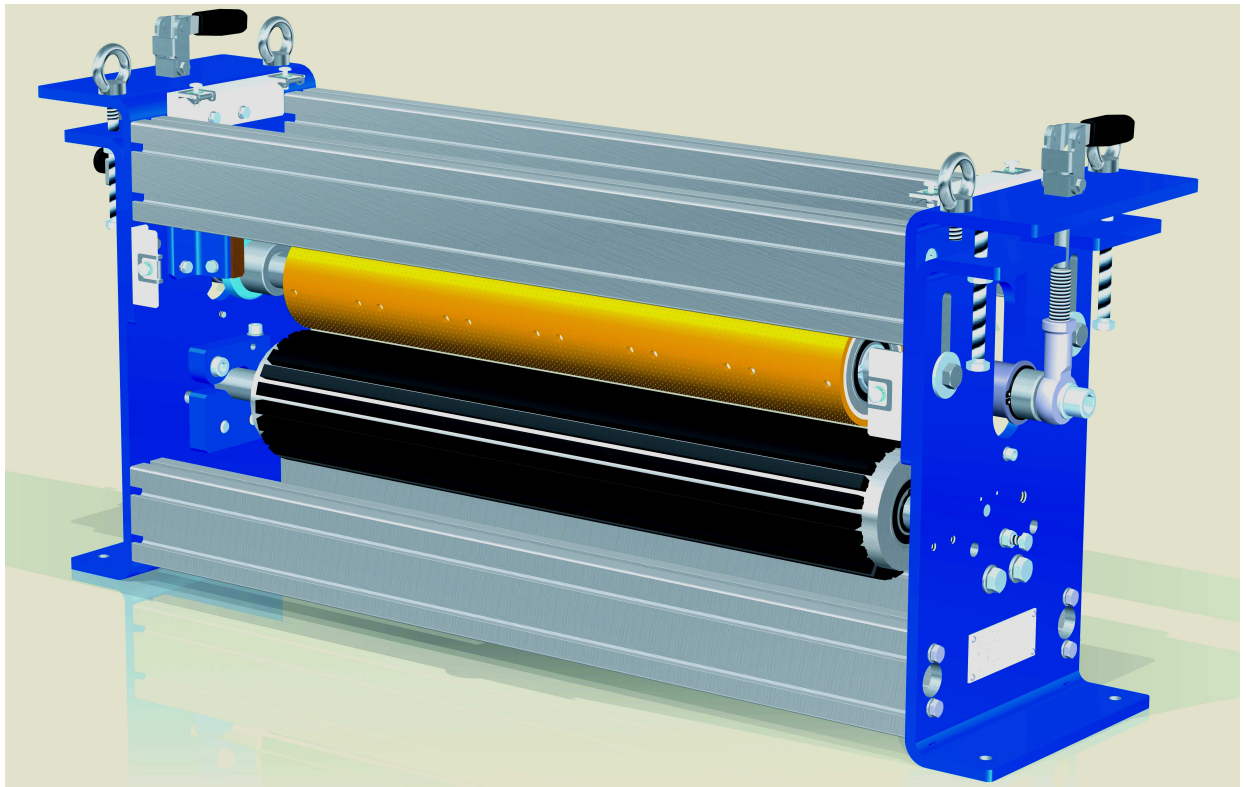


## Perforation Devices



### Examples of use:

- Perforation of:
  - Polyethylene foils
  - Paper webs
  - Plastic foams
  - Metal foils
- Ventilation at lamination processes
- Micro perforation

### Advantages:

- Easy integration into an existing production line
- High web speed
- Easy way of use
- Multi-purpose
- Optional roller arrangement
- High precision due to state-of-the-art CNC machines
- Made in Germany

## Description:

- The device is basically intended for the cold perforation process.
- The correct penetration depth is adjusted via adjusting screws.
- After the adjustment of the correct penetration depth by the adjusting screws, the top roller is actuated either manually, pneumatically with hand lever valve or electro-pneumatically with remote control.
- The device does not include any maintenance unit, as the pressure air can be normally taken from the system.
- The support shafts can be exchanged according to the material guiding (see 2.1).
- Mounting brackets for the fitting at the machine are available.
- The device will be adjusted accordingly if the fastening points are specified.

