solenoid valve in each closed circular pipeline.

Since we have a lot of experience in fitting different silo forms and sizes, as well as experience in handling numerous materials we are able to give you qualified advice about the number and placement of PLYMESH aeration pads.

Air-supply:

The air supply comes from rotary piston blowers or compressors.

Depending on the product an operating pressure of 200 up to 800 mbar is necessary. The air requirement depends on the number of aeration pads, the specific qualities of the



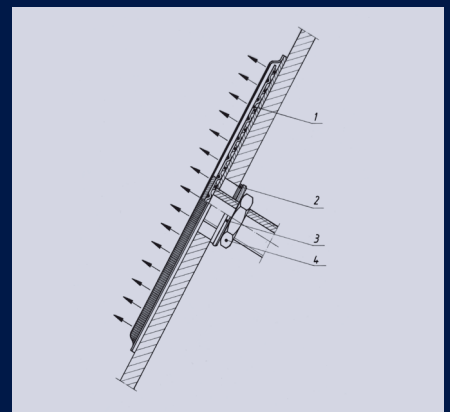
Project planning of a silo aeration with PLYMESH aeration pads.

product and on the operating conditions (silo form, charge and discharge). In order to avoid troubles, the compressed air has to be free of water and oil

Installation:

In order to fix the connecting pipe of the PLYMESH aeration pad with the silo, the cone is drilled (depending on the diameter 1/2", 3/4" or 1 1/2").

The figure shows a PLYMESH aeration pad (1) mounted on the inside of the silo cone, which is attached on the outside with a seal (2), a washer (3) and a counternut (4).



PLYMESH aeration pad, fixed to a silowall.

HAYER & BOECKER · Ennigerloher Straße 64 · 59302 OELDE · Germany

Phone: +49-25 22-300 · Fax: +49-25 22-30404

E-Mail: dw@haverboecker.com · Internet: www.weavingideas.com