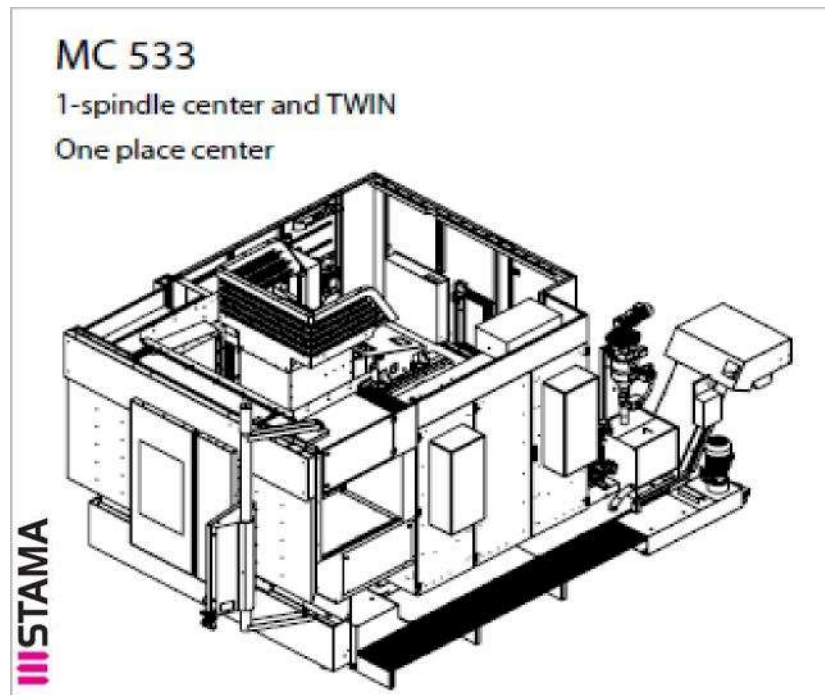


Stama MC 533

High Speed Vertical Machining Center

Date Prepared: April 16, 2014



Pcs Description

1 VS_MC_GM

Basic Machine

MC 533 - Basic Machine

Machining Centre MC 533

Design as follows:

Traverse Ranges

X axis 640 mm

Y axis 400 mm

Z axis 400 mm

Feed Thrust

X-Y axis 7000 N

Z axis 12000 N

Traverse Rates

Rapid traverse X-Y- and Z-axis 60 m/min.

Feed rate in X-Y- and Z-axis 1-10000 mm/min

Axis dynamics: (m/sek²) max. X=5; Y=8; Z=12

Machine Bed Made of Polymer Concrete

Machine bed floor space optimized designed.

Made of vibration reduced polymer concrete.

For maximum power on small floor space.

Optimal interference free designed working area.

Steep walls in the work area guarantee free swarf fall into the on the base frame integral chip conveyor.

Screw conveyor for Swarf Evacuation

Instead bed splashing screw conveyor for swarf evacuation of work area in case of dry- and wet machining.

Motor spindle for Hollow Taper Shank

Motor spindle for hollow taper shank A63
according to DIN 69893

Incl. automatic blowing facility for process safety
taper cleaning during tool change.

Retention force 18000 N

Spindle speed up to 12000 rpm

Bearing diameter 70mm

Torque constant up to

> 3700 rpm: 60 Nm at 100% continuous duty

> 2600 rpm: 115 Nm at 20% continuous duty

Driving power over

> 3700 rpm: 23,2 kW at 100% continuous duty

> 2600 rpm: 31,3 kW at 20% continuous duty

Fix Tool Magazine 72 Tools

Tool magazine integrated in the machine base frame
including:

> Automatically chain tightening system for a constant
chain tension

> Buffer station for constant short chip to chip times

Tool diameter maximum:

> All places used \varnothing 88 mm

> With empty adjacent tool place \varnothing 160 mm

> Tool length max. 300 mm

> Tool register DIN 69893 HSK A63

> Tool weight max. 5 kg

> Chip-to-chip time approx. 2,9 sec.

Inserting Station with Input Panel

Menu guided tool data management.

To each tool are assigned direct:

Siemens OP 08T: 32-digit tool ident. no.

in numerical or alphanumerical format.

Fanuc: 8-digit tool ident. no.

in numerical format.

For length and radius offsets

Data input :

At inserting station with input panel or

menu guided direct at the display of the control.

Measuring System

X-Y-Z axis, digital pulse coder

(Fanuc cyclic absolute, Siemens absolute)

Absolute measuring value processing resolution 0.001 mm

pitch error compensation is executed

NC-Axis Torque 360 Counter Support

4. axis designed as torque unit with one water cooled and temperature controlled A-axis and one counter support for adaption of optional fixture bridges.

