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www.erkiz.com
+90 532 305 81 27

+90 342 337 98 63
+90 212 687 58 00

2. OSB. 83211 Nolu Cad. No: 41 - Şehitkamil / Gaziantep
Güneşli Mahmutbey Mh. Taşocağı Yolu Cd. No: 19 Bağcılar / İstanbul



ERKİZ MÜHENDİSLİK İNŞAAT SAN. VE TİC. A.Ş.

REF: SPLIT SYSTEM VSB2500-6/15 | V630/1000M | V704 | VB1050 | V808 |



VOORTMAN STEEL MACHINERY

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BASIC CONFIGURATION

-- VSB2500-6/15 --

- Infeed cross transport (CT) (executed with liftable trucks with pneumatic drag-dogs, length of trucks 2.600mm, length of cross transport 11m, 6 supports, loading capacity 11.000kg/support, transport capacity 2.600kg/support)
- Infeed roller conveyor (RC1) (length 12m, width 2.500mm, roll diameter 159mm, roll distance 800mm, capacity 1.500kg/m)
- VSB2500-6/15 shot blaster (with 6 heavy duty turbines, brush and blow-off unit and an automatic exhaust plant)
- Outer turbines adjustable (for perfect blasting results independent of material width)
- Short roll distance (for minimum transport length 1.700mm and plate thickness less than 10mm)
- Outfeed roller conveyor (RC2) (length 12m, width 2.500mm, roll diameter 159mm, roll distance 800mm, capacity 1.500kg/m)
- Connection cross transport (CT2) (executed with liftable trucks with pneumatic drag-dogs, length of trucks 2.600mm, length of cross transport 12m, 6 supports, loading capacity 12.000kg/support, transport capacity 2.600kg/support)
- Hardware and software (includes VACAM 'Machine Edition', VACAM 'Office Edition', online support)
- Safety devices (safety fencing)
- Light curtain in cross transport (4 pcs)
- Multi System Integration (Connecting the control systems of all machines in one production line, allows for fully automatically operation of total production line)

-- V630/1000M --

- Infeed roller conveyor (RC3) (length 12m, width 1.050mm, roll diameter 89mm, roll distance 800mm, capacity 400kg/m)
- V630/1000M Drilling machine (executed with 3 drilling units, 3 automatic tool changers, length measuring system with feeder rolls and compressed air booster)
- VN 36 numbering machine (36 changeable characters, 10 mm x 1mm)
- Outfeed roller conveyor (RC4) (length 12m, width 1.050mm, roll diameter 89mm, roll distance 800mm, capacity 400kg/m)
- Connection cross transport (CT3) (executed with double pneumatic drag-dogs, length of cross transport 8m, 4 supports, loading capacity 8.000kg/support, transport capacity 1250kg/support)
- Hardware and software (includes VACAM 'Machine Edition', VACAM 'Office Edition', VACAD editor software module, Layout marking software module, online support)
- Safety devices (interlocking door for machine housing, safety fencing, light curtain)
- Light curtain in cross transport (1 pcs)
- Multi System Integration (Connecting the control systems of all machines in one production line, allows for fully automatically operation of total production line)

-- V704 --

- Infeed roller conveyor (RC5) (length 12m, width 1.050mm, roll diameter 89mm, roll distance 800mm, capacity 400kg/m)
- V704 Layout marking system (executed with four marking units and a length measuring system with feeder rolls)
- Layout marking tool (4 pcs)
- Outfeed roller conveyor (RC6) (length 12m, width 1.050mm, roll diameter 89mm, roll distance 800mm, capacity 400kg/m)
- Connection cross transport (CT4) (executed with double pneumatic drag-dogs, length of cross transport 8m, 4 supports, loading capacity 8.000kg/support, transport capacity 1250kg/support)
- Hardware and software (includes VACAM 'Machine Edition', VACAM 'Office Edition', VACAD editor software module, Layout marking software module, online support)
- Safety devices (interlocking door for machine housing, safety fencing, light curtain)
- Light curtain in cross transport (1 pcs)
- Multi System Integration (Connecting the control systems of all machines in one production line, allows for fully automatically operation of total production line)

-- VB1050 --

- Infeed roller conveyor (RC7) (length 12m, width 1.050mm, roll diameter 89mm, roll distance 800mm, capacity 400kg/m)
- VB1050 horizontal mitre band sawing machine (including tapered roller conveyors)
- Feeder truck length measuring system with gripper (measuring range 12m)
- Short product removal system (for automatic removal of clean cuts and short pieces)
- Outfeed roller conveyor (RC8) (length 12m, width 1.050mm, roll diameter 89mm, roll distance 800mm, capacity 400kg/m)
- Connection cross transport (CT5) (executed with double pneumatic drag-dogs, length of cross transport 12m, 4 supports, loading capacity 12.000kg/support, transport capacity 1250kg/support)
- Hardware and software (includes VACAM 'Machine Edition', VACAM 'Office Edition', online support)
- Safety devices (safety fencing, interlocking door, light curtain)
- Light curtain in cross transport (2 pcs)
- Multi System Integration (Connecting the control systems of all machines in one production line, allows for fully automatically operation of total production line)

-- V808 --

- Infeed roller conveyor (RC9) (length 12m, width 1.050mm, roll diameter 89mm, roll distance 800mm, capacity 400kg/m)
- V808 Coping machine (executed with an eight axes Panasonic robot and telescopic roller conveyors)
- Plasma cutting unit Hypertherm HPR260XD (1 pcs)
- Fume extraction unit DFPRO 8
- Outfeed roller conveyor (RC10) (length 12m, width 1.050mm, roll diameter 89mm, roll distance 800mm, capacity 400kg/m)
- Outfeed cross transport (CT6) (executed with mechanical drag-dogs, length of cross transport 5m, 4 supports, loading capacity 5.000kg/support, transport capacity 1250kg/support)
- Hardware and software (includes VACAM 'Machine Edition', VACAM 'Office Edition', VACAD editor software module, Layout marking software module, online support)
- Safety devices (interlocking door for machine housing, safety fencing, light curtain)

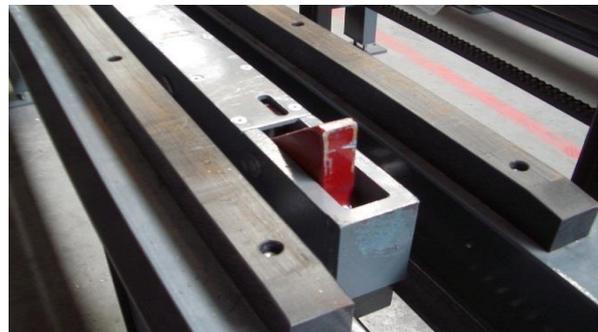
INFEEED SYSTEM

LIFTABLE CROSS TRANSPORT WITH PNEUMATIC DRAG-DOGS

A batch of profiles can be made and transported to the next production phase as one piece by the liftable cross transport, while maintaining a given distance between the profiles required for processing. The drag dogs are able to create batches on the cross transport with equal, predefined distances between the profiles. The system works fully automatically and is long enough to carry multiple profiles, allowing the machine to operate on its own for a considerable time. The cross transports are equipped with double polyamide strips to protect them from getting damaged by the profiles.

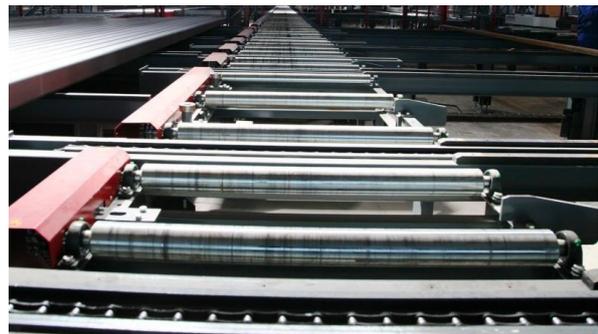
Loading capacity per support

1.000 kg/ 1m length



ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency convertor is included.



Height
 Max. speed

760 mm (+/- 25 mm height adjustment)
 42 m / min

VSB2500-6/15 SHOT BLASTING MACHINE

Voortman attaches great value to the quality, functionality and user friendliness of our machines. These key aspects are reflected in every Voortman machine on the market, resulting in uniformity and synergy amongst all Voortman machines.

The shot blasting machine is specially designed for shot blasting of plates and profiles. It is built with high quality components, giving the best blasting results. Long lifetime components are used to minimize the wear of the machine, which is essential on the inside due to the blasting process.

Man hours are strongly reduced by the high level of automation of the CNC-controlled shot blasting machine. Pre-installed blasting programs and automatic functions make the shot blasters fast and easy to work with. Integrated in a production line, man hours and human error are even more reduced by automated processing controlled by VACAM. Low consumption of abrasive combined with the low running costs result in an efficient and cost reducing machine.

The compact design of the shot blaster reduces the required working space to a minimum, without compromising on functionality and quality. Good accessibility for maintenance and inspection is provided, making fast service possible and reducing the down-time of the machine.



