Maschinen für die Hutindustrie

Bahner Multiroller Fulling Machine UW 216 Type 6-216

(Edition 2017/08)

Bahner Maschinenhandels GmbH • Industriestrasse 14 • D-97990 Weikersheim
Tel. +49 7934 83 39 • Fax +49 7934 82 34 • E-Mail: info@hatmachines.com • www.hatmachines.com

With

- 2 lines of rollers
- pressure fully adjustable from 0 to 1500 kg
- automatic transport belt system for the hat bodies
- universally usable for settling, medium- and final-fulling

1. The possibilities for achieving the best fulling results are many and varied. Through careful consideration – we have chosen those which have the greatest effect, considering the latest technology and the latest ideas in the fulling department. Fulling speed, fulling quality, and simplicity of mechanical operation are harmoniously matched and assure highest rentability.
2. The machine has two lines of rollers with 23 working rollers in all. The working rollers of the upper row of rollers as well as the lower ones oscillate axially, called jigging. The jigging rollers work the fulling band uniformly on the lower surface and the upper one. Thus, the demands which are absolutely essential for producing a hat body of uniform appearance and high quality are fulfilled.
3. You can always supply the fulling band sufficiently with fulling liquid as the working rollers are arranged in two lines. This is advantageous for the quality of the hat bodies. Hat bodies which are supplied evenly with fulling liquid, shrink together much better and the result will be much better.
4. The lower line of rollers and the upper one oscillates independently from each other. By turning the VFD switch you can choose independent frequencies and will get a total of 9 different adjustment

possibilities:
- rollers of the upper and the lower line of rollers do not oscillate – (settling)
- rollers of the upper and lower line of rollers oscillate slowly – (settling)
- rollers of the upper line of rollers do not oscillate, lower ones slowly
- rollers of the upper line do not oscillate, lower ones fast
- rollers of the upper and lower line of rollers oscillate fast – (fulling finish)
- rollers of the upper line oscillate slowly, lower ones do not oscillate
- rollers of the upper line oscillate slowly, lower ones fast
- rollers of the upper line oscillate fast, lower ones do not oscillate
- rollers of the upper line oscillate fast, lower ones slowly – (settling and final fulling, so free choice of fulling operation.

For uniform treatments these adjustments should be prefered. By these adjustments – they take only a few seconds – the intensity of the oscillation frequency can be chosen within wide ranges, just as the fulling process requires. With the first passage, i.e. during settling, the

Bahner Maschinenhandels GmbH • Industriestrasse 14 • D-97990 Weikersheim
Tel. +49 7934 83 39 • Fax +49 7934 82 34 • E-Mail: info@hatmachines.com • www.hatmachines.com

oscillation movement also can be fully stopped, if this will bring fulling advantages.

5. The pressure and not the spacing of the rollers are adjusted, with the Universal Fulling Machine UW 216 Type 6-216. The required spacing of the rollers is self-adjusting according to the thickness of the lap. This is achieved by a spring system, which we have developed and by which the upper line of rollers is hung up. The fulling pressure can be fully adjusted and quickly, from 0 to 1500 kg, by using the hand-wheel. They can be adjusted to the respective quality and size of the hat body. This adjustment of the pressure can be done within only a few seconds on our machine, and also at running machine. The upper line of rollers also can be lifted up to a height of approx..150 mm, for cleaning purpose, by using the hand wheel.
6. The fulling pressure indicator shows in kg the actual pressure prevailing during fulling. Thus, a continuous control is easily possible.
7. At the feed-in, there is the original rotating conveyor belt, 1100 mm wide, which runs over a table, about 2 meters long and on which the hat bodies can be crozed by hand (croze-feed-in table). This conveyor belt feeds the hat bodies automatically into the machine. The hat bodies are transported automatically back to the croze-fee-in table, underneath the rollers, by a second, long conveyor belt. That means, the transporting is all done automatically by the machine. Only the crozing itself is still carried out by hand.
8. The working width is 1110 mm, and this is sufficient to feed 2 lines of hat bodies side by side and in any position desired.
9. An improvement in quality and in greater uniformity of the hat bodies is achieved on the Universal Fulling Machine UW 216 by the conveyor belt system. The feed-in spacing and with it the thickness of the lap are uniform, as the hat bodies are delivered automatically and at regular time intervals to the crozing personnel.
10. If the hat bodies re-feed into the machine in two lines, and if they are crozed after each passage, as is done normally, you will work with two operators, whereby each person will croze the line showing towards him, as it is shown on illustration 2.

