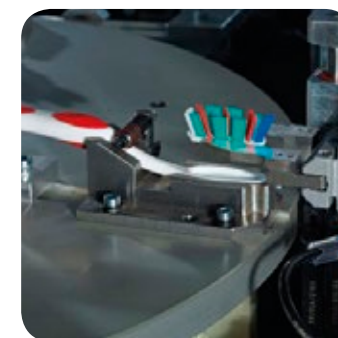
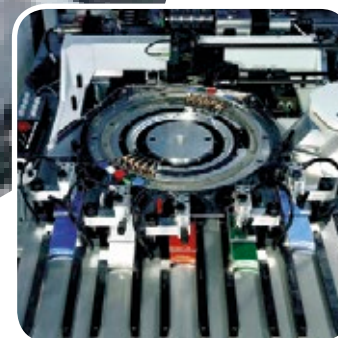


Advanced technology for  
toothbrush manufacturers  
worldwide.



In 1949, Boucherie delivered 2 specially made toothbrush machines to a manufacturer in the northern part of France. They were the first toothbrush machines ever built by our company and they already used handles with pre-cored holes, a novelty at that time. Now, more than 65 years later, toothbrush machines have become a very important part of our overall business volume. Boucherie built the first high speed filling machines, as well as the first commercially available anchorless production lines. Since many years, we have been widely recognized as a technology leader in equipment for oral care brushes. Today, with the introduction of our latest PTt technology, we provide toothbrush makers with an entirely new method for rational and flexible anchorless production.

Oral care

Giving More Experience



# Innovative technology

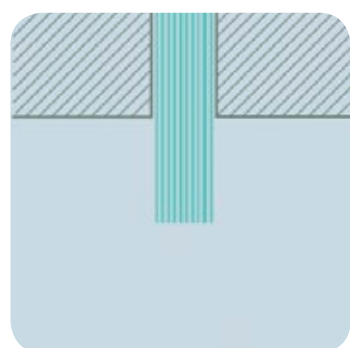
## PTt

The revolutionary **PTt anchorless technology** brings entirely new design possibilities and simplifies the manufacturing process at the same time: the handle design is simple, with the standard pre-cored holes of a conventional toothbrush.

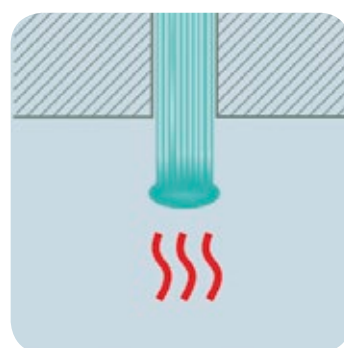
No separate head plates are required, so no subsequent operations such as welding or clicking of the plates into handles are necessary. Because there are no head plates and no anchors, the PTt technology also allows a very narrow space between the tufts and the edge of the head.

Moreover, cleaning elements in elastomer materials between the tufts, on the outside or on the back of the head (tongue cleaner) are possible.

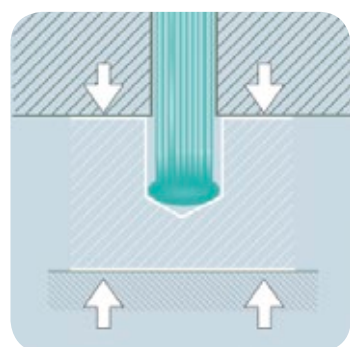
This technology can be used for the widest range of handle materials, including transparent materials.



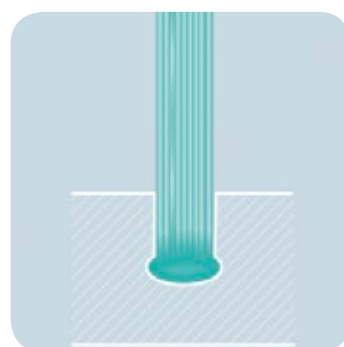
1 - Filaments are pre-endrounded, and arranged in the tuft pattern.



2 - The filaments are pushed into the correct topography, and are fused together into tufts.



3 - The tufts are placed into the blind holes of the brush head. Heat and pressure are applied on the surface of the brush head. The plastic of the holes closes around the fused ends of the tufts, holding them firmly.

