Scope of supply:

- Plasma cutting and extraction table, dimensions 2.500 x 6.000 mm.
- Gantry bridge.
- Carriage with servo-drives (to position the gantry bridge in X-direction).
- Machine track, length 8 m.
- HEB450 profiles for the foundation of the machine track, 8 m.
- Plasma cutting unit Hypertherm HPR 400XD, 1 pcs.
- Plasma bevel cutting unit, including automatic height control system.
- Fume extraction unit Filtercube 4H for plasma cutting unit.
- Oxy-fuel cutting torch, 3 pcs.
- Automatic height control system IHT M4000 CAP for oxy-fuel cutting unit, 3 pcs.
- Torch suspension for oxy-fuel torch (motor driven).
- Torch suspension Single Drive for oxy-fuel torch, 2 pcs (automatic torch positioning).
- Laser pointer (to align and position the torch).
- Computer control system (consisting of an industrial PC and a control panel).
- Control software 'VACAM Machine Edition' (including VaCad and VaNest software and online support).
- Automatic nesting software Sigmanest "Powerpack" (including 3 days of training for max. 3 persons at Voortman Holland (excluding travel costs and board and lodging) and 1 day online-support).
- Emergency stop with stop cord.
- Year of build: 2013.

VCS Multi 2500 Plate cutting machine

1.1 Plasma cutting and extraction table

The cutting table has an integrated suction channel that is divided into several sections, in order to optimize the suction effect. Pneumatic valves control sectionalised extraction. This localises the extraction in the vicinity of the cutting torch. The cutting table has a stable cutting grid and below it a steel grid to collect small parts and dust collection boxes for slag and coarse dust.

Specifications cutting table

Working length	6.000 mm
Working width	2.500 mm
Working height	700 mm

1.2 Gantry bridge

The beam of the gantry bridge has linear guides and a rack and pinion system to place the torch suspension in Y-direction. The gantry beam has electrical and mechanical end switches and a heat protection plate.

Specifications gantry bridge

Working width	2.500 mm
Machine width	5.250 mm
Rapid speed	25.000 mm/min

1.2.1 Carriage

Carriage with servo-drives to position the gantry bridge in X-direction.

1.3 Machine track

The machine track guides the gantry bridge on precision-machined and aligned rails. The guide rails are installed on HEB450 profiles and are supplied completely with adjustment devices, gear rack and hose and cable chains.

Specifications machine track

Total length	8 m
Working length	6 m
Parking space	2 m

1.3.1 HEB450 profiles for the foundation of the machine track, 8 m

2 Pcs HEB450 profiles are supplied for the foundation of the machine track.

1.4 Plasma cutting unit Hypertherm HPR 400XD, 1 pcs

The Hypertherm HPR 400XD HyPerformance plasma cutting unit has the patented ***True Hole technology*** to align and focus the plasma arc, improving arc stability and energy for more powerful precision cutting.
The plasma system has an automatic gas console with variable current settings and automatically controlled gas flow. This gives clean cutting with no or minimum dross and guarantees the long-life of consumables.
The plasma cutting system can cut plates with a thickness up to 80 mm. Virtually dross-free cutting is possible up to 38 mm thickness.
The plasma unit can also place marking lines and part numbers on the product.

1.4.1 Plasma bevel cutting unit, including automatic height control system

One of the most important tasks to achieve high-quality cutting results for plasma cutting is the exact guidance and height adjustment of the torch towards the plate surface. The special NC-axis has been developed for this application. Its range includes the support of the plasma torch and its vertical guidance on the cutting machine. The height adjustment in 1/10 millimetre increments guarantees a consistent high cutting quality. An Arc Voltage sensing unit between the torch tip and the plate continuously controls the torch height during the cutting process.

The control of all axes is done in the "cutting module" software of the machine. It can be used for dry plasma bevel cutting or 3-dimensional contours. The plasma torch is moved continuously in 5 axes.

The integration of the bevel cutting unit in the machine control is done in via the CNC-control and the height control system. Automatic bevel cutting up to ± 45° is possible for material thicknesses from 6 - 50 mm. The maximum cutting thickness is dependent on the applied plasma cutting technology.

1.4.2 Fume extraction unit Filtercube 4H for plasma cutting unit

Type TEKA Filtercube 4H dust collector with 4 filter elements and a spark trap.
A microprocessor controls the extraction with a Pulse-Control via the Power-Spray system. The released fumes and dusts are extracted through suction elements and guided into the filter unit. A perforated plate functions as pre-separator for the heavy and rough particles which fall down into the dust bin. The smaller and lighter particles are divided evenly on the full filter surface.
The filter unit has hanging filter cartridges. Thus, the cartridges are admitted on the side. Heavy particles fall directly into the dust collecting container.
The system is connected to the cutting and extraction table and comes complete with filter elements.
Note: excluding ducting from connection point at cutting table to fume extraction unit.

1.5 Oxy-fuel cutting torch, 3 pcs

The oxy-fuel cutting torch can cut plates with a thickness of 3 - 200 mm. Production piercing for cutting inner contours is possible in the entire cutting area.