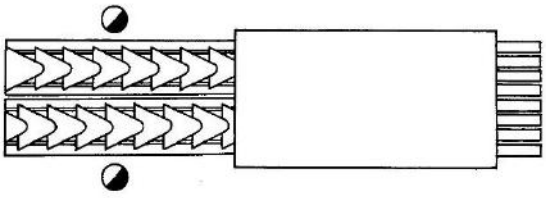

Bild 2

But you can also croze each row after each second passage, if quality considerations do not prohibit it. Then, one operator will be sufficient. This will croze line 1 first, then, will go over to the other side of the machine and croze line 2, while line 1 passes the machine for the second time, without being crozed, and so on (please see illustration 3).

Bahner Maschinenhandels GmbH • Industriestrasse 14 • D-97990 Weikersheim
Tel. +49 7934 83 39 • Fax +49 7934 82 34 • E-Mail: info@hatmachines.com • www.hatmachines.com

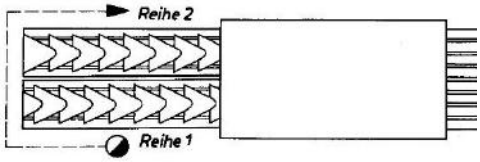

Bild 8

This is the standard process of operation. All technical particulars and characteristics of our fulling machines are based on the thought that one operator only can work the complete multiroller.
Theoretically, you can also fill the machine, and full in a way that the hat bodies are only crozed after the third, fourth, or after still more passages. Then, one operator could work several machine combinations. We should like to draw your attention to the fact, in any case, that with our multiroller-combinations only the crozing necessitates the expense of Wages. For this reason, the number of crozing during each fulling operation should be kept as low as possible. All our fulling machines, in their present design, offer the possibility to make the most of this and also to achieve the desired results.

11. The fulling liquid is caught right underneath the two lines of rollers and is led back the shortest way to the fluid reservoir. Thus, the conveyor belt running back underneath the machine is not moistened again with fulling liquid. While being transported back, the hot hat bodies cool off. They reach the operator evenly placed and smooth, only moderately moist, and not too hot and not too wet. The operating conditions, therefore, are more favourable. Due to this, the operator can work more easily with hat bodies which are not too hot and not too wet.
12. Hair and felt particles which have been torn off are drawn away by the fulling liquid and are caught by a sieve which is fixed on top of the fluid reservoir.

Economy / Service:

1. The design of the machine is made simple on purpose so that the costs of investment are kept relatively low, so that a calculation of rentability will always show a quick amortization, especially when one considers that the machine can be used by only one person. This machine, therefore, is very interesting economically for all hat bodies factories, as a new investment as well as a replacement.
2. The machine is very silent, not exceeding 83 db (A)
3. The passing speed (the conveyor speed) can be fully adjusted to any value desired, between 2 to 10 meters / min. with the Universal Fulling Machine UW 216. In this way, the speed can be adjusted exactly to suit the prevailing factory conditions, whereby an optimum in output of the hat bodies and their quality can be reached.
   The passing speed v which must be adjusted, is as follows reckoned mathematically:

Bahner Maschinenhandels GmbH • Industriestrasse 14 • D-97990 Weikersheim
Tel. +49 7934 83 39 • Fax +49 7934 82 34 • E-Mail: info@hatmachines.com • www.hatmachines.com

whereby E means the crozing output (hat bodies / min)

$$v = 7.5 - \frac{E}{S}$$

and S the quantity of hat bodies fed in in one line

4. The prescribed jigging frequencies and jigging speeds are chosen with buttons or optional switches. An adjustment takes only 1 to 2 seconds.
5. We use a special quality rubber which is well-proven, with a hardness of 80 shores and a high friction coefficient for the roller set. Without special roller-set, we reach a very good fulling speed for all fulling phases, in spite of a relatively smooth roller surface. On purpose, we have absolutely avoided a strongly checkered or rippled surface for the working rollers, because this reduces the quality of the hat bodies which one would otherwise been achieved. The loss of hair fibres also is kept low, the loss of weight of the hat body is thus very small.
6. The machine is delivered ready for connection. Our delivery includes complete electrical installation with switch-box, the complete water-retention including water reservoir and circulation pump, also an automatically operating water temperature control, electric or steam heated. That means the purchaser does not have any additional costs in order to put the machine into operation.
7. The machine does not cause any regular repairs and does not require any continuous replacement of expensive parts which have been worn out. So, the operating costs are low. The machine highly operation-proof. There will be hardly any expense from a possible breakdown of machine