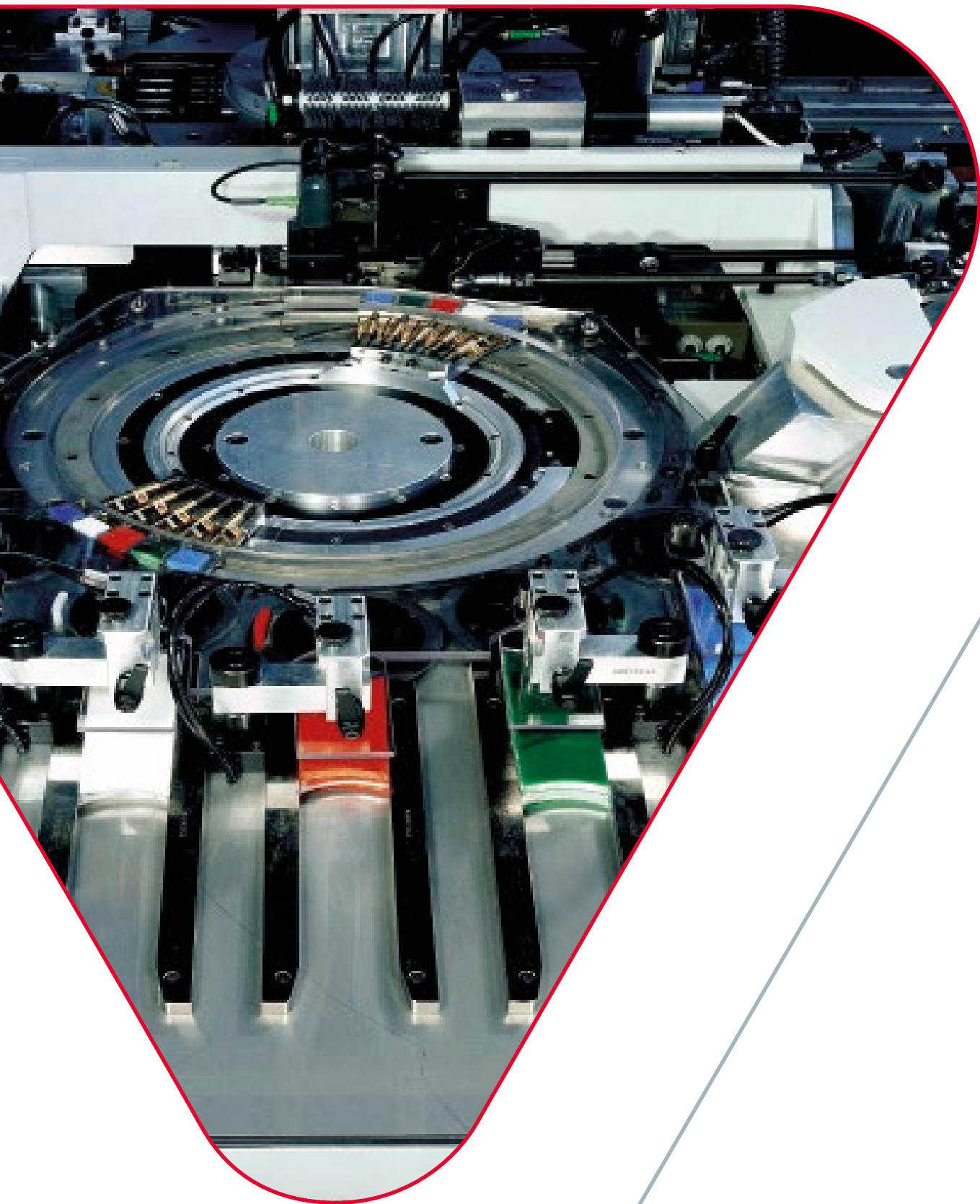


4 - The brush head cools down and the brush is finished.

### Technology advantages:

- ▲ No metal anchors required.
- ▲ Brush handles with standard pre-cored holes.
- ▲ Brush handles in any material, including clear materials, single and multi-component handles.
- ▲ Different sizes and shapes of tufts combined in one brush head.
- ▲ Very narrow border between tufts and toothbrush head edge.
- ▲ Complex trim topographies possible (no profiled trimmers, no spreading systems).
- ▲ Excellent end-rounding because of the fibrebox with integrated pre-endrounding system.
- ▲ Angled tufting possible.
- ▲ Tuft fusing by means of radiation heat, no contact between die and filaments.
- ▲ High and consistent tuft retention force.
- ▲ No assembly, no welding, no clicking, no over-molding.
- ▲ Normal filaments can be used.
- ▲ Thin head sections without any voids.





# Innovative technology

## In-line pre-endrounding system

### Key advantages of the technology:

- ▲ Allows brush designs with up to 5 different filament types or colors.
- ▲ Each channel of the fiber box has an individual endrounding system, so that each filament type can be treated with the optimal endrounding parameters.
- ▲ All filament tips are endrounded in the same ideal conditions, which leads to consistent excellent endrounding quality throughout the brush, for both long as well as short filaments, or whether they are in a flat-top tuft or in a profiled tuft.
- ▲ Patented in-line system: the filaments are fed into the machine in normal, commercially available pucks. No additional transfers or intermediate storage of endrounded fiber required.
- ▲ Automatic fiber load system available.