BLASTING CABINET

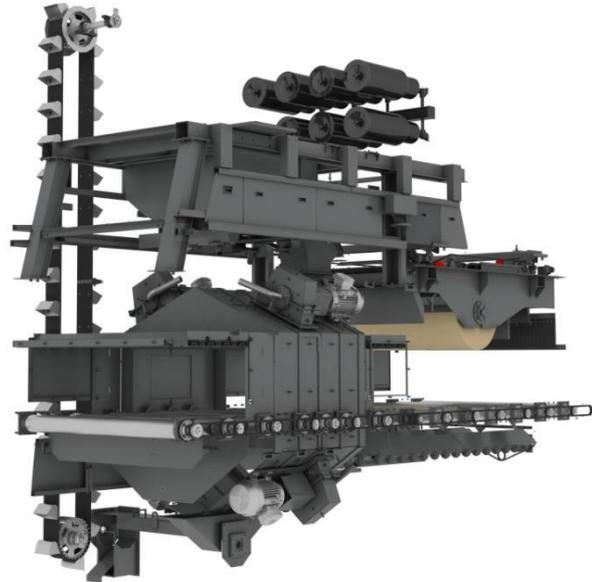
Beams and plates are shot blasted by abrasive inside the blasting cabinet. The blasting cabinet is lidded by rubber curtains at the infeed tunnel and outfeed tunnel to prevent the abrasive to escape from the cabinet.

A material detector is installed in front of the blasting cabinet to detect the entering material. The abrasive dosage valve is opened and closed depending on the reading of the detector. The detector prevents unnecessary blasting and use of abrasive, minimizing wear of the machine components and abrasive waste.

The turbines are placed at the top and bottom of the blasting cabinet, for blasting the abrasive onto the profiles from all sides. All blasting turbines are fitted with a strong electric motor, and a mechanical pre-accelerator for the abrasive. The electric motor is connected to the turbine by a flexible coupling.

Abrasive collected at the bottom of the blasting cabinet, is transported to an elevator by a screw conveyor. The elevator then transports the abrasive via a separator back to the abrasive container. Dust expelled by the blasting process is extracted by an extraction unit placed on top of the blasting cabinet.

Profiles are transported by a motor driven roller conveyor, with variable speeds. In the infeed and outfeed tunnels normal conveyor rolls are used, where as in the blasting cabinet, heavy transport rolls of wear resistant, hardened steel are mounted.



MACHINE HOUSING

The main housing of the blasting cabinet is built out of 8 mm thick steel plates. To protect the inside of the housing against wear during the blasting process, it is covered by 8 mm thick, hard-wearing, manganese plates. Areas in the blasting zone of the turbines are protected by additional manganese plates with a thickness of 10mm.

The manganese plates of the housing can be removed from the outside for maintenance purposes. Inspection doors provide easy access for inspection and service.



OUTER TURBINES ADJUSTABLE

For excellent blasting results, outer turbines are automatically adjusted depending on the material to be blasted, noticed by sensors at the front of the shot blaster. When blasting wide plates, the outer turbines angles are adjusted to give maximum blasting power over the total width. In case of blasting beams, which are placed in the center of the roller conveyor, more blasting power can be given to the center of the conveyor. The result is higher speed at a smaller width, less wear on the machine and good blasting results in the entire profile range.



SHORT ROLL DISTANCE

The blasting cabinet and the brush and blow-off unit are equipped with additional transport rolls, which reduce the roll centre distance. This modification significantly lowers the minimal infeed length from 2.500 mm to 1.700mm.

In combination with the frequency controlled turbines and abrasive control, even plates with a thickness starting from 4 mm can be processed.

BRUSH AND BLOW-OFF UNIT

Superfluous abrasive is removed from the product by a brush and a blow-off unit. Both systems are mounted on one rigid frame, inside the machine housing. Inspection doors provide good access for inspection and maintenance.

The operating height of the brush is automatically adjusted, depending on material height measured by the light curtain at the infeed tunnel.



Brush diameter
Roller conveyor diameter

800 mm
159 mm

EXTRACTION UNIT WITH SEPARATOR

A dust extraction unit placed on top of the shot blaster extracts dust from the blasting cabinet, separator, brush and blow-off unit by a motor driven radial fan. Removed dust is filtered by high quality Ultra Web filter cartridges. The filters are cleaned with compressed air by an automatic cleaning unit. Filters can easily be accessed and replaced by an inspection door in the filter housing.

A separator separates the usable abrasive from the dust and unusable abrasive by means of a cascade filter. Usable abrasive is collected in the abrasive container to be used again. An automatically operated dust outlet valve allows the unusable dust to fall in a plastic dust bag.

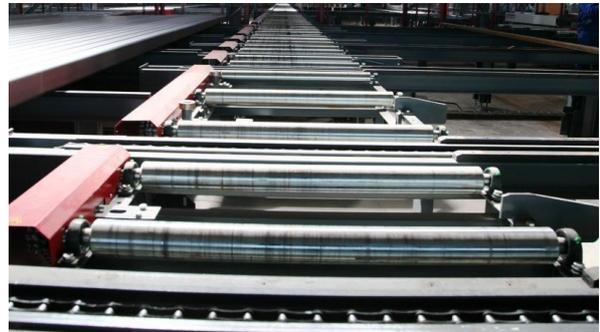
The inspection platform on top of the machine can be accessed by a caged access ladder, so the extraction unit, separator and filters can easily be inspected and serviced.



OUTFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency converter is included.



Height
Max. speed

760 mm (+/- 25 mm height adjustment)
42 m / min

CONNECTION SYSTEM

LIFTABLE CROSS TRANSPORT WITH PNEUMATIC DRAG-DOGS

A batch of profiles can be made and transported to the next production phase as one piece by the liftable cross transport, while maintaining a given distance between the profiles required for processing. The drag dogs are able to create batches on the cross transport with equal, predefined distances between the profiles. The system works fully automatically and is long enough to carry multiple profiles, allowing the machine to operate on its own for a considerable time. The cross transports are equipped with double polyamide strips to protect them from getting damaged by the profiles.

Loading capacity per support

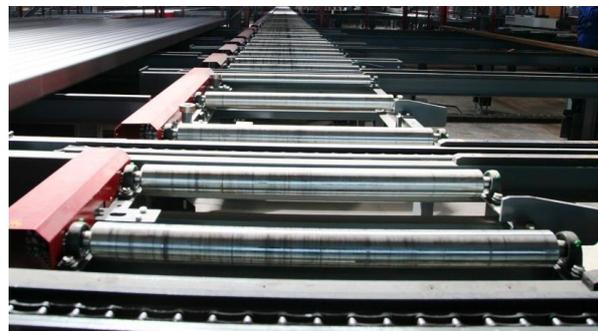
1.000 kg/ 1m length



INFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency converter is included.



Height
Max. speed

760 mm (+/- 25 mm height adjustment)
42 m / min

V630 / 1000M DRILLING MACHINE

Voortman attaches great value to the quality, functionality and user friendliness of our machines. These key aspects are reflected in every Voortman machine on the market, resulting in uniformity and synergy amongst all Voortman machines.

The base frame of the V630 beam drilling machine is an O-frame made from a single thick steel plate. To increase rigidity and stiffness even more, a row of stiffeners are welded on the back. Containing three drilling units, it can drill both flanges and the web at the same time. Drilling units are suitable for HSS drills, carbide tipped drills, thread tapping, counter sinking, layout marking and centerpoint marking. Two transparent, CE certified interlocking doors allow a clear view on the process, while protecting the operator. If the doors are opened during production, the machine will stop automatically to provide a safe working environment.



ROLLER FEED MEASURING SYSTEM

This fully automatic, servo driven measuring system is the fastest measuring system for profiles on the market. Profiles are hydraulically clamped in the horizontal plane between two pressure rolls and two feeder rolls. Vertical clamping is carried out hydraulically by four pressure rolls.

Two measuring disks, which automatically move to the correct height, are installed at the infeed and outfeed side for accurate length measuring. Height of the web and flanges is measured by a pneumatic measuring probe, which compensates for mill tolerance issues and corrects the machine automatically prior to running material.



Max. speed
 Min. infeed length

42 m/min
 1.500 mm

DRILLING UNITS

The three drilling units are mounted on double linear guides. Servo driven ball screws guarantee precise and fast drilling, with extremely high feed rates. To increase the speed of the drilling process, the feed rate will be maximal until the drill almost touches the profile. At this point it reduces to the required feed rate for the best drilling result. The drills are cooled internally by a mixture of oil and air, for a long lifetime of the tools and to eliminate cleaning work after drilling.



AUTOMATIC TOOL CHANGERS

Three automatic tool changers are provided, one for each drilling unit. Every tool changer is capable of holding up to five different tools. They enable fast changing of tools and since no manual intervention is required, the downtime of the machine is strongly reduced. An infra red sensor automatically measures the tool length, when a new tool is placed in the tool changer. This length determination enables the drilling unit to approach the profile at a high feed rate.



