



ROTONSONIC

accessories & special machines

2011

Special Machines



1) maxi tube D60



2) maxi tube D50



3) mini tube

Tube Production with lap joint seam:

In the case of tubes the maximum strength is obtained with a lap weld which in the case of exposure is stressed with shear and thus being the safest bonding technique. The endless production of tubes has become an important task in many fields. NUCLEUS offers a wide range of special solutions for this situation which can be adapted modularly to the desired case of application.

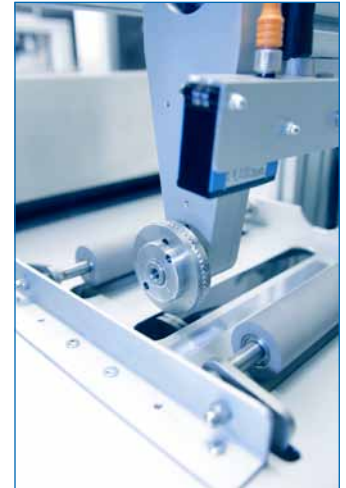
Three basic versions are available:

- 1) Maxi tube D60:
 - Tube diameter from 60mm upwards
 - Higher conveying velocity possible (depending on material)
 - Driven anvil wheel
- 2) Maxi tube D50:
 - Tube diameter from 50mm upwards
 - Rounded arm for best material transport
 - Higher conveying velocity possible (depending on material)
 - Driven anvil wheel
- 3) Mini tube
 - Tube diameter of 24 mm – 50 mm
 - Anvil wheel not driven

For all tube installations modular conveying-, cutting and winding systems are available.



The NUCLEUS-tube machine works with a high degree of automation. It is equipped with a wind-off and a take-up reel for endless tube production as well as a cutting device, combined with a buffer for continuous cutting of defined tube lengths.



Tube Production with camera guided edgetracking:

NUCLEUS developed an elaborate solution for production of conical tubes. The welding unit is moved by a linear engine as it is controlled via camera systems which guide it along the material's edge.

The result is a precise welding seam parallel to the edge of the material and applicable to any contour.



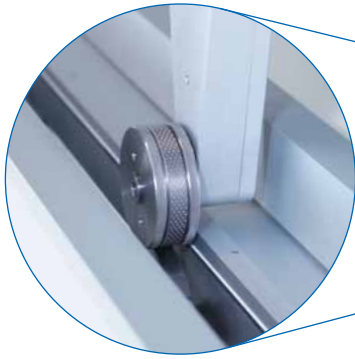
Special system for seam sealing:

The new NUCLEUS-seam sealing system is ideally appropriate for straight cutting and sealing of edges of thermoplastic materials. Therefore NUCLEUS offers a wide range of special solutions which can be adapted according to requirements.

The special seam sealing machinery shown in the illustration is equipped with 7 welding units and 32 axis drives. A perfect combination of a high definition camera system with a high precision linear engine (0.001 mm position accuracy) pursues a conductive path is being sealed respectively on the left-hand and on the right-hand side. The welding operations are executed in an array of one hundredth.



Special Machines



Transverse-Welder

Transverse-Welder:

The NUCLEUS-transverse-welding installation is ideal for all applications in which a straight transverse running seam is desired. As individual position machine as well as inline type with free material implementation, NUCLEUS fulfills all requirements.

Characteristics:

- Width: from 1 m – 6 m (other sizes according to agreement)
- Material width can be adjusted individually by control
- Velocity: up to 30 m/min (also depending on material)
- Available as individual position machine or as inline type
- Control is individually adapted
- Appropriate either for welding, cutting or simultaneous welding and cutting



Splice-Unit:

The NUCLEUS-Splice-Unit is a compact solution to combine or to attach gravity-roller conveyers consecutively. With this solution the seam can be implemented as mere overlap welding as well as welding with simultaneous cutting. The two material panels are introduced into the installation from above, then the material is automatically clamped and the welding process starts.

Width of the material and welding process can be regulated individually.

It is standard that all splice installations are equipped with automatic sonotrode abrasion reduction.