The filaments are pre-cut and are fed into the machine



The tips of all filaments are endrounded in the same circumstances



The topography of the brush is formed before the filaments are fixed

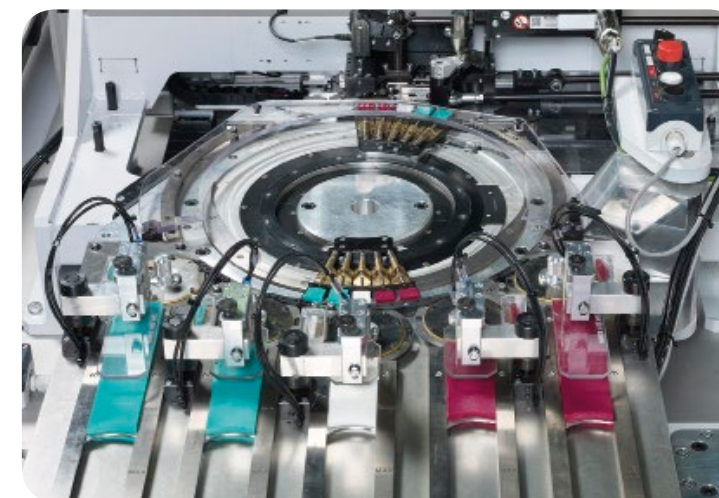


## ANCHORLESS TOOTHBRUSH LINE USING A NEW AND REVOLUTIONARY TECHNOLOGY.

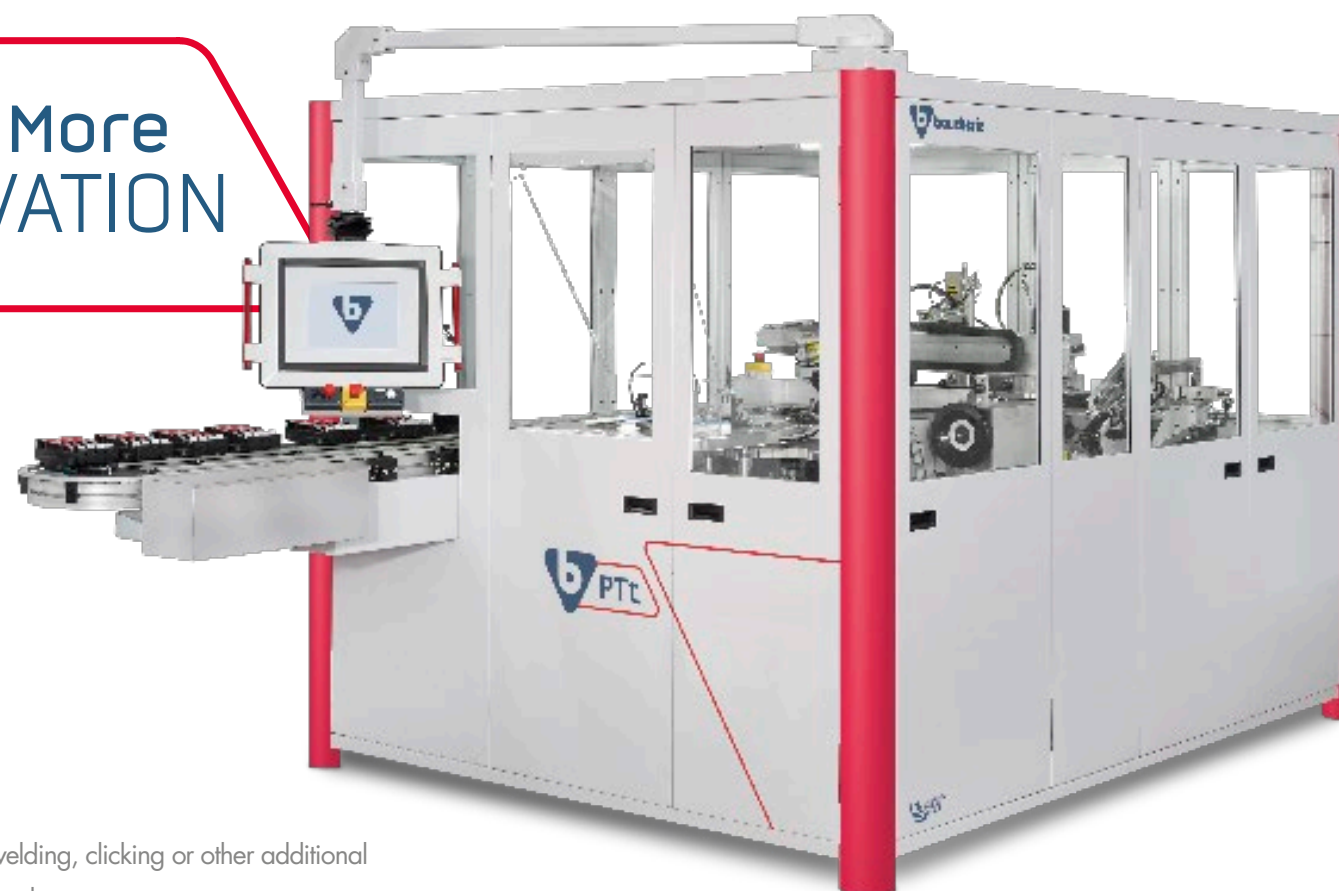
PTt technology makes the manufacturing of anchorless toothbrushes simpler, and offers a wide variety of design options. Just like a conventional toothbrush machine, the PTt works with standard toothbrush handles with pre-cored holes, as well as pre-cut filament pucks. A fibrebox with in-line end-rounding feature ensures excellent product quality.