1.5.1 Automatic height control system IHT M4000 CAP for oxy-fuel cutting unit, 3 pcs

The oxy-fuel cutting unit has an IHT M4000 Cap automatic height control system. The height control system keeps a consistent set distance between the torch tip and the plate. This gives high plate cutting quality. A capacitive sensor continuously controls the torch height at initial positioning as well as during the cutting process. Ring electrodes measure the clearance to the material.

1.5.2 Torch suspension for oxy-fuel torch

Torch suspension with servo-drive and attached parts to place the torch in Y-direction.

1.5.3 Torch suspension Single Drive for oxy-fuel torch, 2 pcs

Torch suspension Single Drive for oxy-fuel torch, for automatic torch positioning.

1.6 Laser pointer, 2 pcs

The laser pointer is attached to the support and shows its position above the work piece. It is a tool to align and position the torch above the plate, e.g. for edge starts. In the opposite case (machine stands still), it can be used as optical stopper, e.g. for plate alignment. Crosses are projected via a laser diode with a red light and a wavelength of approx. 635 nm. The applied laser equipment complies with laser class 2M and can be used without special safety requirements.

1.7 Computer control system

Industrial PC, consisting of:
- 3½-inch motherboard for Intel® Core™ Duo 2.0 GHz.
- Solid-state disk SSD, 2½-inch, 32 GB / 4 GB Compact Flash card (used for backups).
- DVI/USB interface for control panel.
- On-board dual Ethernet adapter with 1 x 10/100BASE-T and 1 x 10/100/1000BASE-T connector.
- Operating system: MS Windows XP Professional 32 bit, English.
- Uninterruptible Power Supply with battery-pack (UPS).

Control Panel assembled in an operator's panel, consisting of:
- Computer panel with 15" Touch-screen TFT-colour display, complete industrial flat keyboard.
- Operator panel provided with push-buttons.
- Two USB ports at the front side of the panel with dust cap.

1.7.1 Control software 'VACAM Machine Edition'

The software program "VACAM - Machine Edition" is installed on the control system. This software is fully developed by the Voortman software department and used on all CNC-controlled machines of the Voortman delivery program.

The VaCam software for the VCS-machines has a function selector on the right bottom side of the screen (Products, Nesting, Cycle, Manual and Status).

Products
The product-tab displays all single products that are available. Single products can be imported in dxf- or dstv-format. Existing products can be changed or copied to new products. Adding operations, like holes and imprints to a new product is done in a text-screen. It is also possible to add or edit operations in a graphical screen (VaCad). The radius of lines can be changed and shapes can be added to the current product. VaCad offers basic CAD-functionality to create a new product or edit an existing one.
There are several plate-templates available to generate a new product easily. Single products can be selected to cut directly from a plate.

Nesting
The nesting tab is used to import nested plates that are produced by a nesting program with a suited postprocessor. It is also possible to create a new nest with existing products. Therefore VaNest offers the facility to nest several products manually or automatically into a plate. Automatic lead-in/lead-out generation, rotation, quick moving and automatic clearance control are standard functions of this module.

Cycle
Single products can be selected from the product-tab or a nesting from the nesting-tab. If a selected product or nesting is started all operations will be shown in the cycle-tab and displayed in a list. Each operation line contains a certain shape to mark or cut. During the execution of the operation, the corresponding CNC-code is displayed in a separate window. With help of a cursor the current line is displayed in the CNC-code. In the graphical part of the screen the shape is coloured yellow during the execution of the operation.

Manual
The manual-tab shows a graphical overview of the machine. Browsing through all machine parts is done with via the touch-screen. If manual operation of a machine part is possible, the operation-view offers function-buttons to execute specific functions.

Status
The status-tab shows useful information for diagnostic purposes. This tab consists of several tabs: System errors, Stop flags, Warnings, State messages, Axis, Digital I/O and Analogue I/O.

1.8 Automatic nesting software Sigmanest "Powerpack"

In the office the production data is prepared with plate nesting software "Sigmanest". Sigmanest "Powerpack" for plate nesting is installed on an office pc (not included). The minimum system requirements for this PC are: CPU minimum i2, AMD Athlon X2 or Phenom range. Memory 4GB and a 250GB Hard disk (7200 RPM or higher). Windows 7 (64-bit) professional or higher. Screen resolution minimum 1024x768 with at least 128MB video RAM and OpenGL support. A hardware key is necessary to use this software. One license is supplied with the machine.
A post processor for Sigmanest plate nesting software is included and installed on the same computer as the Sigmanest nesting software.

Product input:
Sigmanest has its own CAD-editor to make new parts. This editor has a library with standard shapes. New shapes can be added to the library. Sigmanest software can read several standard file formats like DXF, DWG or DSTV.

Nesting:
Sigmanest software can convert plate drawings in several formats to a nested plate. Product nesting in plates can be done automatically or manually. Automatically nested plates can also be changed manually. During nesting of a plate the parts are shown on the left side and the nested plate on the right side of the screen.
New plates or remnants can be used for nesting. Remnants can be stored in a plate library for future use. A new nest always starts with selecting a plate from this library. For nesting, several settings are available such as: disable product rotation and minimum distance between products.