VN 36 NUMBERING UNIT

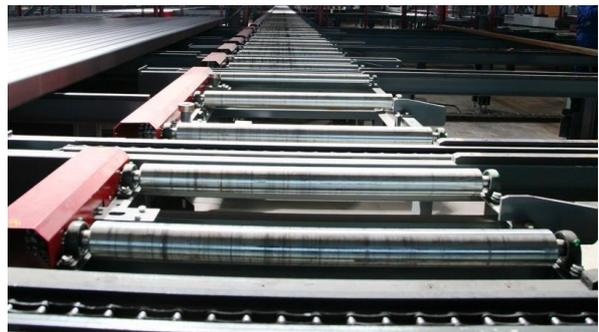
The VN 36 hydraulic numbering unit is installed for automatic numbering of the outside of the profile. It consists of a frequency driven rotating disk which contains 36 exchangeable characters, with a height of 10 mm. These characters are hydraulically pressed into the steel, with an imprint of 1 mm.



OUTFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency convertor is included.



Height
 Max. speed

760 mm (+/- 25 mm height adjustment)
 42 m / min

CONNECTION SYSTEM

DOUBLE PNEUMATIC DRAG-CHAIN CROSS TRANSPORT

The cross transport system is equipped with double pneumatic drag-dogs, which can transport multiple profiles in both directions as programmed in VACAM. Pneumatic lifting of the drag-dogs eliminates the time-consuming need to make an entire cycle, in order to move the first profile after repositioning of other profiles. Both drag-dogs can be lowered for free movement underneath the profiles. The profiles are transported over double polyamide strips to keep the noise level at a minimum.

Loading capacity per support
 Transport capacity

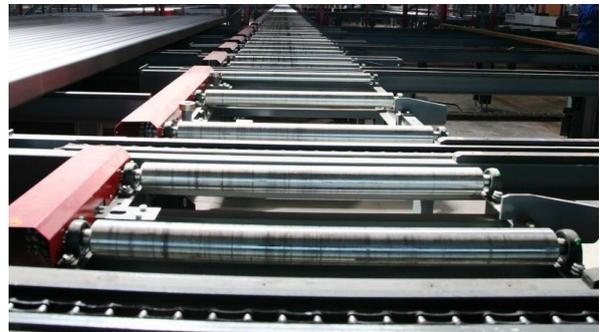
1.000 kg / 1m length
 1.250 kg / support



INFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency converter is included.



Height
 Max. speed

760 mm (+/- 25 mm height adjustment)
 42 m / min

V704 LAYOUT MARKING MACHINE

Voortman attaches great value to the quality, functionality and user friendliness of our machines. These key aspects are reflected in every Voortman machine on the market, resulting in uniformity and synergy amongst all Voortman machines.

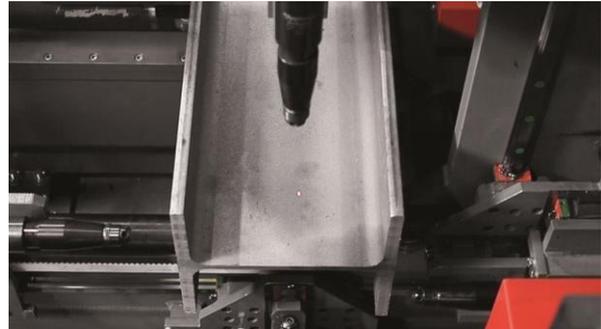
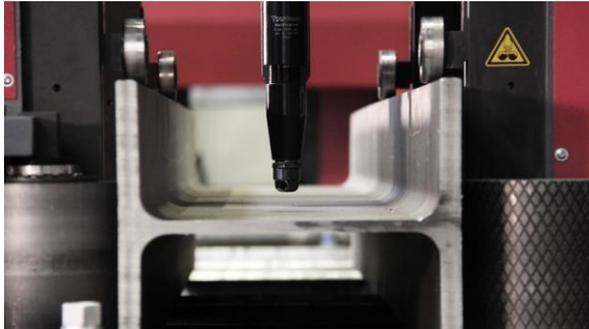
Layout marking by milling can be performed with the Voortman V704 layout marking machine. The CNC controlled machine is fitted with four carbide layout marking tools, to cover all four outer sides of a profile. All possible contours can be drawn with the best marking results.



ROLLER FEED MEASURING SYSTEM

This fully automatic, servo driven measuring system is the fastest measuring system for profiles on the market. Profiles are hydraulically clamped in the horizontal plane between two pressure rolls and two feeder rolls. Vertical clamping is carried out hydraulically by four pressure rolls.

Two measuring disks, which automatically move to the correct height, are installed at the infeed and outfeed side for accurate length measuring. Height of the web and flanges is measured by the latest optical height measuring system.



Max. speed
Min. infeed length

42 m/min
1.500 mm

LAYOUT MARKING TOOLS

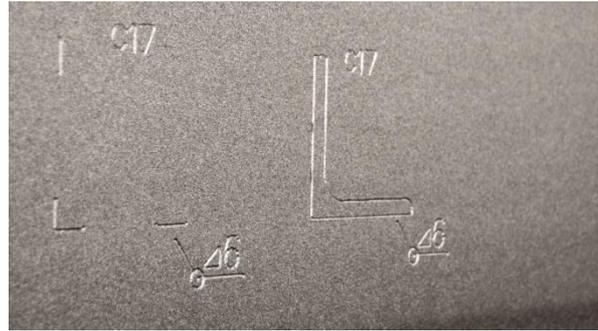
All four marking tools are positioned by a servo motor and precision ball screws, and move along high precision linear guides for extremely fast and accurate positioning. The four marking tools enable marking on all four sides of a beam.

High air output motors run at 20.000 rpm to rotate the carbide insert in the marking tip, to mark with a depth of approximately 1 mm. The carbide marking tip has four usable sides and can easily be exchanged. Marking by milling is the best type of marking and can be seen even after shot basting, painting, powder coating or galvanizing.



AUTOMATIC MARKING

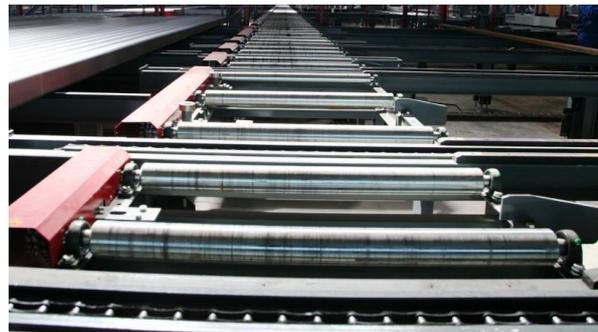
The V704 contributes to a fast and efficient welding department within the factory, by taking loads of work out of the hands of the welding personnel. After marking by the V704, all welding information is present at the profile at exactly the right position, so there is no need for assembling measurements by the welding personnel. This means that no valuable time is wasted on time-consuming measurements, and welding personnel can start right away with what they are really good at: welding. At the same time, costly human errors are strongly reduced by this fully automatic system.



OUTFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency converter is included.



Height
 Max. speed

760 mm (+/- 25 mm height adjustment)
 42 m / min

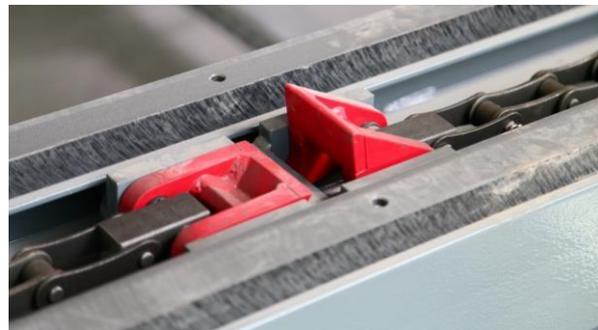
CONNECTION SYSTEM

DOUBLE PNEUMATIC DRAG-CHAIN CROSS TRANSPORT

The cross transport system is equipped with double pneumatic drag-dogs, which can transport multiple profiles in both directions as programmed in VACAM. Pneumatic lifting of the drag-dogs eliminates the time-consuming need to make an entire cycle, in order to move the first profile after repositioning of other profiles. Both drag-dogs can be lowered for free movement underneath the profiles. The profiles are transported over double polyamide strips to keep the noise level at a minimum.

Loading capacity per support
Transport capacity

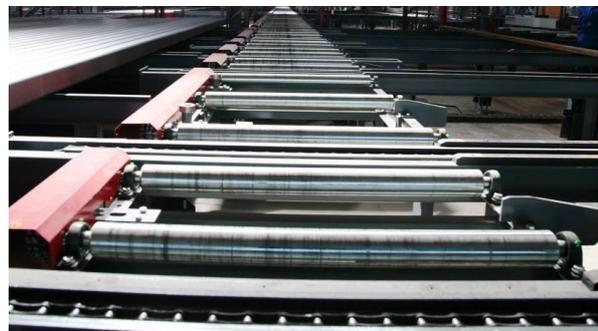
1.000 kg / 1m length
1.250 kg / support



INFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency convertor is included.