The PTt is available as a manually loaded machine, or with all possible automation to reduce operator labour to a minimum. Depending on the number of stations and the exact configuration, there are PTt machines available with outputs from 22 up to 48 brushes per minute.

PTt is available with AFT-style tuft picking, or with the V-Air vacuum technology.



## Giving More INNOVATION



▲ No welding, clicking or other additional assembly steps.

▲ Minimal border from the tufts to edge of the brush head.

▲ Standard toothbrush handles with pre-cored holes, single or multiple material handles.

▲ Large variety of toothbrush handle materials, including transparent materials.

▲ Contactless fusing of the filaments.

▲ No need for head plates.

▲ Non-flat brush heads possible, stepped in 1 or 2 directions, 2D curved or 3D curved.

▲ Excellent process stability, with consistent and high tuft retention.

▲ Simple tooling, quick change-over.

▲ Rubber cleaning elements in the head possible, between the tufts or on the sides of the head, tongue cleaners in the back, etc.

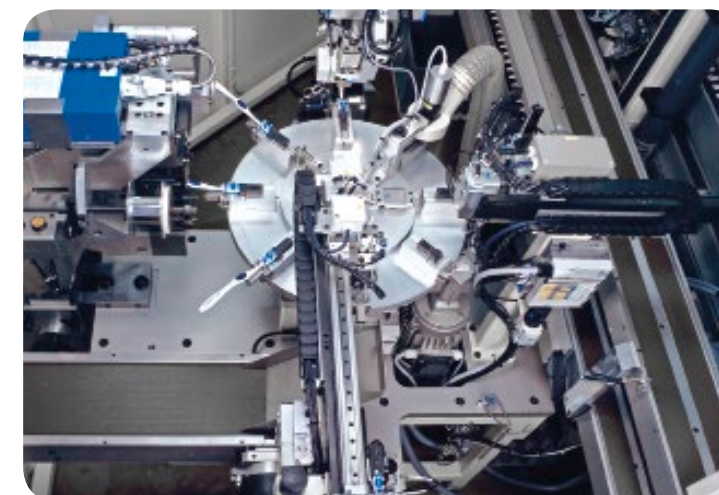
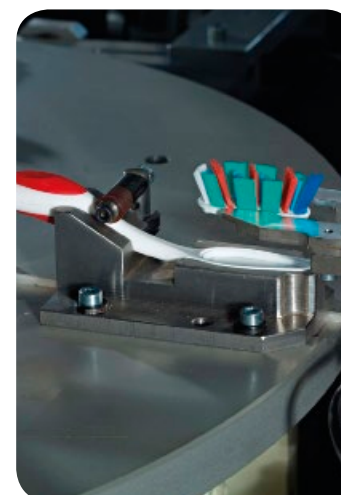


## Technical data:

Output (br/min):	22 - 48
End Rounding:	Pre-endrounding
Fibre colors:	Up to 5
Power consumption (kW):	6.5
Air consumption (nL/min):	550
Dimensions (mm):	L - 5543 W - 5516 H - 2140

## AUTOMATIC ANCHORLESS BRUSHMAKING LINE.

The AFT machine, which has brought anchor free tufting within the reach of the whole toothbrush industry, has set a new industry standard for end-rounding quality: the pre-rounding system that is conveniently integrated in the fibrebox ensures consistent end-rounding quality on all tufts, independent of tuft length, material properties or brush profile. The AFT is now available with V-air vacuum technology, or with conventional picking technology, which picks up to 1000 picks per minute and can feature the CNC controlled tuft picker eye to boost efficiency.



## Giving More EXPERIENCE



### Technical data:

Fibre colors:	Up to 5
End Rounding:	Pre-endrounding
Speed (tufts/min):	1000
Power consumption (kW):	Up to 11
Air consumption (nL/min):	Up to 900
Dimensions (mm):	L - 6180
	W - 5380
	H - 2140

▲ Available as a manually loaded or fully automated machine.

▲ In-line pre-endrounding for improved end-rounding quality.

▲ Very innovative brush designs and trim profiles.

▲ No trimmers or spreading systems required.

▲ Conventional picking technology or V-air vacuum technology available.







# AVT-S12, AVT-S6 and FRM

AUTOMATIC HIGH-SPEED ANCHOR-FREE TOOTHBRUSH LINE.

The AVT-S12 machine and the price-competitive AVT-S6 are high speed toothbrush production machines of sturdy and straight-forward design. Head plates are fed into the machine, and the pre-rounded filaments are all picked simultaneously from the different filament boxes and are transported into the head plate at the same time by means of the vacuum technique. There, the filament tufts are put to the desired topographies and fused together. These tuft heads are then ejected or in-line assembled to the handles by different techniques.

Giving More  
SIMPLICITY



- ▲ Very quiet running and slow movements.
- ▲ Very sturdy and simple design, user-friendly and low maintenance.
- ▲ Low maintenance requirements.
- ▲ Automatic feeding of the head plates available
- ▲ Very high output: 32 brush/heads per minute for AVT-S12 and up to 29 brush heads per minute for AVT-S6, independent on the number of tufts.
- ▲ The FRM machine end-rounds the filament tips and cuts the bundles exactly to the correct length.