Characteristics:

- Width: from 1 m – 6 m (other sizes on agreement)
- Velocity depending on material
- Width of material and welding process can be programmed individually via control
- Control is adapted individually



Double station unwinder by Somatec with automatic ultrasonic splicing unit

Accessories



Restrike Puller:

NUCLEUS developed independently driven tightening puller to ensure high quality of smooth seams and enable restriking of the welding seams.

Propulsion as well as the use of the puller can easily be operated via touch interface of the machine. The restrike Puller apply extra pressure to the seam which considerably improves its strength. This is an important progress especially for materials with significant self-dynamics.

Characteristics:

- Compact setup (assembly)
- Automatic adaption to the velocity of the machine control with separate engine
- Fine manual pressure regulation
- Silent motion with little vibration

Conveyor belt:

For the treatment of big bulky materials such as the production of banners NUCLEUS offers a conveyor belt. This conveyor belt is suitable for the insertion of the material to be welded or cutted. In combination with the Rotosonic V4E the conveyor belt can be synchronized and be handled via touch interface.

Characteristics:

- Compact design
- Control as well as by Rotosonic V4E as well as self-sufficient
- Velocity up to 51 m/min
- Transport length 1.5 m (other sizes according to agreement)



Flatbet with Conveyor belt

Accessories

Inline-Module:

With its inline-modules NUCLEUS meets a wide spectrum for different fields of application. Wherever an Ultrasonic-Module must be integrated into an existing production plant NUCLEUS offers the suitable components.

Characteristics:

- Adaption of the speed of operation to external control (alternatively with encoder)
- Compact assembling
- Modular control

Portal Welding Machines:

Of course all NUCLEUS-Rotosonic machines are also available as portal type. By this means the handling of welding wide and weighty-material panels is considerably facilitated. Width and number of the welding heads are freely configurable and optionally motor-driven.

Characteristics:

- Portal widths of 1.5 m–6 m (other sizes on agreement)
- Optional number of welding heads per portal
- Mechanical or motor-driven positioning of the welding heads possible

Adjoined Puller-Unit:

The NUCLEUS-Puller-Unit is a compact, economic solution to convey material. The machine disposes of a self-sustaining control by which torque and drive can be determined. If the puller system is driven in combination with a NUCLEUS-Rotosonic-Machine, the control can be adjusted externally via a selector switch. By doing so the velocity is automatically adjusted to the propulsion of the welding and all parameters can be adjusted as usual via the touch-interface of the Rotosonic V4E.

Characteristics:

- Compact structural shape
- Control both via Rotosonic V4E series and self-sustaining
- Upper puller roll can be lifted pneumatically
- Pneumatic contact pressure of the upper shaft is adjustable
- Both shafts are driven
- Velocity up to 51 m/min (on request higher velocities possible)



Adjoined Puller-Unit



slant toothed 30°

spacing 60°

3 chamfers

2 chamfers

cube 4° - thick

cube 4° - thin

rhomb

dots - negative

dots - positive

lines - negative

lines - positive

logo

Anvil wheels

Profile and structure of the ultrasonic welding seams are embossed by different anvil wheels. NUCLEUS offers a variety of standard wheels which can be changed quickly. Besides our standard embossments principally every structure can be manufactured according to the client's wishes as for example the embossment of your company's logo.

All anvil wheels are available in two implementations:

65 mm external diameter

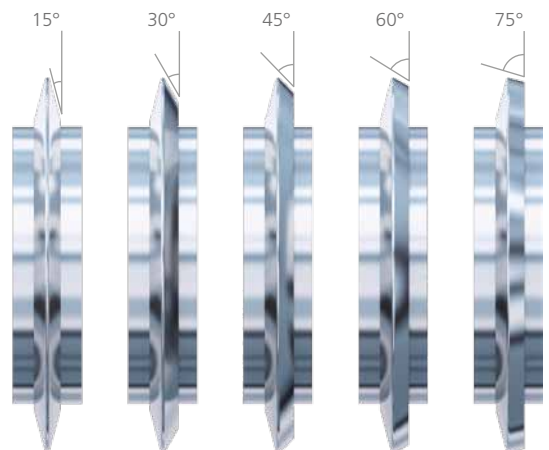
- Maximum width 11 mm
- Special strength
- Logos embossable up to a length of 200 mm
- Especially suitable for longer distances