Height
Max. speed

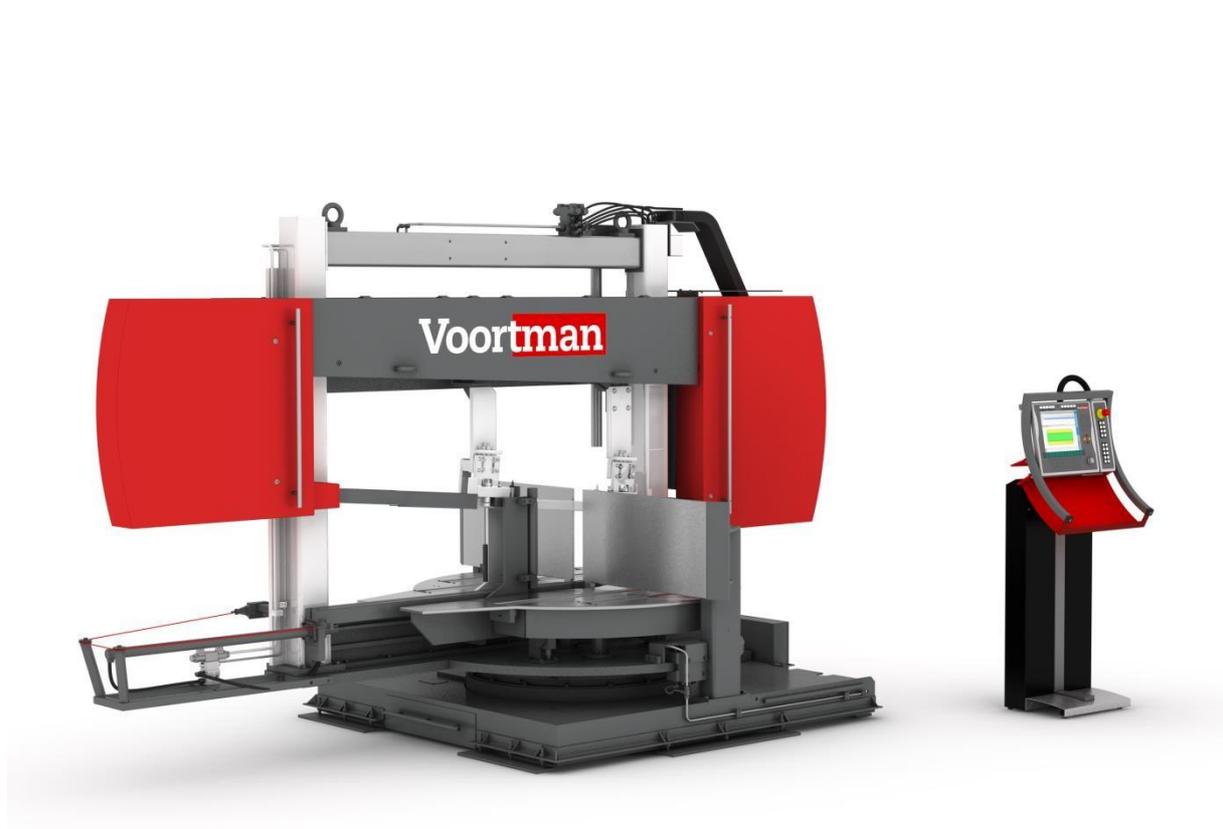
760 mm (+/- 25 mm height adjustment)
42 m / min

VB1050 SAWING MACHINE

Voortman attaches great value to the quality, functionality and user friendliness of our machines. These key aspects are reflected in every Voortman machine on the market, resulting in uniformity and synergy amongst all Voortman machines.

The sawing machine consists only of high quality components to guarantee a long lifetime and best sawing results. It is placed on a heavy rigid frame that provides good stability during sawing, which is carried out under an angle of 5° for optimal material removing and to enable higher sawing speeds.

Side rollers and low-friction ball bearings are used for band saw guidance, to ensure a smooth pre-alignment with minimal friction. A steel swarf brush disposes swarfs from the blade, minimizing the wear and improving the saw's performance.



FEEDER TRUCK MEASURING SYSTEM WITH GRIPPER

For beam measurements at the infeed side of the machine, a servo driven feeder truck measuring system with gripper is provided. It moves along a guide rail fitted with a heavy toothed gear rack, enabling forward and backward movement of the beam. The truck approaches the beam at full speed until almost touching the material. After the backside of the beam is detected by laser, the gripper hydraulically clamps the beam on the back. Front measuring of the beam is also done by laser for accurate results.

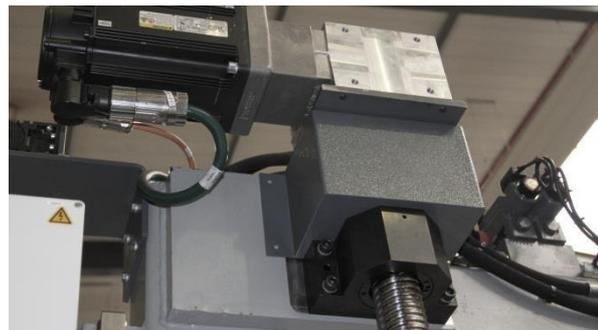


Max. speed
 Feeder truck guidance

70 m/min
 toothed gear rack, module 5

SAW

With the use of an infra red device, the saw can approach the profile at the maximum feed rate. When almost reaching the material it slows down to the required feed rate, resulting in a faster sawing cycle. The profile is hydraulically clamped on both sides, so it is well supported during sawing. A hydraulic tensioner prevents the saw from stretching. The blade is mist lubricated by a mixture of oil and air, which also reduces the need for cleaning of the blade. The speed of the sawing band is frequency modulated and when a new saw blade is installed, a special cycle can be selected which reduces the sawing speed and extends the lifetime of the saw.



A servo driven spindle provides an accurate feed rate of the saw. Information regarding the feed rate is collected by two pressure sensors, which are mounted just above the saw blade. The actual saw blade pressure is measured and compared to the theoretical values. If the actual sawing pressure is higher than a predetermined percentage of the theoretical pressure, the feed rate is lowered. Sensors are placed on both sides of the saw, to cover the entire sawing width and to take the sawing angle into account too.

The system is also able to determine the wear of the saw, depending on the sawing speed and the required pressure. Other advantages of the system are:

- Very precise and direct feed regulation.
- Profiles which are not correctly placed onto the sawing system can still be cut correctly.
- Better control of bundle sawing and executed way faster than conventional bundle sawing.
- The pressure system can easily be installed on existing sawing systems.



MITRE CUTTING

Stepless mitre cutting is possible up to an angle of 60° on both sides*. Mitre angles are NC-selected, and turning of the saw to the required position is done by an electric motor. After the required position is reached, the main frame is clamped hydraulically to prevent any movement during sawing. To reduce wear of the sawing table, it is hydraulically lowered when transporting profiles, or when the sawing frame is turned for mitre cutting. This prevents the saw blade from cutting into the table. Four transport rolls, two on both sides of the saw, reduce friction when beams are transported over the table.



* in combination with a measuring system: one side 45° and one side 60°.

SHORT PRODUCT REMOVAL SYSTEM

Products of less than 1.200 mm length are hydraulically clamped during cutting by the short product removal system. The system has two clamps for perfect grip. After sawing, it transports the product away from the saw and pushes it sideways off the outfeed system onto a storage table. Clean cuts are automatically dropped into a separate bin.



OUTFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency converter is included.



Height
 Max. speed

760 mm (+/- 25 mm height adjustment)
 42 m / min

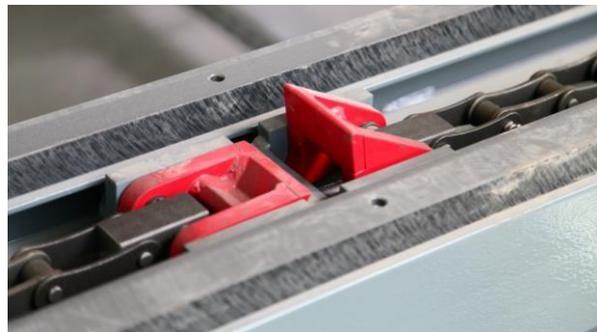
CONNECTION SYSTEM

DOUBLE PNEUMATIC DRAG-CHAIN CROSS TRANSPORT

The cross transport system is equipped with double pneumatic drag-dogs, which can transport multiple profiles in both directions as programmed in VACAM. Pneumatic lifting of the drag-dogs eliminates the time-consuming need to make an entire cycle, in order to move the first profile after repositioning of other profiles. Both drag-dogs can be lowered for free movement underneath the profiles. The profiles are transported over double polyamide strips to keep the noise level at a minimum.

Loading capacity per support
 Transport capacity

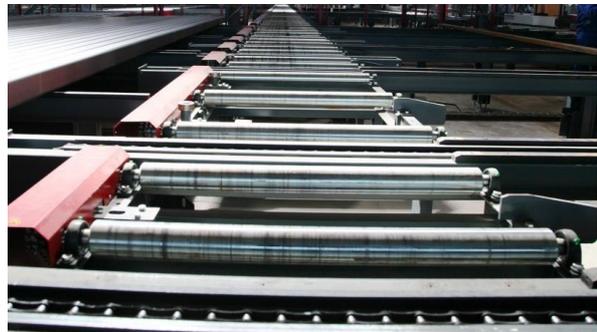
1.000 kg / 1m length
 1.250 kg / support



INFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency converter is included.