## Technical data:

Machine:	AVT-S12	AVT-S6
Filling system:	Vacuum technique	
Filaments boxes:	Up to 6	Up to 4
Production (br/min):	32	29
Max visible tuft length (mm):	16	16
Min visible tuft length (mm):	8.5	8.5
Max. tuft inclination:	16°	4°
Filaments, min diameter (mils):	5	5
Power consumption (kW):	6.2	5.5
Air consumption (nL/min):	500	450
In-line head to handle assembly:	available	not available
Dimensions (mm):	L - 2000	L - 1600
	W - 2000	W - 1600
	H - 2000	H - 1800

- ▲ Extremely low wear & tear, i.e. lowest spare parts consumption.
- ▲ Large variety of topography possibilities without the use of profiled trimmers or spreaders.
- ▲ In-line assembly of tufted heads with handles available on AVT-S12.





# TB32-Flexi range

FLEXIBLE TOOTHBRUSH PRODUCTION LINE WITH 2 FILLING TOOLS.

Multi-purpose automatic production line for toothbrushes. High output of 2000 tufts per minute and up to 70 brushes per minute in case of parallel tufting for mass production. Production of brushes with 2 hole diameters possible in case of sequential tufting. Different configurations possible depending on floorspace available. Quick and convenient change-over of the simple brush transport system.

Excellent accessibility throughout, with slide-out feature for the carriages with the trimming and endrounding units.

Manual or automatic loading of the handles available.



Giving More  
FLEXIBILITY



### Technical data:

Filling tools:	2 or more
Speed (tufts/min):	2000 or more
Power consumption (kW):	12
Air consumption (nL/min):	636
Dimensions (mm):	L - 7700
	W - 3118
	H - 2140

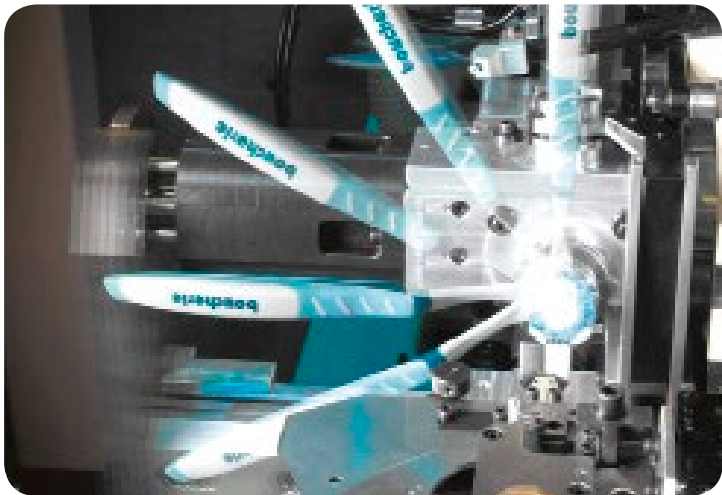
- ▲ Hotstamping and decal press available.
- ▲ One automatic fibre loading system can load filaments into both fibreboxes.
- ▲ Newly designed brush, handle and clamp cleaning unit available.
- ▲ Single or double clamp turrets available with stationary or rotary clamps.
- ▲ Automatic handle loading available by means of the unique cascade handle feeder.
- ▲ Single, double, triple or quintuple fibreboxes available, with optional handle colour recognition sensor. Products with up to 10 different filament types are possible.



COMPACT AUTOMATIC TOOTHBRUSH PRODUCTION LINE.

The machines of the TB3-FM range are high-speed tufting machines with one single filling tool, running at up to 1000 tufts per minute with extremely quiet and vibration-free running, with an integrated finishing machine. All of these machines are available with a manually loaded stack hopper, or a choice of automatic handle feeders, all with positive transfer of the handles, from the moment they leave the handle container to the moment they are placed in the turret clamps. After tufting, the products are automatically transferred into the integrated finishing machine. Handling devices with servo-motors are available to reduce the cycle times in case of brushes with few tufts, so that up to 34 brushes per minute can be produced. Finishing machines are available with a different number of work stations, depending on the complexity of the product and the number of operations that have to be performed. On the FM-A, FM/L-A and FML-A2, longitudinal end-rounding is available for a consistently smooth and glossy end-rounded surface finishing along the length of the brush head.

Giving More  
CHOICE



Technical data:

	FML	FM	FS	TS
Filling tools:	1	1	1	1
Speed (tufts/min):	1000	1000	1000	1000
Output (br/min-up to):	34	34	34	34
Number of trimming units (up to):	8	4	2	1
Number of endrounding units (up to):	8	6	2	1
Brush cleaning possible:	Yes	Yes	Yes	No
Hot stamping possible:	Yes	Yes	Yes	No
Date coding possible:	Yes	Yes	Yes	No

▲ Hotstamping and decal presses are available.

▲ Automatic fibre load system "FLS".  
Very reliable, and can be used for any kind of wrapping with any kind of tension. Swing-away construction for easy access to the machine.

▲ Date coding available by means of embossing, heated embossing, or laser coding.