32 mm external diameter

- Maximum width 11 mm
- Logos up to a length of 100 mm are embossable
- Especially suitable for curves

Cutting wheels

There are numerous standard cutting wheels available. All cutting wheels are made of an appropriate material with corresponding hardening. Of course also in this case two implementations are available (65 mm, 32 mm external diameter – see above).



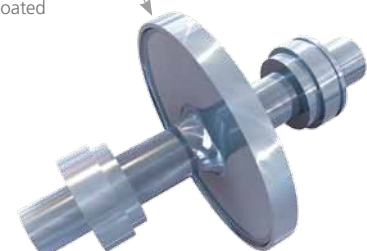
C/W-Package

Besides the continuous welding the NUCLEUS-Rotosonic V4E machines offer the possibility of welding and simultaneous cutting. This new and very flexible technique enables simultaneous cutting and welding of nearly all thermoplastic materials. Of course also a simple cutting via ultrasound with simultaneous seam border sealing is available. NUCLEUS offers a wide and steadily increasing spectrum of accessories for this purpose.

Cutting Sonotrode:

Especially hardened titanium sonotrode for maximum durability.

Tungsten carbide coated



Miscellaneous

Border Seaming:

In some cases it is necessary to combine a wide welding seam with cut welding. Here the NUCLEUS-Border Seamer is applied. It enables both procedures in one process step. The pressing power of the welding seam and of the separation seam can be installed separately.

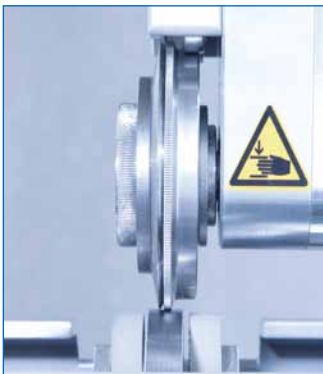
The versatility of the NUCLEUS-Border Seamer also enables an application as transportation aid. Especially in the case of small and thin material panels the transport via standard puller is not optimal. For this case a cutting wheel is inserted for the primary wheel and for the secondary wheel a small, tight fitting transport wheel is inserted.

Seam cooling:

The cooling installation of NUCLEUS consists of an eddy current cooling generator cooling precisely the seam immediately after the welding process. By this means in the case of materials absorbing particularly much heat (i.e. PVC) it is ensured that they harden completely before they are strained. Attention: Air supply is necessary.



Border Seaming: welding and simultaneously cutting

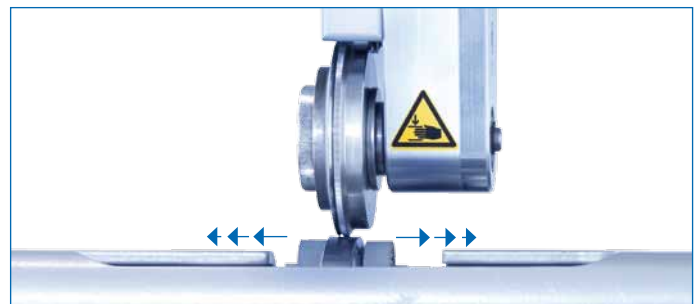


Border Seaming for small and thin material panels

Wear abrasion:

In the case of particularly thick material or fabrics which need lots of pressure and energy while processed the sonotrode must resist very high impact. Despite the enormous hardness a crack of the hardened sonotrode surface may occur.

The patented NUCLEUS-FFW-CUT System offers a solution which saves costs as well as time. This wear reducing installation distributes the pressure of the cutting wheel on the whole surface of the sonotrode thus ensuring maximum durability of the sonotrode.



pressure distribution over complete surface