Specifications Sigmanest "Powerpack":

CAD/CAM system, including:

Geometry Creation:
- User-friendly Graphical User Interface (GUI) with icons
- Integrated 2-D CAD drawing package
- Parametric shapes library (100+ shapes), user-definable

File Conversion and Importing:
- Import AutoCAD DXF and DWG, CADL, IGES, DSTV and HPGL files
- Convert existing "G"-code and ESSI files to CAD geometry
- Batch processing of Bill of Material files

Part Creation:
- Layer mapping with multiple process support
- Automatic geometry verification and error correction
- Automatic lead-in and lead-out generation
- Grain constraint for manual and automatic nesting
- Integrated parts database

Part Cost Estimating and Reporting:
- Automatic calculation of part area, weight, cutting time and cost
- Material requirement estimating
- User-definable reports
- User-definable cost parameters
- Machine specific customizable quote

Easy-to-Use Manual Nesting:
- Manipulation of parts using “bump” and “snap”
- Part clustering and grouping
- Supporting array, rotate, move, mirror, copy, etc.
- Edit part geometry, lead-in type and position in nest

Powerful Automatic Rectangular Nesting:
- Automatic rectangular nesting of parts or clusters
- Automatic multi-head nesting with torch reduction
- Automatic part back-to-back best-fit grid nest

Automatic NC programming and code generation:
- Automatic lead-in placement
- Fully automatic or interactive cutter path generation
- Automatic sequencing for machine motion optimization

TrueShape Nesting Module:

- Automatic true shape nesting, including parts in parts
- Automatic multi-head true shape nesting and sequencing
- Multiple sheet nesting on rectangular sheets

Remnant Nesting Module:

- Non-rectangular raw material definition from geometry
- Automatic, true shape nesting on non-rectangular sheets
- Automatic plate cropping function
- Multi-head nesting on non-rectangular sheets

Job Tracking and Scheduling Module:

- Automatic part quantity tracking
- Parts production scheduling
- Job status reporting
- Allows combining of orders
- Integrated order database
- Automatic nesting task set-up

Inventory Control Module:

- New plate stock management
- Remnant plate tracking with graphics
- Graphical plate history and traceability
- Inventory status and cost reporting
- Import and export capabilities
- Integrated stock and remnant material database

Advanced NC Programming Module:

- Common line cutting, bridge cutting
- Pierce reduction and chain cutting
- Automatic part tip-up prevention
- Variable quality
- Pre-piercing
- Repositioning
- Auto tabbing
- Automatic cutting of skeleton into smaller pieces
- Inspection parts, manual sequencing and grouping

Advanced Automatic Nesting Module:

- Interactive pre-nesting
- Nesting for common line
- Automatic pre-nesting and pattern recognition
- Advanced multi-head nesting
- Automatic variable torch distance nesting

1.9 Emergency stop

The machine has an emergency stop cord as safety device.

Technical specifications:

Operating range	
Length (max)	6.000 mm
Width (max)	2.500 mm
Thickness (min / max)	3 - 200 mm
Material	Mild steel

Plasma cutting unit	HPR400XD
Material	Mild steel
Max. thickness	80 mm
Max. pierce capacity	50 mm
Virtually dross-free cutting max.	38 mm
Marking lines	Yes, marking and cutting with the same consumables
Plasma gas mild steel	O_2 (cutting) / Argon (marking)
Shield gas mild steel	O_2 / air (clean, dry, oil-free)
Automatic gas console	Yes
Cutting speed	**Mild steel**
6 mm	Approx. 4.035 mm/min, 130A
12 mm	Approx. 3.060 mm/min, 200A
25 mm	Approx. 2.210 mm/min, 400A
40 mm	Approx. 1.160 mm/min, 400A
50 mm	Approx. 795 mm/min, 400A
60 mm	Approx. 580 mm/min, 400A
80 mm	Approx. 180 mm/min, 400A
Plasma gas	O_2 (clean, dry, oil-free)
Consumption	80 l/min
System pressure	10 bar

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

Bevel cutting unit	
Bevel angle	± 45°
Positioning accuracy	± 0,5°
Material thickness	6 - 50 mm

Oxy-fuel cutting torch	
Model	GCE Fit+
Gas supply	3-hose connection
Ignition	automatic, external
Max. thickness	200 mm
Gas	Acetylene (Optional Propane or Methane, Mapp, Propylene)
System pressure	1 bar
Cutting gas	O_2 (min. 99,5% purity)
System pressure	10 bar

General information	
Working height	700 mm
Power supply	3x 400V AC + N + PE 50Hz
Voltage stabilizer (if necessary)	Not included
Ambient temperature	0 - 35ºC, max. 95% relative humidity
Compressed air	**ISO 8573.1 : 2001 Class 4.3.3**
Compressed air consumption	200 l/min
System pressure	10 bar
Max. particle size	15 µm
Max. particle density	8 mg/m³
Max. pressure dew point	-20°C
Max. water content	0,88 g/m³
Max. oil content	1 mg/m³

Colour	
Plates	RAL3003 (Red)
Frames	RAL 7011 (Grey)