▲ TB3 machines are available with rotary turret clamps for special brush designs that require a variable anchor insertion angle.

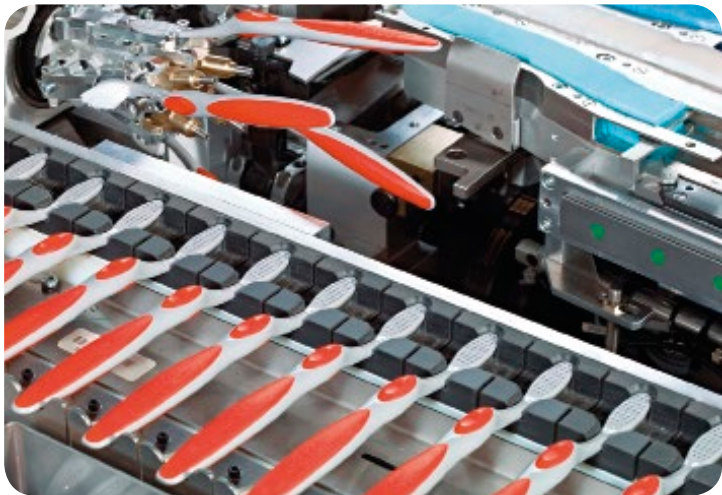
▲ Self-adjusting universal FM clamps available: adjust one clamp once according to the brush head, and all other clamps are then adjusted automatically.



AUTOMATIC TUFTING LINE FOR TOOTHBRUSHES WITH TAPERED FILAMENTS.

The TB3/TF machine is a high-speed, high precision tufting machine with one single filling tool, especially designed to process tapered filaments. It has a high precision picking system that reduces the speed of the tuft during the picking, and keeps the tuft positively clamped during its way into the filling tool, to the very moment it is securely folded. The timing of the filling tool is optimized for even tufting, and every part of the tool has been redesigned to improve the tufting quality. Automation is available to reduce the manual handling of the delicate filaments, so that the whole process passes in the best circumstances and in the most positive way.

The TB3/TF is available as a manually loaded machine with a stack hopper or an infeed conveyor, but can also be further automated with a choice of automatic handle feeders, all with a positive transfer of the handles from the moment they leave the handle container until they are placed in the clamps of the turret.



**Giving More  
SOPHISTICATION**



Technical data:

Speed (tufts/min):	1000
Output (br/min):	35
Power consumption (kW):	1.6
Air consumption (nL/min):	112
Dimensions (mm):	L - 3039
	W - 2538
	H - 2140

▲ Optional CNC controlled tuft insertion angle, CNC controlled tuft clearer and more available.

▲ Optional automatic fibre loading system for tapered filaments, bundle by bundle, or from a storage conveyor.

▲ Optional leveling feature in the fibrebox, which makes sure that all filaments are even before they are picked.

▲ Optional CNC tuft support under the picker, to tuft brushes with different material lengths.

# **TB3-A**

STAND-ALONE TUFTING MACHINE.

All kinds of filaments can be tufted at high speed and with excellent consistency of the tufting. Different options and accessories are available for special brush designs, such as CNC controlled anchor insertion angle or CNC controlled picker eye.

Brush handles can be fed into the machine from an infeed conveyor in the case of handles with a lot of TPE, so there is no friction for reliable running and cleaner products. Precise and positive transfer into the turret clamps of the tufting machine. To reduce the labour at the machine, the machine can also be equipped with an automatic handle feeder.



## Technical data:

Filling tools	1
Speed (tufts/min)	1000
Output (br/min)	35
Power consumption (kW)	1
Air consumption (nL/min)	75
Dimensions (mm)	L - 1273 W - 1150 H - 1530

- ▲ Automatic handle feeder and automatic fibre loader "FLS" available.
- ▲ Simple construction and reliable operation according to the well-proven turret principle.

- ▲ Filling speed up to 1000 tufts per minute.
- ▲ CNC control with touch-screen interface (cam controlled version available).
- ▲ Manually filled stack hopper for the handles or manually loaded infeed conveyor.

# **HEPTA**

STAND-ALONE TUFTING MACHINE.

The Hepta is an economical, high speed tufting machine for toothbrushes: the filling tool is completely new and redesigned with an absolute minimum of parts and as good as no adjustments, so that maintenance is minimized and set-up is quick. All movements are controlled by means of servomotors, and the touch-screen interface is easy to use with clear messages. The controller can hold plenty of different programs. As a standard, the machine is equipped with a triple fiber box, so that brushes with 3 different types of filaments can be made.

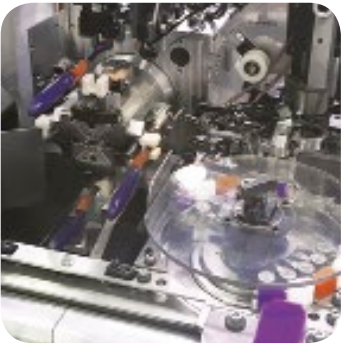
The Hepta is available as a manually loaded machine, with a stack hopper or infeed conveyor, or with a simple automatic handle feeder to reduce the labor around the machine.