Height
 Max. speed

760 mm (+/- 25 mm height adjustment)
 42 m / min

V808 COPING MACHINE

Voortman attaches great value to the quality, functionality and user friendliness of our machines. These key aspects are reflected in every Voortman machine on the market, resulting in uniformity and synergy amongst all Voortman machines.

The V808 coping system is standard equipped with a high-definition plasma cutting unit. An oxy-fuel cutting unit, which is interchangeable with the plasma unit, can be installed when oxy-fuel cutting is required.

The machine is fitted with the advanced Panasonic TA-1800G3 industrial robot system with 6 axes. Voortman engineers expanded the system with 2 additional axes, which results in a total of 8 axes. This enables the robot to reach every side of a profile without the slightest problem.

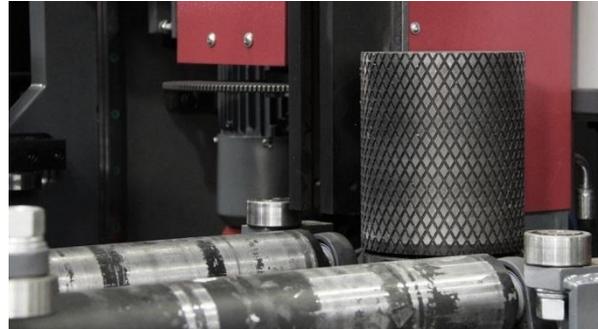
A metal housing is placed around the coping robot, to keep fumes created by plasma cutting away from the operating personnel. The housing can be accessed through two electric interlocking doors. When the doors are opened, all systems of the corresponding danger area will be shut down immediately to protect the operating personnel. Windows with a protective layer provide a good view on the production process.



ROLLER FEED MEASURING SYSTEM

This fully automatic, servo driven measuring system is the fastest measuring system for profiles on the market. Profiles are hydraulically clamped in the horizontal plane by a feeder roll and a pressure roll. Vertical clamping of the profile is carried out by two hydraulically operated rolls.

A measuring disk which automatically moves to the correct height is installed for accurate length measuring.



Measuring speed	42 m/min
Min. infeed length	1200 mm

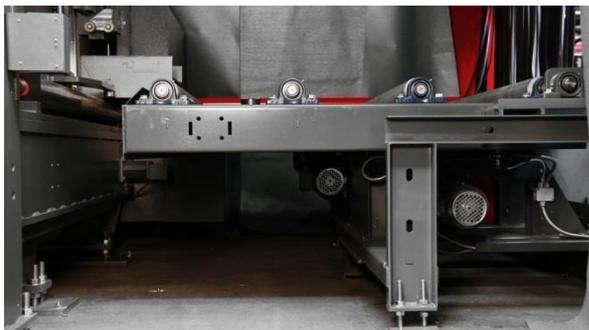
TELESCOPIC ROLLER CONVEYORS

Two fully automatic, motor driven telescopic roller conveyors are used for profile transport inside the housing of the V808. One conveyor is installed on the infeed side of the housing, the other on the outfeed side. When the cutting process starts, the roller conveyor of the relative side retracts, creating a working area for the cutting robot. The top frame is retracted by an electro motor, along double linear guides.

By using telescopic roller conveyors on both the in- and outfeed side, the profile can be processed on the front side as well as the back side. This reduces the minimum infeed length from 2.300 mm to 1.200 mm.

The first few roller tracks on both sides of the robot are equipped with a roll center distance of 570 mm instead of 800 mm.

Number of transport rolls	2 x 6 pcs
Conveyor width	1250 mm
Conveyor rolls	Ø89 mm
Conveyor speed	max. 42 m/min
Conveyor capacity	1.100 kg/m



COPINGROBOT

The agile Panasonic TA-1800G3 coping robot enables processing on all sides of a profile. Since every profile can slightly deviate from the ideal dimensions, the torch nozzle is fitted with a measuring sensor to measure the exact profile dimensions. Differences in measured actual profile dimensions and ideal dimensions are compensated for during cutting, to ensure the most accurate result possible. The coping robot only measures the sides of the profile that will actually be processed, to save precious time.



Voortman engineers expanded the coping robot with 2 additional axes, which results in a total of 8 axes. This enables the robot to process all types of profiles on 4 sides.



PLASMA CUTTING UNIT

A Hypertherm HyPerformance plasma unit is installed to make the best plasma cuts possible. It cuts according to a HyDefinition principal, which gives the plasma arc more stability and energy, resulting in more powerful and precise cuts. The extreme flexibility of the robot enables the machine to cut every 3D shape possible, even the most complex copes.

Prior to cutting, a sensor in the torch nozzle measures the profile dimensions to assure that nothing but accurate and high quality cuts are made. The same sensor is used for automatic calibration of the robot with the VACAM software, which requires no manual input of a service engineer.

Cutting is possible by air plasma with variable current settings. Automatic gas flow control minimizes the formation of dross during the cutting process. For layout marking the system automatically switches to argon gas. Layout marking will ease further production process, resulting in higher efficiency, less error and reduced man hours.



FUME EXTRACTION UNIT

The roof of the V808 housing is funnel-shaped to ease fume extraction from the processing area. Dust is extracted at a central point by a Donaldson DFPRO8 Downflo dust extraction unit. Fumes and dust are filtered by 8 oval shaped high performance cartridge filters and patented Ultra-Web filter media. A dust barrel with a capacity of 50 L is placed underneath the filter unit to collect the waste dust.

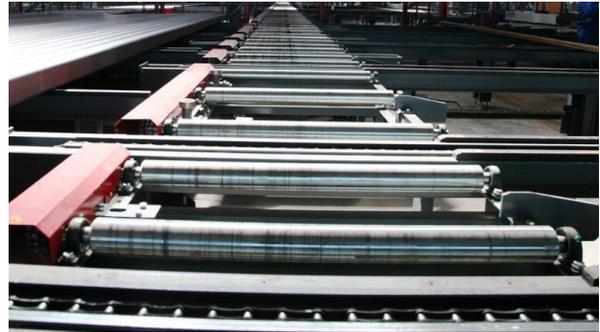
Duct-work from the connection point at the top of the metal housing to the dust extraction unit is not provided.



OUTFEED SYSTEM

ROLLER CONVEYOR

The roller conveyor system has motor driven, heavy steel conveyor rolls. Made out of heavy steel profiles, the system provides a stable platform required for profile processing. Legs and rollers are adjustable to maintain a level system. A frequency converter is included.



Height
 Max. speed

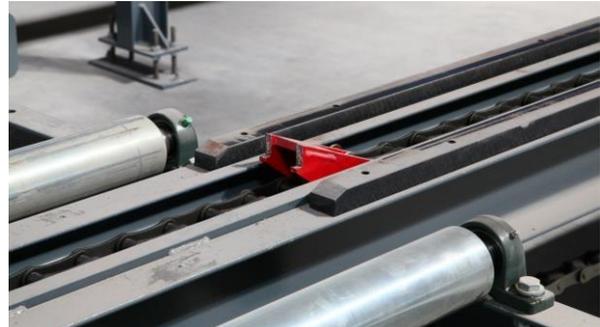
760 mm (+/- 25 mm height adjustment)
 42 m / min

MECHANICAL DRAG-CHAIN CROSS TRANSPORT

Mechanical drag-dogs move the profiles from the outfeed roller conveyor onto the outfeed cross transport system. This fully automatic system clears the outfeed roller conveyor as soon as possible, enabling an uninterrupted and fast production process. The profiles are transported over double polyamide strips to keep the noise level at a minimum.

Loading capacity per support
 Transport capacity

1.000 kg/ 1m length
 1250 kg/ support



COMPRESSED AIR

COMPRESSED AIR BOOSTER

The machine is equipped with a compressed air booster. When the pressure of the compressed air system of the factory (temporarily) is not sufficient, the compressed air booster is used to keep the machine running by supplying the required amount of pressure. It can generate a pressure 2 times the infeed pressure of the booster. Outfeed volume however will be 2 times smaller due to the compression of the air.

Pressure ratio
 Max. output pressure
 Reservoir capacity
 Temperature range

1: 2
 10bar
 10L
 +5°C - +60°C

HARDWARE & SOFTWARE

COMPUTER SYSTEM

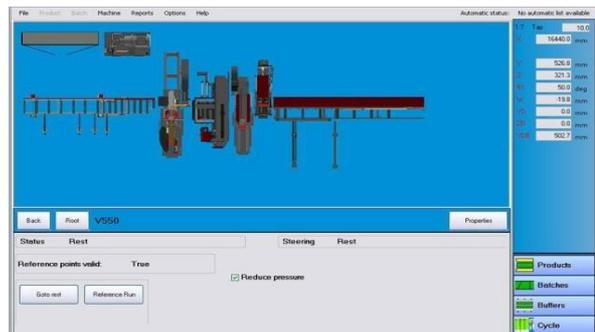
The computer with Intel Core processor that controls the machine is situated at the main switch panel and has a Windows operating system. The communication between the various modules and the control system works with an EtherCAT interface and uses standard industrial Ethernet cable. Connection with the company's network is possible for downloading production data from the company's server. When necessary, an Uninterruptable Power Supply (UPS) ensures the machine shuts down normally and no data will be lost. After restarting the machine, it will resume at exactly the same position as where it stopped.