## Questionnaire:

We will gladly make you an offer for our perforation device. Please mark the desired version with a cross and fill in the form completely. If there are any questions concerning the special options or a special design of the device, as good as the desired spiked or counter rollers, please feel free to contact us under [info@tambula.de](mailto:info@tambula.de) or call us on 06622/919035. You can also send us a sample of your material for testing purposes.

### 1. Purpose of use

Material to be processed: \_\_\_\_\_ (z.B.: HDPE)

Material thickness: \_\_\_\_\_ ( $\mu\text{m}$ , mm)

Working width of material: \_\_\_\_\_ (mm)

Product speed: \_\_\_\_\_ (m/min)

Type of machine: \_\_\_\_\_

### 2. Perforation device

#### 2.1 Material guiding:

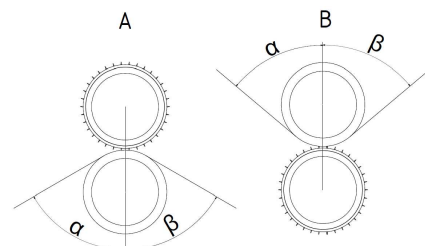
(The material to be perforated should always be guided over the counter roller)

☐ Spiked roller up (sketch A)

$\alpha$ : \_\_\_\_\_,  $\beta$ : \_\_\_\_\_

☐ Counter roller up (sketch B)

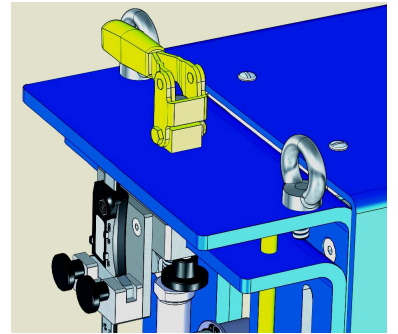
$\alpha$ : \_\_\_\_\_,  $\beta$ : \_\_\_\_\_



## 2.2 Lowering of the roller:

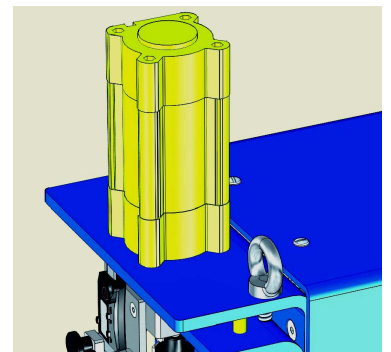
### ☐ Manually

- Push rod clamping device for lowering the roller manually
- Fine adjustment with adjusting screws



### ☐ Remote controlled

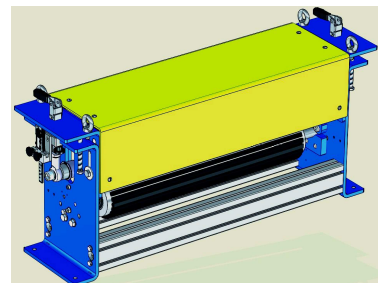
- Pneumatically actuated cylinders
- Fine adjustment by adjusting screws
- Control by:
  - ☐ Hand lever valve
  - ☐ Solenoid valve (please specify the voltage)



## 2.3 Shock-proof protection:

### ☐ Cover plates or hood

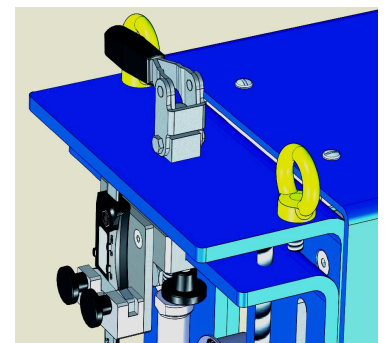
- Protects from unintentional contact with the spiked rollers
- You must comply with the valid safety instructions when using the device
- Please fill in under (2.1) web guiding and angle
- **NEW:** Fast release through quick access fastener