## Technical data:

Speed (tufts/min)	1000
Output (br/min)	35
Power consumption (kW)	1
Air consumption (nL/min)	30
Dimensions (mm)	L - 1165 W - 666 H - 1075

- ▲ Simple and sturdy design.
- ▲ Economically priced, but built with high-quality components.
- ▲ Wire feeding controlled by servo motor for consistent and precise anchor length.
- ▲ Minimum of wear parts.
- ▲ High tufting speed of up to 1000 tufts per minute.
- ▲ Equipped with an airconditioning unit on the electrical cabinet.

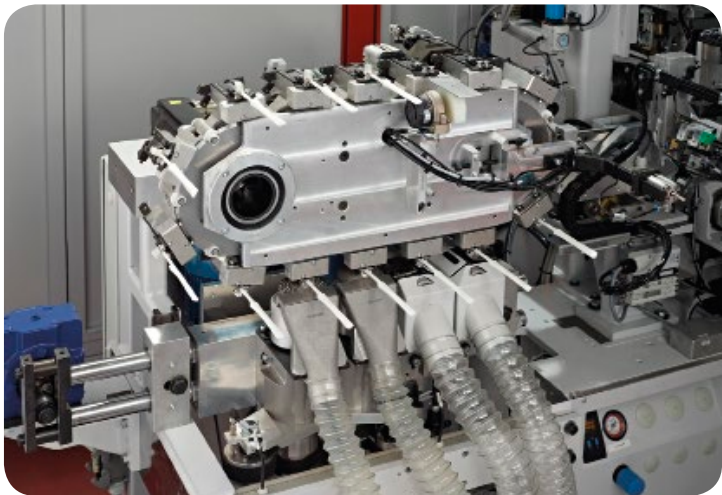




AUTOMATIC HIGH SPEED FINISHING MACHINE.

The FM range are automatic high speed finishing machines for high-quality toothbrushes. The FML-A2 is a high-capacity chain type finishing machine with an output of up to 75 brushes per minute and a very compact construction because of the double-clamp system. It is loaded in safe conditions, away from the moving conveyor chain. It has up to 6 trimming stations and up to 10 end-rounding stations, and can be used in combination with 2 or 3 tufting machines such as the Hepta or the TB3-A to make an efficient and flexible high-output production cell.

In combination with one single header machine, the FM/L-A, FM-A, FS-A or TS-A are the ideal match, depending on the type of finishing required for the product and the number of other peripheral operations such as cleaning, hot stamping or date coding.



**Giving More  
QUALITY**



Technical data:

	FML-A2	FML-A	FM-A	FS-A	TS-A
Output (br/min-up to):	75	35	35	30	30
Number of trimming units (up to):	6	8	4	2	1
Number of endrounding units (up to):	10	8	6	2	1
Brush cleaning possible:	Yes	Yes	Yes	Yes	No
Hot stamping possible:	Yes	Yes	Yes	Yes	No
Date coding possible:	Yes	Yes	Yes	Yes	No
Power consumption (kW):	6.2				
Air consumption (nL/min):	150				
Dimensions (mm):	L - 3688	W - 2525	H - 2140	(FML-A2)	

- ▲ Automatic ejection of the finished products.
- ▲ Hot stamping and decal presses are available.
- ▲ Date coding available by means of embossing, heated embossing, or laser coding.
- ▲ Newly designed brush, handle and clamp cleaning stations available.
- ▲ Boucherie's unique re-engineered and upgraded drum-endrounding units give an excellent high-gloss finish, also on profiled trims.
- ▲ On the FM-A, FM/L-A and FML-A2, longitudinal end-rounding is available for a consistent finish along the length of the brush head.



# MINISTAR-N8

## BLISTER PACKAGING MACHINE.

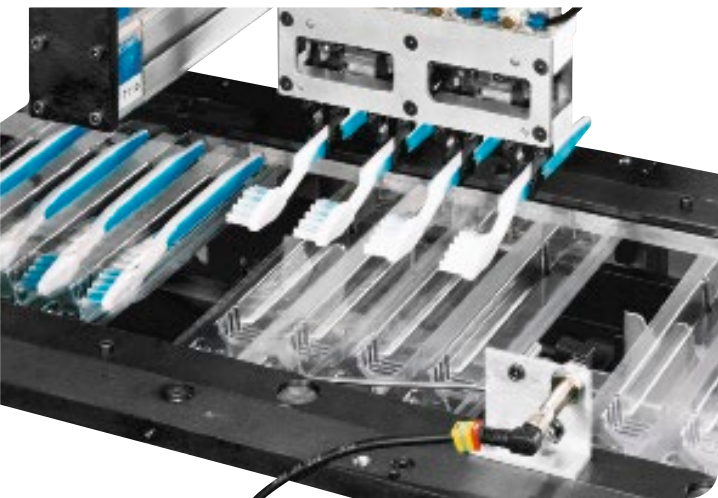
In-line blister forming and sealing machine for toothbrushes and other small brushware. This heat-seal machine reaches a speed of up to 21 cycles per minute. The Ministar N8 can be delivered as a stand-alone machine with manual brush infeed or “linked” to one or more toothbrush machines with automatic transfer of the finished brushes from the toothbrush machine into the blister machine. Throughput is maximized by forming multiple blisters in one sheet and separating individual packages at the final cutting station. The machine is fully PLC controlled, easy to operate and capable of handling PVC and PET-G blisters. The punching station has matched-metal dies for a superior quality blister cut. High output: up to 126 blisters per minute (42mm wide).