Machine the Maintenance:

1. The Universal Fulling Machine UW 216 is easy to maintain. The main gears run in an oil-bath. The driving elements run in ball bearings, roller-bearings, and glide-bearings and thus easy to maintain. All bearings have large enough dimensions to guarantee a nearly unlimited life-time. The number of bronze-glide-bearings and greasing spots that must be greased once a day or once to twice a week.
2. The machine is built according to international ISO-standards in the metric system. All parts constructed can be exchanged. The complete electrical installation is produced by Siemens, and ABB which has agencies in every continent. The motors and the wires are protected by safety relais that react to short-circuit and over-charge; UFD control system & protection used. To guarantee very low electrical consumption.
3. All machine parts and supply devices are mounted on the machine in a standardized system. They are easily accessible. All elements which lead and distribute the fulling

Bahner Maschinenhandels GmbH • Industriestrasse 14 • D-97990 Weikersheim
Tel. +49 7934 83 39 • Fax +49 7934 82 34 • E-Mail: info@hatmachines.com • www.hatmachines.com

liquid (pipings, valves, collecting sheets, catching drains, etc.) are made of rust-free steel so that there will not be any wear and tear.

4. In the design of the machine, ease of cleaning is predicted. Therefore, all pipes that lead the fulling liquid back into the fulling liquid container, all catching sheets, and all drains, can be pulled out or are easily accessible.
5. Fulling machines (multirollers) do work under extraordinarily unfavourable conditions, but must, nevertheless, remain usable over a long operation time. All technical details have been designed accordingly. There is no fluid container underneath the machine, but a catching sheet arranged above the return conveyor band. Thus, the machine is not exposed more than necessary to steam and other aggressive vapours. Therefore, all machine parts remain comparatively dry. The fulling liquid container is positioned at the side of the machine, and thus is easily accessible for cleaning & refill.
6. The electrical control of the machine has been centralized in one switch-box. The complete installation can be switched on and off with one single button. But it is also possible to switch on each motor separately: conveyor-belt motor, drive-motor for the machine, motor for the pump, oscillation-motor for the upper line of rollers, oscillation-motor for the lower line of rollers.
7. We maintain a stock of nearly all machine parts so that you can get replacement parts immediately, if required.

Bahner Maschinenhandels GmbH • Industriestrasse 14 • D-97990 Weikersheim
Tel. +49 7934 83 39 • Fax +49 7934 82 34 • E-Mail: info@hatmachines.com • www.hatmachines.com

Maschinen Bahner für die Hutindustrie

Technical Data

Measurements	
Length	4240 mm / 166,9 inch
Width	2550 mm / 100,4 inch
Height	1950 mm / 76,8 inch
Measurements of Case:	
Machine	2550 x 2170 x 1800 mm
	100,4 x 85,4 x 70,9 inch
Feeder	2550 x 2100 x 1950 mm
	10,4 x 82,7 x 76,8 inch
Weight	
Net	3200 kg / 7054,79 lbs
gros (seaworthy packed)	4520 kg / 9964,89 lbs
Installed Power:	
1 Motor	1.1 kW - 1.5 kW
1 Motor	0.7 kW - 0.8 kW
1 Motor	0.7 kW - 0.8 kW
1 Motor	0.55 kW
1 Motor	0.75 kW
Total:	3.8 kW - 4.0 kW
Standard working width of the rollers	1110 mm / 43,7 inch
Standard lenght of one passage	7500 mm / 295,3 inch

Bahner Maschinenhandels GmbH • Industriestrasse 14 • D-97990 Weikersheim
Tel. +49 7934 83 39 • Fax +49 7934 82 34 • E-Mail: info@hatmachines.com • www.hatmachines.com