## 2.4 Possibilities of transport:

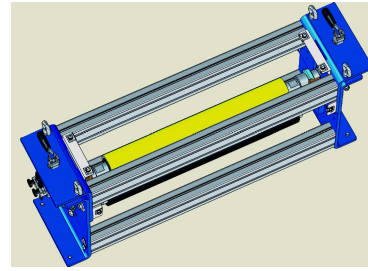
### ☐ Ring nuts (ISO 582 M10)

- Not essential
- Facilitates the application of transport material



## **2.5 Support shaft material:**

- ☐ Steel
  - Cheaper option
  - Heavy construction
- ☐ Aluminium
  - Optional: Light construction



## **2.6 Surface structure of the counter roller:**

- ☐ Brushes
  - According to the material suited for coarser till fine pins (pitch „T“ > 5mm)
  - By choosing a balanced brush counter roller there is always a steel shaft installed



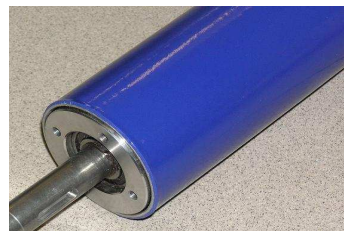
- ☐ Felt
  - Suited for fine pins



- ☐ Grooved aluminum / steel
  - The grooves have been directly worked into the steel or aluminum counter roller
  - The pins run in the grooves
  - Suited e. g. for the perforation of a harder material
  - Possible from pitch  $T > 5$  mm (in rows), or from  $T > 10$  mm (staggered)



- ☐ PU-coated
  - Necessary for micro perforation
  - Suited for very fine pins or for very small hole diameters



## 2.7 Balancing of rollers:

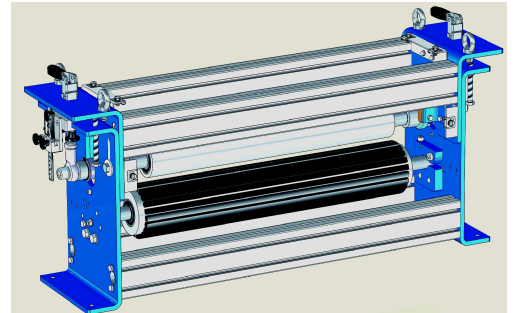
- ☐ Balancing of support shafts
  - From the following web speeds and working widths (AB) balancing is advisable:

AB: 500mm-1500mm **95m/min** (300 U/min)

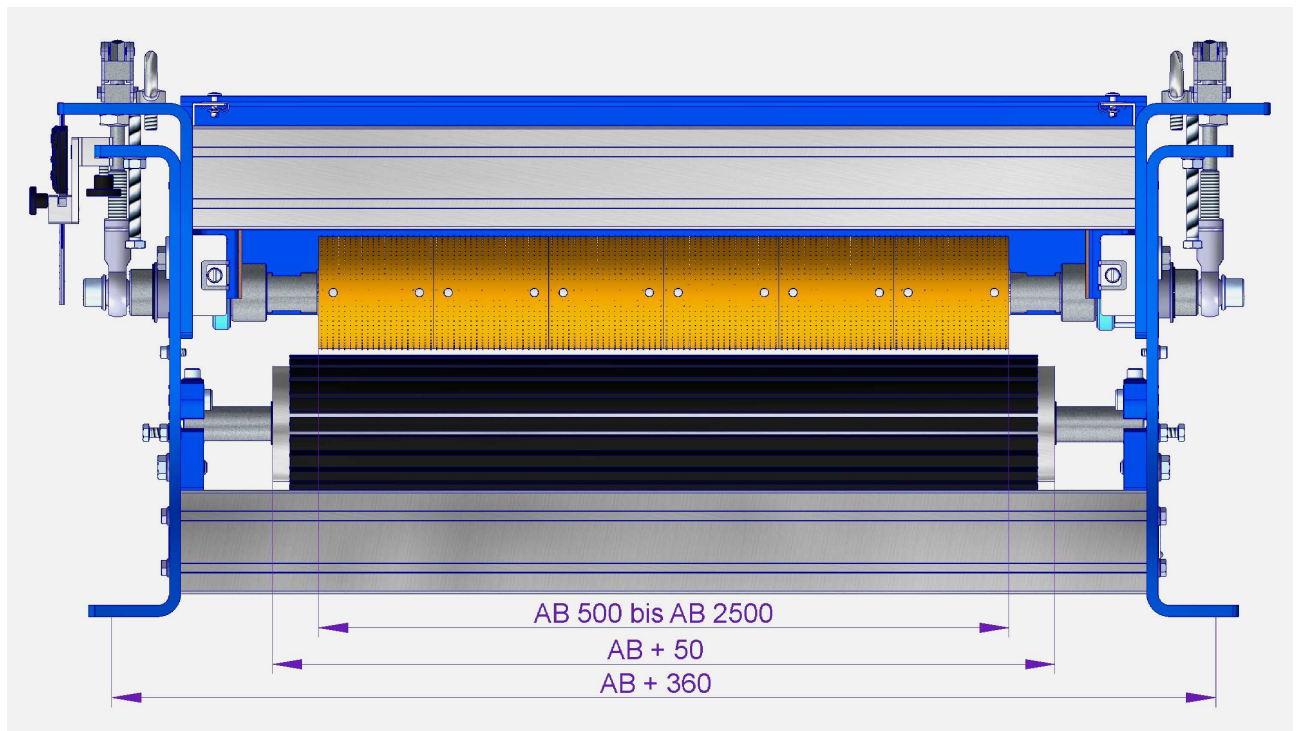
AB: 1600mm-2000mm **120m/min** (300 U/min)