Giving More  
OUTPUT



▲ When the blisters have been punched out, they can be stacked to go straight into the carton.

▲ The blister packaging line can be linked to one or more toothbrush manufacturing lines with an automatic transfer system of the products, for reduced manual handling of the brushes.



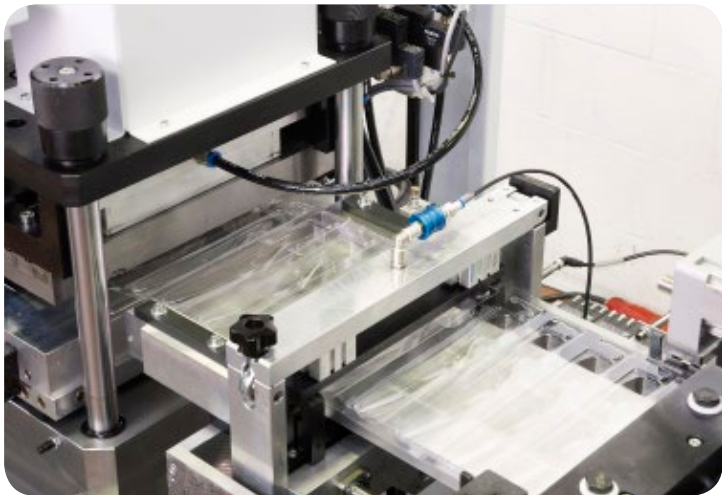
### Technical data:

Output (cycles/min):	Up to 21
Max web width (mm):	290
Max web advancing (mm):	255
Max forming depth (mm):	30
Max effective forming surface (mm):	274 x 245
Max form film roll (mm):	dia 500 mm with core dia 76 mm
Power consumption (kW):	15
Air consumption (nL/min):	250
Dimensions (mm):	L - 7650 W - 1090 H - 1940



STAND ALONE BLISTER PACKAGING MACHINE.

The BM-DUO is an economical stand-alone blister packaging machine designed for small and medium sized products, with forming, filling, sealing and cutting station all in one mono-block machine frame: precise temperature control of the pre-heating plates (direct contact sandwich type) with separate thermocouples for top and bottom. 2-up thermoforming by a combination of vacuum and compressed air; the formed blister shells are detached from the film to eliminate pulling and stretching of the film; ample loading area for manual or automatic feeding of the products; magazine for backer card supply with pick and place robot to put the backer card onto the blister shell; sealing by means of heat and pressure with sensor to check if the cover material is present; economical single die punching station and automatic separation of the waste.



**Giving More  
VERSATILITY**



Technical data:

Output (blisters/min):	24-36
Film/foil width:	Max. 255 mm
Film/foil advance:	Max. 110 mm
Forming depth:	Max 35 mm
Power consumption (KVA):	Approx. 10
Air Pressure:	6 bar
Dimensions (mm):	L - 4000 W 1000 H 1850

▲ Ideal for smaller volumes because of the easy and fast change-over from one blister model to another.

▲ Continuous automatic production process.

▲ Very user friendly, with operation speed, production numbers, error messages and troubleshooting all shown on the touch screen interface. Speed control by means of frequency converter.

▲ Up to 40 individual blisters per minute.

▲ The blister packaging line can be linked to one toothbrush manufacturing line with an automatic transfer system of the products, for reduced manual handling of the brushes.



FOR THE PRODUCTION OF INTERDENTAL AND MASCARA BRUSHES.

Mass production machine for interdental, medical and mascara brushes, according to the carrousel principle. All operations are done in the same clamp for a superior product quality. Ergonomic design with a minimal use of floorspace. The same IDM machine can produce short brush heads or brushes with a long twisted stem with a minimum of waste of metal wire. The machine is available with spool feed or with a fibrebox for pre-cut fibre, and it is prepared for easy integration with assembly and packaging systems.



Giving More  
SPEED



#### Technical data:

Max wire diameter (mm):	0.9
Min wire diameter (mm):	0.18
Max brush head length (mm):	32
Max total brush length (mm):	73
Max trim diameter (mm):	10
Min trim diameter (mm):	1.8
Power consumption (kW):	2
Air consumption (nL/min):	220
Dimensions (mm):	L - 1413
	W - 1613
	H - 2140

▲ Increased output: up to 5400 brushes per hour.

▲ Electronic wire feeding and electronic wire forming for reduced bending radii of the smallest products.

▲ Re-engineered clamping chucks in a high-tech material for reduced use of wear parts.

▲ Redesigned clamping system for the brush wire with a larger clamping range for quicker change-overs.