The control panel is assembled in an operator panel. Consisting of a 15" Touch-screen TFT-colour display with complete industrial flat keyboard, it creates a pleasant and accessible working area. Two dust-proof USB ports at the front of the panel provide an additional possibility for the import of production data files.

CONTROL SOFTWARE 'VACAM MACHINE EDITION'

'VACAM Machine Edition' is the software installed on the control system. It is developed by Voortman's own software department, and capable of controlling all CNC controlled machines in our product range. Product data of DSTV-format can be imported in a clear and structured way. At the same time, input of data can be done manually. Handling systems can be fully controlled by the software, allowing products to be automatically transported from the cross transports (if installed) onto the infeed roller conveyor for processing. Products are automatically produced out of trading lengths and transported via the outfeed roller conveyor onto the cross transports (if installed). Authorized persons can retrieve real-time information about the production process and machine status. For a more detailed report, the Production Data Exporter module can be used for feedback, allowing real-time information sharing about fabrication. All operations and motions performed on the system are stored in a SQL database for sharing with any ERP, MRP and MIS software system.



VACAM has the option to send automatic e-mail notifications on upcoming events. This function can be useful when for example the machine stopped on a tool change, an error or any other message on the screen. The notifications are easy to configure, depending customer demands. For proper operation of the e-mail notifications, a broadband internet connection is required.

VACAM 'OFFICE EDITION'

The 'VACAM Office Edition' is developed in the same style, and works in a similar way as the 'VACAM Machine Edition'. It can be installed at the office to create products and monitor the production process in real-time. The 'VACAM Office Edition' has a reduced user interface, because it is not used for machine control.

VACAD EDITOR

VACAD Editor is a flexible drawing tool, integrated in VACAM. It can be used to create and modify contours, holes, imprints, marks etc. for drilling, cutting and layout marking processes. The VACAD module shows the actual dimensions and is a pleasant tool to work with. Created contours can be saved in templates, which can also be inserted in other products.

LAYOUT MARKING MODULE

Data files for layout marking can be created in 3D CAD systems, and imported in DSTV format by the VACAM software on the machine. This data can still be changed manually in VACAD if required. The data is added as KO bloc to the DSTV file, which is read-in and executed by the machine. The KO bloc does not have any limitations concerning the shape of the drawing. All types of contours and numbers can be drawn onto the product with remarkable accuracy, to ease further processing. Depending on the machine, either a milling tool or a plasma unit is used for fully automatic layout marking.

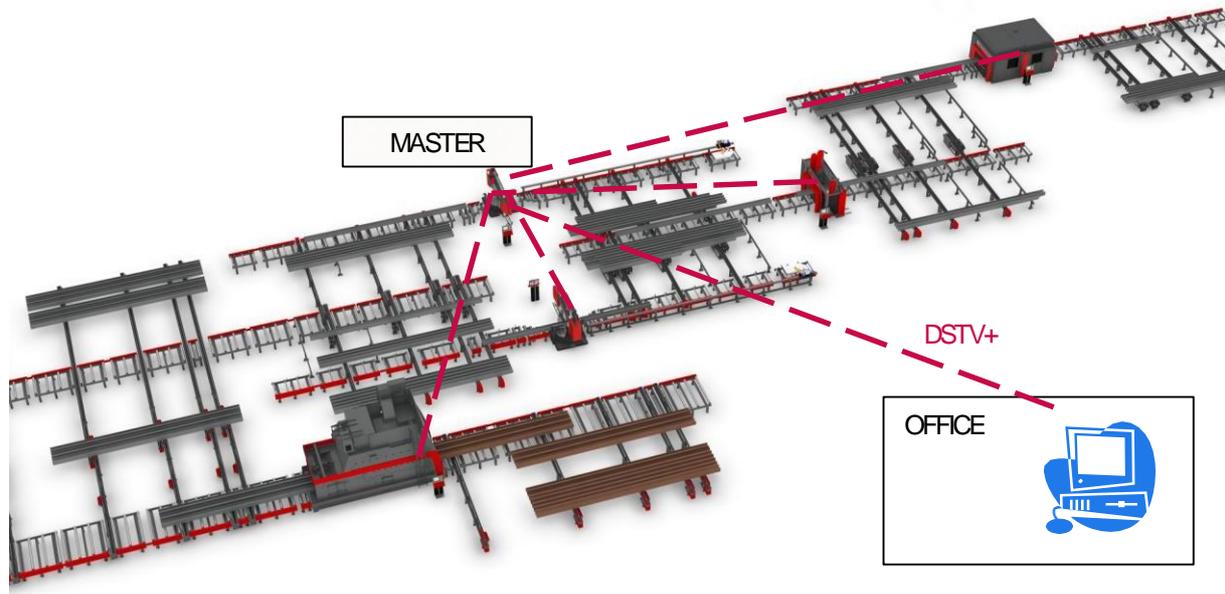
MULTI SYSTEM INTEGRATION

With the Multi System Integration (MSI) of Voortman, the computer control systems of all machines in one production line are linked through one master machine. By linking all machines, a full automatic, state of the art production line is created.

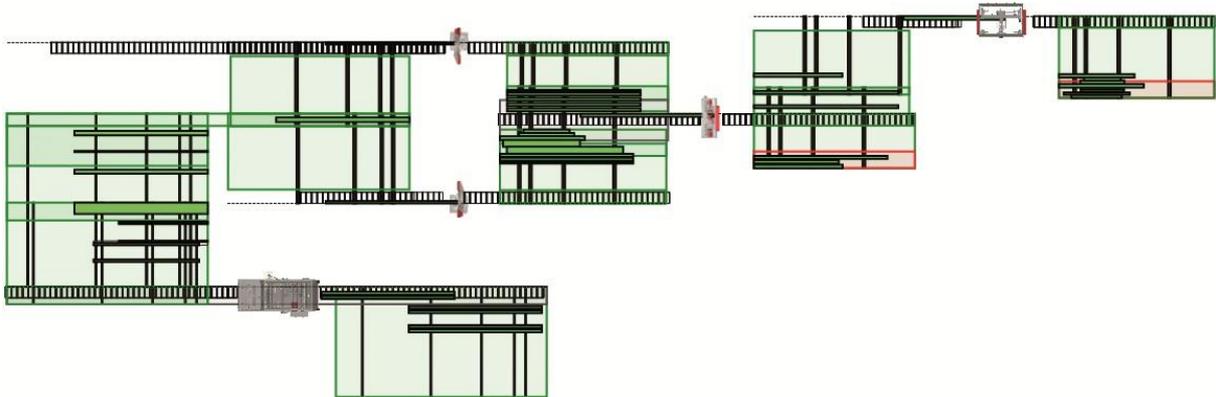
The system is unique in every single way, leaving competition far behind. With the Multi System Integration only one person is required to start the production process at the first machine, after which the total production line operates entirely on its own. Production time, and therefore production costs, are strongly reduced as all machines in line produce at the same time using the cross transports as material buffers when required.

Nesting of products can be done at the machines and at the office, if the "VACAM Office Edition" is installed. Nested bars are sent in DSTV+ format to one of the machines, which is configured as the master. Products are then replicated to all other machines in the production line. This replication technique has some major advantages:

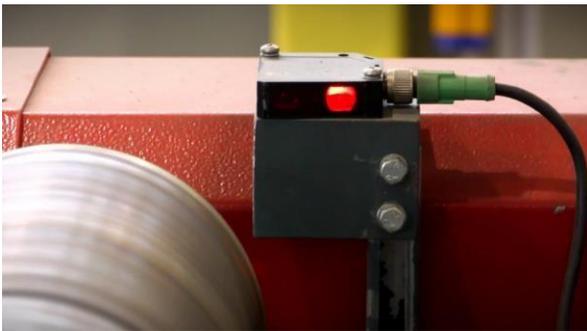
- Data is imported in VACAM of the master machine, which is connected to all other machines in the production line. This means that all information is available for each machine in the production line.
- Continuous synchronization of all data is done automatically during the production process. In this way, all machines have the most recent and same information available.
- In the unlikely event of a network failure, all machines are able to continue to work without problems.



A graphical overview of the system is available at all machines, showing the position of all the products, machines, roller conveyors and cross transports. In this way the total production process can be followed in real time. If the "VACAM Office Edition" is installed, the process can be followed and changed from the office too. Even decisions on product level can be made from the office, for example at what point a product should exit the production process.



All cross transports and roller conveyors are CNC controlled so there is no need for an operator to operate the system after the production process is started. This solution strongly reduces the number of man-hours and costly errors are avoided. The cross transports contain photocells to allow for automatic batching, control the beam positions and transport profiles onto the roller conveyor. The roller conveyors are also equipped with multiple sensors to control the position of the profiles and to determine whether a new profile can already be transported onto the infeed roller conveyor.