## 2.8 Color of the device:

- ☐ Standard color: Blue (RAL 5010)
- ☐ Special color as required:



## 2.9 Working width (AB) and standard mounting dimensions:



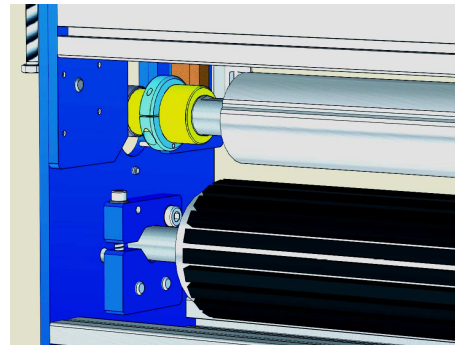


## **2.10 Special equipment:**

### ☐ Fast change system, upper roller

Advantages:

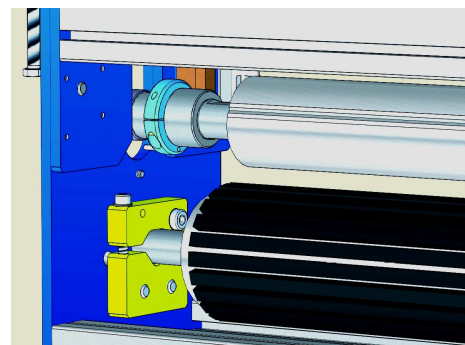
- Changing of the upper support shaft without the disassembling of the lowering systems
- The perforation depth setting is kept untouched



### ☐ Fast change system, counter roller

Advantages:

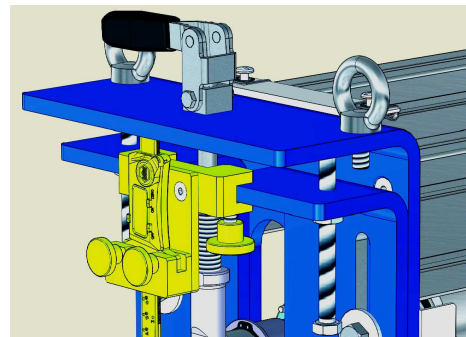
- Changing of the counter roller by means of releasing just two screws.
- No disassembled parts.



### ☐ Perforations depth measuring system

Advantage:

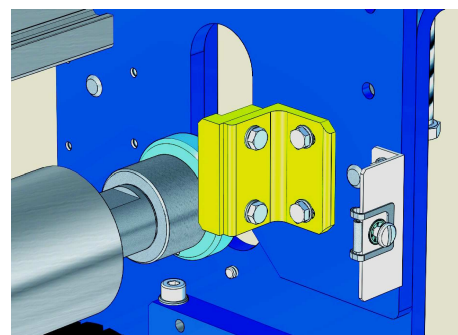
- exactly measuring of the perforation depth setting, on each side, through a digital caliper.



### ☐ Guiding, upper roller

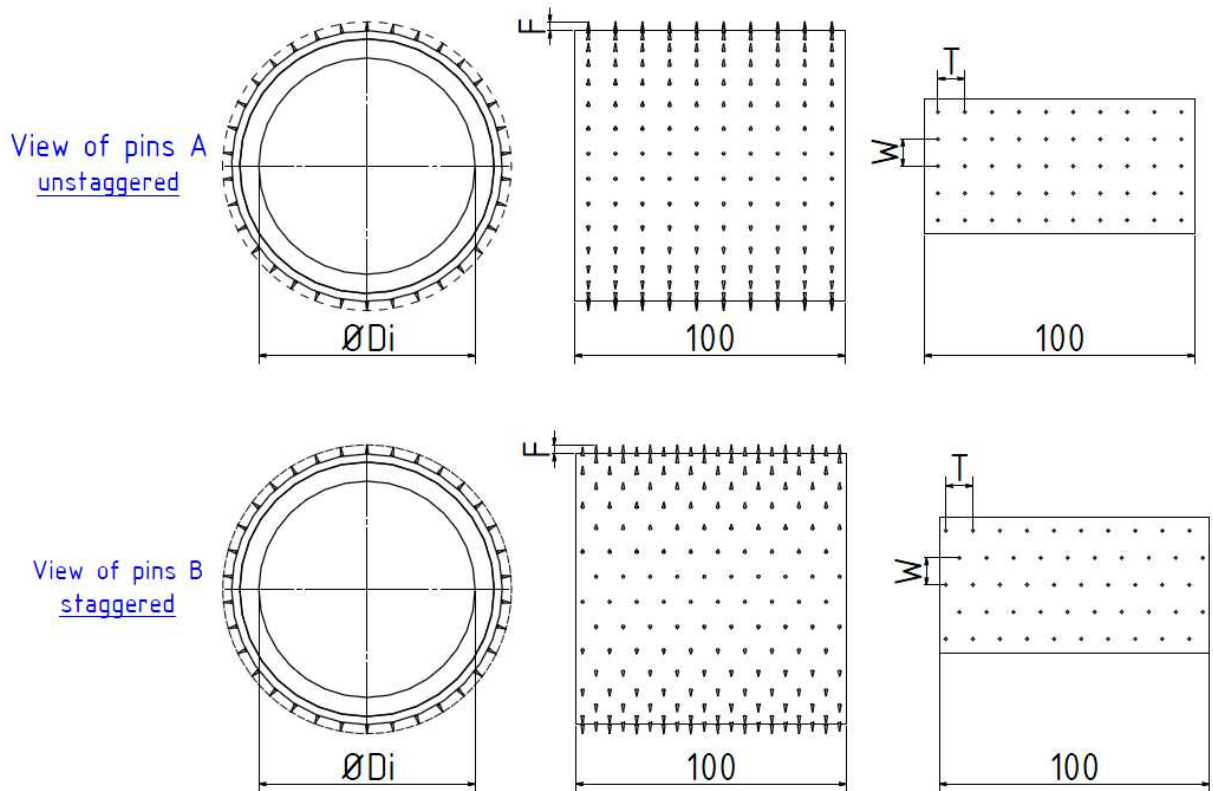
Advantage:

- The upper roller keeps the set axial position
- Important for e.g. perforation with a grooved counter roller



### 3. Pin Segments, standard

#### 3.1 Dimensions of the standard pin segments:



(Dimensions in mm)