All machines can operate entirely on their own. Required data for the production process is distributed by the master machine. The roller conveyor and cross transports are seamlessly connected to the machines for a smooth production process without any disturbances. Every machine in the line is equipped with multiple sensors for accurate beam length and position measurements. As soon as the profile exits the machine, a new one, which already waits on the infeed roller conveyor, is immediately transported in the machine.

Since the cross transports and machines are linked together by VACAM, an intelligent production line is created. The machines 'know' which beams are the following in line and what the required processing time is of all the other machines. In this way, when the next machine in line requires a longer processing time, the cross transports can function as a buffer allowing both machines to continue without disturbance.

SAFETY

SAFETY DEVICES

For personal protection Voortman offers various safety devices for their machinery. The safety devices are connected to the control system of a particular machine. When a protected area is entered, the relative machine(s) and / or handling system(s) stop immediately.

Restarting the system is done by pushing the reset button of the concerning system. The reset buttons are placed at the end of every light curtain (if installed) and next to every interlocking guard (if installed). From these positions, there is always an excellent overview possible on the area that was shut down. Systems can not be reset from the wrong side of the light curtain or safety fence.

Emergency stop buttons are provided on the control panels. Pushing these buttons, causes a total system stop. When an emergency stop is made, the production line can not be reset with the regular reset buttons. The emergency stop button has to be pulled out first, then the system can be restarted at the main control panel.

CE AND INTERNATIONAL STANDARDS

All Voortman machines are delivered in compliance with CE regulations and meet the following international safety standards. A CE certificate is provided with every Voortman machine.

Relevant EU directives:

- 2006/42/EC Machine directives
- 2004/108/EC Electromagnetic compatibility (EMC) directives

Harmonized international standards complied with:

- EN ISO 12100:2010
- EN ISO 13849-1:2008
- EN ISO 13850:2008
- EN ISO 13857:2008

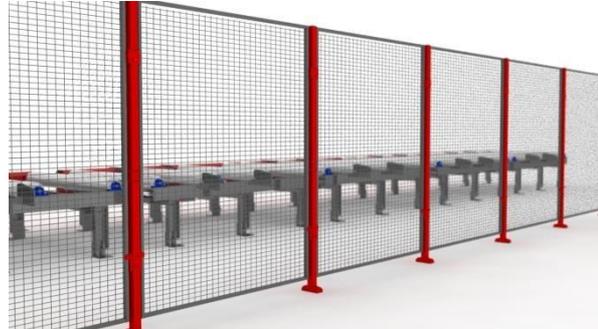
INTERLOCKING DOORS IN MACHINE HOUSING

Interlocking doors provide access to the machine housing. The doors are equipped with sensors which ensure the machine is stopped immediately when opened. After the doors are closed again, the machine can be reset at the control panel.



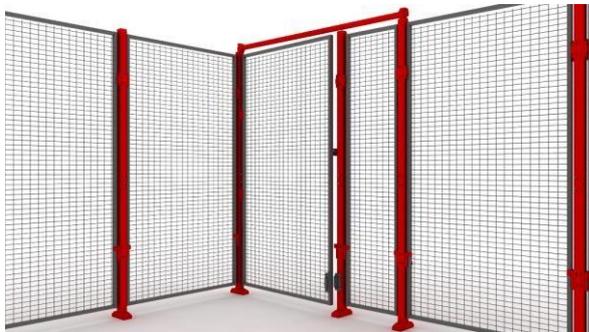
SAFETY FENCING

Voortman machinery is standard equipped with a steel safety fence. Except for working areas, this fence covers all sides of the machine to prevent people from entering dangerous areas unintentionally. The fence has different types of mesh panels with a various width. Posts on each side of the mesh panels attach them to the floor. The total height of the fence is 2.000 mm with a floor clearance of 100mm.



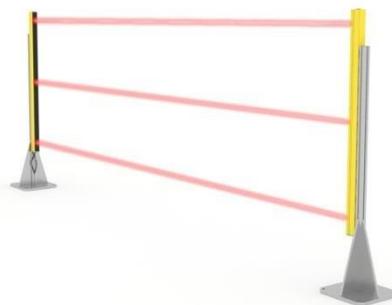
INTERLOCKING DOOR

Areas protected by safety fencing can be accessed through an interlocking door. The interlocking door is integrated in the safety fencing and has the same dimensions. A sensor will notice if the interlocking door is opened. If so, all systems of the corresponding danger area will be shut down immediately.



LIGHT CURTAIN

Light curtains are used to detect persons who are approaching a dangerous area. The light curtains are usually placed in front of the machinery, at a minimum distance of 1.000 mm from the danger zone. A light curtain has three light beams, each placed at a different height of respectively 300 mm, 700 mm and 1.100 mm. When a light curtain is crossed, all systems of the relevant danger area will be shut down immediately.



Trough beam operating distance
 Operating temperature

9 m – 70 m
 - 15°C – +55°C

LIGHT CURTAIN IN CROSS TRANSPORT

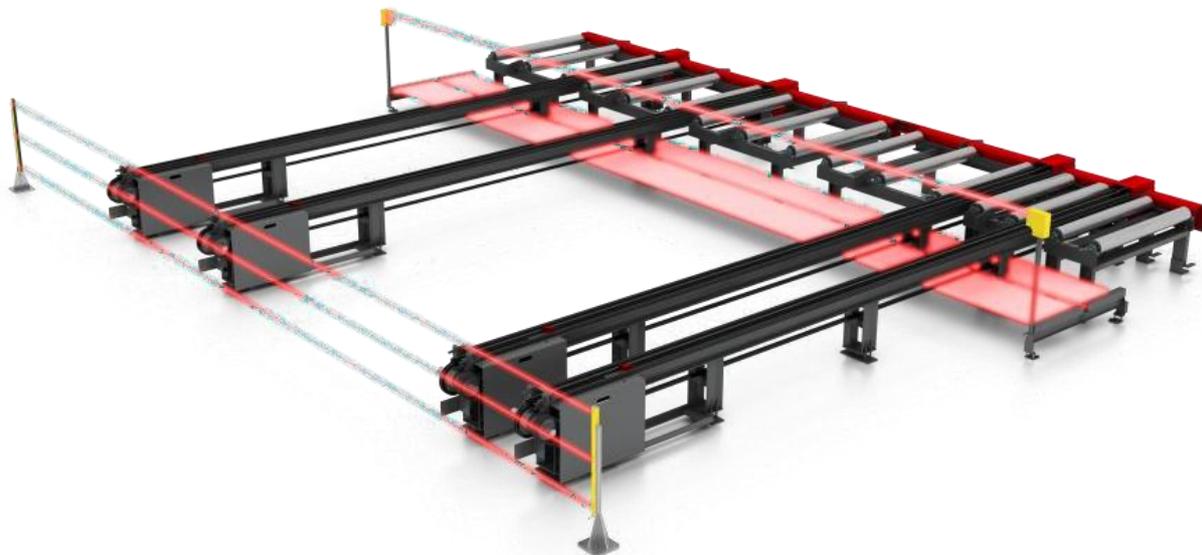
On cross transport systems, an additional light curtain system is placed inside the cross transport, because it has a major advantage compared to a normal light curtain. The normal light curtain with three beams is placed in front of the cross transport, at a minimum distance of 1.000 mm from the danger zone.

The light curtain system in the cross transports consist of 2 horizontally placed light curtains. These light curtains have a total width of 1.300 mm and are placed at a height of 350 mm above the floor. An additional light sensor is placed above the light curtains at a height of 1.400 mm above the floor. The light curtain system is placed at a distance of 1.300 mm from the associated roller conveyor.

If a light beam of the normal light curtain is interrupted, when for example profiles are loaded onto the cross transports, only the associated cross transport system stops. Both the roller conveyor and the machine connected to the light curtains in the cross transports continue to operate without any problem. Therefore, total production will not be influenced by a beam interruption of the normal light curtain.

If a beam of the light curtains in the cross transports is interrupted, both the connected cross transport system and roller conveyor come to a stop.

Trough beam operating distance		9 m – 70 m
Operating temperature		- 15°C – +55°C



LIGHT CURTAIN IN SHORT PRODUCT REMOVAL SYSTEM

Light curtains are used to detect persons who are approaching a dangerous area. A light curtain with three light beams is placed through the table of the short product removal system. The beams are placed at a different height of respectively 300 mm, 650 mm and 1150 mm. When the light curtain is crossed, all systems of the relevant danger area will be shut down immediately. The position of the light curtain and the height of the light beams enable pick-up of products from the table, without crossing the light curtain. The down-time of the machine is therefore not affected by the creation of a safe working environment.