Unstaggrered pins (A)						Staggrered pins (B)					
	Density	T	W	F	Pins $\varnothing$		Density	T	W	F	Pins $\varnothing$
<input type="checkbox"/>	16 pins/cm <sup>2</sup>	2,5	2,5	3,85	0,99	<input type="checkbox"/>	16 pins/cm <sup>2</sup>	2,5	2,5	3,85	0,99
<input type="checkbox"/>	4 pins/cm <sup>2</sup>	5	5	3,85	0,99	<input type="checkbox"/>	4 pins/cm <sup>2</sup>	5	5	3,85	0,99
<input type="checkbox"/>	1 pins/cm <sup>2</sup>	10	10	5,5	1,63	<input type="checkbox"/>	1 pins/cm <sup>2</sup>	10	10	5,5	1,63
<input type="checkbox"/>	0,25 pins/cm <sup>2</sup>	20	20	10	2,62	<input type="checkbox"/>	0,25 pins/cm <sup>2</sup>	20	20	10	2,62

(pin $\varnothing$  = max. maximum diameter at the pin shank)

#### ☐ Customer request

- We will be pleased to offer upon request any individual pin arrangements of the segments according to your specification.
- In this case please fill in our “**Questionnaire Spiked Rollers**” or send us a drawing.
- Please note that the outer diameters of the support shafts at the following working widths (AB) are as follows:

AB: (500mm-1500mm)

AB: (1600mm-2000mm)

**Di=80mm**

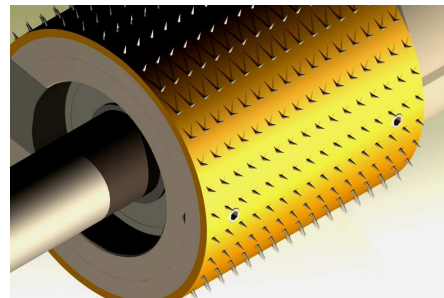
**Di=110mm**

### **3.2 Core material of the standard segments:**

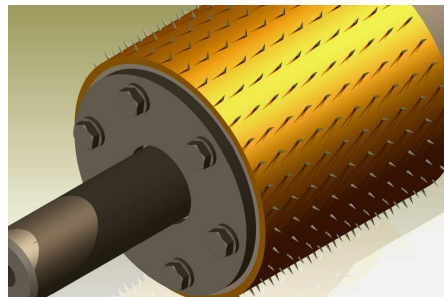
- ☐ Without core
  - The roundness is not as accurate as with core
  - Low-cost version from AB 1600 or coarse pins (0.25 pin/cm<sup>2</sup>)
  - Attachment between clamping disks
- ☐ Steel core
  - Cheaper than aluminum core
  - Heavy construction
- ☐ Aluminum core
  - Light construction
  - Also suited for high product speeds
- ☐ Plastic core
  - Ultra light construction
  - Very good chemical resistance (e.g. acid resistance of Murylat till PH2)
  - Proper for the food industry
  - Also suited for high product speeds

### **3.3 Attachment of the standard pin segments:**

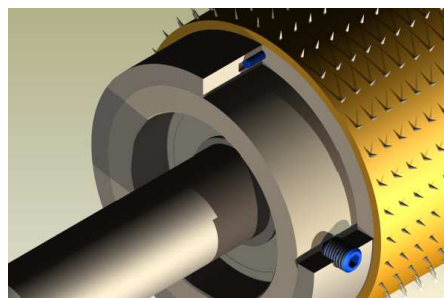
- ☐ Setscrews
  - Standard version
  - Any roller is attached separately at the support shaft
  - Serves as axial (displace) and radial (turn) fixing
  - In connection with a notched support shaft, a correct pin arrangement can be reached
  - Only up to a pitch of  $T > 10$  mm (0.25 N/cm<sup>2</sup>, 1 N/cm<sup>2</sup>). At a smaller pitch the pins are omitted at the screw connection.
  - Is necessary for movable single segments at partial perforation



- ☐ Tensed between clamping disks
  - Manual alignment of the pin segments
  - The segments are tensed by clamping disks which are attached at the front of the support shafts. In this way the segments are protected from axial and radial displacement
  - Only necessary for fine pins (16 pins/cm<sup>2</sup>) and segments without core



- ☐ Front studs
  - Special equipment
  - The spiked rollers are put together and they are correctly aligned by the studs.
  - For the axial fixing 2 additional edge segments are necessary. These segments are attached by clamping screws at the support shaft.