Trough beam operating distance		4 m – 50 m
Operating temperature		- 10°C – + 55°C

TECHNICAL SPECIFICATIONS: BASIC CONFIGURATION

BLASTING MACHINE

VSB2500-6/15

Machine dimensions Pit depth ⁴	(w x l x h)	4.500 x 8.400 x 6.050 mm
BSA 2-1/2 quality	Average speed	1.150 mm
Passage speed range		1,3 – 1,8 m / min
Abrasive container ⁵		0,7 – 10 m / min
Total power		Approx. 1.000 L (4.600 kg)
Fuse		Approx. 125 kW
Motors over 5,5 kW		315A
Noise level	Excl. insulation	Soft starters
	Incl. insulation	87 dB (A)
		84 dB (A)

OPERATING RANGE ¹

Entrance dimensions Min. material length ²		2.600 x 600 mm
Min. material weight		2.500 mm*
Capacity	Line load	30 kg
	Spread load	750 kg / m
Plates	Max. width	1.500 kg / m
	Min. thickness ²	2.500 mm
Profiles ³	Max. dimensions	10 mm**
Flat steel	Min. dimensions	1.000 x 300 mm
Welded structure ³	Max. dimensions	60 x 10 mm**
Material	Type	--
		S235 JR G2 (RST 37-02)

TURBINES

Number of turbines		6 pcs
Power per turbine		15 kW
Turbine diameter		380 mm
Shot blaster media	Round steel shot	Ø 0,9 – 1,4 mm
	Cut wire	Ø 0,9 – 1,4 mm
	Hardness	40 – 50 HRC (first quality)

EXTRACTION UNIT

Power of fan		15 kW
Extraction capacity		Approx. 13.000 m ³ / hour
Filter cartridges	Number	10 pcs
	Size	Ø 324 x 660 mm

BRUSH AND BLOW-OFF UNIT

Total power		Approx. 18 kW
Blow-off capacity		Approx. 19.000 m ³ / hour
From left to right or from right to left		

OPERATIONAL

DIRECTION

Plates		RAL 3003 red
Frames		RAL 7011 grey

GENERAL

Voltage Stabilizer
Ambient temperature
Working height

Not included
0 - 35°C max. 95% relative humidity
760 mm (+/- 25 mm)

OPERATING RANGE

V630/1000M

Min. / max. height	10 – 450 mm
Min. / max. width	60 – 1.050 mm
Max. positioning weight	13.200 kg

DRILLING MACHINE

Number of drilling units	3
Automatic tool changer	VTC 5/ 40 (3 x 5 positions)
Height measuring	Included
Width measuring	Included
Machine weight	12.000 kg

DRILLING UNIT

VD40

Feed and positioning	Synchronous driven servo-motors, servo-invertors
Spindle rpm	Stepless 0 – 2.500 rpm (servo-motors)
Nominal power	30 kW
Lubrication	Internal by mist of air / oil
Holder	SK 40
Drill diameter	5 – 40 mm
Thread tapping	M6 – M30
Centering possibility	Yes, 3 sides

NUMBERING MACHINE

VN36

Number of characters	36 pcs on disc, per character exchangeable
Character height x imprint	10x 1mm
Capacity	10ton

OPERATIONAL DIRECTION

From left to right or from right to left

PROFILES¹

Flat steel	
Angles	
European standard channels	(UNP)
European I-beams	(IPE)
European standard beams	(IPN)
European wide flange beams	(HE)
British universal beams	(UB)
British universal columns	(UC)
Square tubes	
T-profile	
American wide flange beams	(W)

¹Small profiles have to be sufficient straight

COLOUR

Plates	RAL 3003 Red
Frames	RAL 7011 Grey

GENERAL

Voltage Stabilizer	Not included
Ambient temperature	0 - 35°C max. 95% relative humidity
Working height	760 mm (+/- 25 mm)

OPERATING RANGE

V704

Min. / max. height	10 – 600 mm
Min. / max. width	60 – 1250 mm
Max. positioning weight	13.200 kg
Min. material length	1.500 mm

MARKING MACHINE

Number of marking units	4 pcs
Marking depth	1mm
Max. marking speed	6,5 m / min
Machine weight	5.000 kg

OPERATIONAL DIRECTION

From left to right or from right to left

PROFILES¹

Flat steel	
Angles	
European standard channels	(UNP)
European I-beams	(IPE)
European standard beams	(IPN)
European wide flange beams	(HE)
British universal beams	(UB)
British universal columns	(UC)
Square tubes	
T-profile.	
American wide flange beams	(W)

¹Small profiles have to be sufficient straight

COLOUR

Plates	RAL 3003 Red
Frames	RAL 7011 Grey

GENERAL

Voltage Stabilizer	Not included
Ambient temperature	0 - 35°C max. 95% relative humidity
Working height	760 mm (+/- 25 mm)

OPERATING RANGE

VB1050

Min. / max. height	10 – 500 mm
Min. / max. width	50 – 1.130 mm

SAWING MACHINE

Capacity (h x w)	0°	500 x 1.130 mm
Capacity (h x w)	+/- 15°	500 x 1.060 mm
Capacity (h x w)	+/- 30°	500 x 925 mm
Capacity (h x w)	+/- 45°	500 x 725 mm
Capacity (h x w)	+/- 60°	500 x 470 mm
Feed		Servo motor
Saw band speed stepless		40 – 120 m / min
Saw drive motor		7,5 kW
Saw band dimensions		9.550 x 54 x 1,6 mm
Hydraulic band tension		48.000 N
Machine weight		+/- 8.500 kg

OPERATIONAL

DIRECTION
 From left to right or from right to left

PROFILES¹

Flat steel ²	
Angles	
European standard channels	(UNP)
European I-beams	(IPE)
European standard beams	(IPN)
European wide flange beams	(HE)
British universal beams	(UB)
British universal columns	(UC)
Square tubes	
T-profile ²	
American wide flange beams	(W)

COLOUR

Plates	RAL 3003 Red
Frames	RAL 7011 Grey

GENERAL

Voltage Stabilizer	Not included
Ambient temperature	0 - 35°C max. 95% relative humidity
Working height	760 mm (+/- 25 mm)

OPERATING RANGE

V808

Min. / max. height	10 – 500 mm ¹
Min. / max. width	60 – 1250 mm
Max. positioning weight	13.200 kg
Min. material length	1200 mm
Max. cutting width at the bottom	800 mm (only plasma marking and cutting)

¹Vertical clamping manually adjustable for 10-250 mm or 250> mm.

PLASMA CUTTING UNIT

HPR260XD

Max. thickness	64 mm																		
Max. pierce capacity	38 mm																		
Virtually dross-free cutting max.	32 mm																		
Automatic height setting	Yes, IHT M4000 PCS																		
Marking	Yes, with same consumables																		
Plasma gas mild steel	<table border="0"> <tr> <td>Cutting</td> <td>O² (99,9% pure clean, dry, oil-free)</td> </tr> <tr> <td>Marking</td> <td>Argon gas</td> </tr> </table>	Cutting	O ² (99,9% pure clean, dry, oil-free)	Marking	Argon gas														
Cutting	O ² (99,9% pure clean, dry, oil-free)																		
Marking	Argon gas																		
Shield gas mild steel	O ² / air (99,9% pure clean, dry, oil-free)																		
Cutting speed	<table border="0"> <tr> <td>6 mm</td> <td>Approx. 4.035 mm / min</td> <td>130A</td> </tr> <tr> <td>12 mm</td> <td>Approx. 3.060 mm / min</td> <td>200A</td> </tr> <tr> <td>25 mm</td> <td>Approx. 1.685 mm / min</td> <td>260A</td> </tr> <tr> <td>38 mm</td> <td>Approx. 895 mm / min</td> <td>260A</td> </tr> <tr> <td>50 mm</td> <td>Approx. 405 mm / min</td> <td>260A</td> </tr> <tr> <td>64 mm</td> <td>Approx. 195 mm / min</td> <td>260A</td> </tr> </table>	6 mm	Approx. 4.035 mm / min	130A	12 mm	Approx. 3.060 mm / min	200A	25 mm	Approx. 1.685 mm / min	260A	38 mm	Approx. 895 mm / min	260A	50 mm	Approx. 405 mm / min	260A	64 mm	Approx. 195 mm / min	260A
6 mm	Approx. 4.035 mm / min	130A																	
12 mm	Approx. 3.060 mm / min	200A																	
25 mm	Approx. 1.685 mm / min	260A																	
38 mm	Approx. 895 mm / min	260A																	
50 mm	Approx. 405 mm / min	260A																	
64 mm	Approx. 195 mm / min	260A																	

* Grounding max. 6m of machine: AC power, PE and service grounds must be connected to all equipment according to local and national codes.

OPERATIONAL DIRECTION

From left to right or from right to left

PROFILES²

Flat steel	
Angles	
European standard channels	(UNP)
European I-beams	(IPE)
European standard beams	(IPN)
European wide flange beams	(HE)
British universal beams	(UB)
British universal columns	(UC)
Square tubes	
American wide flange beams	(W)

² Small profiles have to be sufficient level.

² The profiles to be cut must be free from rust and other impurities such as oil, grease and paint.

COLOUR

Plates	RAL 3003 Red
Frames	RAL 7011 Grey

GENERAL

Voltage Stabilizer	Not included
Ambient temperature	0 - 35°C max. 95% relative humidity
Working height	760 mm (+/- 25 mm)