## 4. Aluminium Pin Rollers, standard:

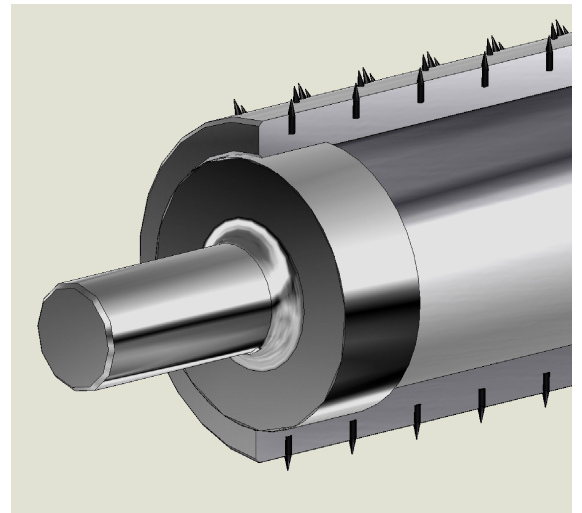
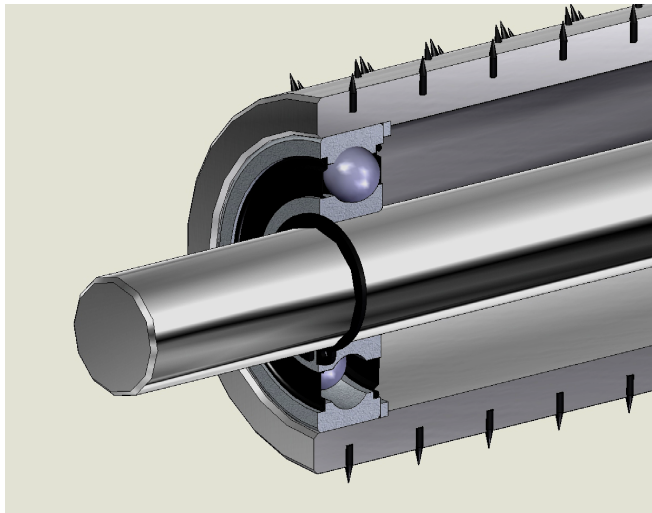
- Inexpensive and light construction
- Suited for perforations with a lower radial load
- The pin roller is balanced
- Dimensions: Diameters Ø80mm - Ø120mm, Lengths 300mm - 2000mm (by demand other dimensions too)
- Pin pattern:  $T \geq 10\text{mm}$ ;  $W \geq 10\text{mm}$
- Pin diameter  $\geq 1\text{mm}$

(Dimensions in mm)

Unstaggered pins (A)						Staggered pins (B)					
	Density	T	W	F	PinsØ		Density	T	W	F	PinsØ
<input type="checkbox"/>	1 pins/cm <sup>2</sup>	10	10	3,85	1	<input type="checkbox"/>	1 pins/cm <sup>2</sup>	10	10	3,85	1
<input type="checkbox"/>	0,45 pins/cm <sup>2</sup>	15	15	5,5	1,63	<input type="checkbox"/>	0,45 pins/cm <sup>2</sup>	15	15	5	1,63
<input type="checkbox"/>	0,25 pins/cm <sup>2</sup>	20	20	7	2	<input type="checkbox"/>	0,25 pins/cm <sup>2</sup>	20	20	7	2

☐ Inside bearing

☐ With plugs



☐ Customer request

- We will be pleased to offer upon request any individual pin arrangements of the rollers according to your specification.
- In this case please fill in our “**Questionnaire Aluminium Spiked Rollers**” or send us a drawing.
- Please note that the outer diameters of the rollers at the following working widths (AB) are as follows:

AB: (300mm-1000mm)

AB: (1000mm-1500mm)

AB: (1500mm-2000mm)

**Di=Ø80mm**

**Di=Ø100mm**

**Di=Ø120mm**

tambula GmbH  
Robert-Bunsen-Straße 15  
36179 BEBRA  
Germany

Internet: [www.tambula.de](http://www.tambula.de)  
Tel: 06622/919035  
Fax: 06622/7480  
e-mail: [info@tambula.de](mailto:info@tambula.de)