Position measurement by digital pulse coder.

> Surface plate, diameter 280 mm

> Max. rpm 90 1/min.

> Permissible torque (hydraulic locked) 7000 Nm

> Permissible torque during rotary milling 1610 Nm

> Permissible table load 500 kg

> Positioning time: 0-90° / 0-180° = 1,5 / 2,5 sec

> Resolution 1/1000 degree

> Repetition accuracy rotary ± 5 sec

Hydraulic Basic Equipment

Including:

Hydraulic unit (100 bar) including hydraulic hardware for controlled actuation of component clamping in the rotating-/swiveling device and axes clamping.

Electrical software and equipment including pressure control.

Installation Data

Space required for machine/equipment approx. 19 m²

Weight 16.300 kg

Working voltage 3x400 V $\pm 10\%$; 50Hz; N/PE.

Control voltage: 24 V DC

Valve voltage 24 V DC

Connected rating machine about 44 KVA

Fuse before master switch 80 A

Connected cross section 50 mm²

Required air pressure min. 6 bar

Air quality class ISO 8573-1 / 4

Connected cross section inside min. 13 mm

Paint Finish

Standard paint finish tri-coloured: telegrey 4,
telegrey 2, trim telemagenta, RAL 7047/7046/4010

Guarding Equipment

Enclosure of working area acc. to valid
German safety regulations UVV and European standards

DIN EN ISO 12100-2 and 1088.

With manually actuated working area doors.
All doors electrically safeguarded and locked.

Full Enclosure of Working Area

As protection against swarf and fumes
the working area of the machine is completely
enclosed, with the drive units outside of the
capsule. A suction unit with is recommended.
Working area prepared for an integral optionally
available automation system beyond a gantry
and work piece storage system.

Preparation Central Extraction Plant

Preparation of machine for connection to central
extraction plant provided to the customer, consisting of
1 connector \varnothing 200 for one working area.
Incl. impact plate in the work area.

Axis movement with open safety door

If the safety door is open, axis movement and spindle
rotation are just possible during setting mode.
Speed of axis max. 2 m/min. Spindle RPM max. 800 1/min.
Actuated by press-button and confirmation key.

LED Lamps (2) in Working Area

Automatic Central Lubricator Grease

All linear guides and ball screws are connected with a central grease lubricator.

Lubricating cycle will be actuated automatically.

Message on display of CNC when grease tank is empty.

Air-Conditioning of the Electrical-Cabinet

NC Control Panel Slew- and Lifiable

NC control panel slew- and lifiable is mounted on the front of the machine housing.

Machine Supports without Coolant Tray

for leveling and fixing the machine on the ground.

Including all mounting elements.

Documentation of Machine in English

Delivery 2-fold digital

Confirmation of the regulations for prevention of accidents

Declaration of Conformity

Machine data

Data sheets / manufacturer's certificates

Test certificates of machine (in German)

Installation plan

work area drawing

Transport securing

Manuals (depending on machine-type and options)

Swivel table at machines system 3

Additional axes (option)

Hydraulic unit (option)

Lubrication unit

Coolant plant

Suction plant (option)
Modular parts list of the machine
Spare and wear parts with documentation
Circuit diagram and electric parts list
(additional 1-fold on paper)
Hydraulic- Pneumatic- Lubrication and
Coolant plan
(additional 1-fold on paper)
STAMA Lubrication Maintenance Service
(additional 1-fold on paper)
STAMA Operating Manual
(additional 1-fold on paper)
STAMA Programming Manual
(additional 1-fold on paper)

Documentation of control
Operator's Manual
System-backup on data carrier
Labeling of the Machine
The labels on the machine are in English

Operating Menus of Control
The display of the menus as well as the error and
operating messages are in English

1 VS_MC_ST

NC-Control System

1 VS_1503.0102

Control Siemens 840D (Solution Line)

- > NCU 720.3) NCK user memory 3MB
- > (1 MB free available; depending on the used options)
- > PCU 50.5, Operating system windows
- > Hard disk, free memory for programs, 10GB
- > Graphic simulation of NC-program, for X, Y and Z axis
- > USB 2.0 - interface and USB-Stick 1GB
- > Analysis tools for Service, Ethernet-card is included
- > USB 2.0 - connection for: mouse, keyboard
- > MPI
- > Additional free slots: 2x PCI, 1x CF-Card
- > Display: 12" TFT color

Max. 24-digit alphanumeric program names
Forming of sub-routines according to DIN or standard
Language and parameter max. nesting 7 times
3D-lin. interpolation G1 (max. 4 axes simultaneously)
Machines with tilting and swivel tables
max. 5 axis simultaneously.
Circular interpolation G2/G3, helical interpolation
Polar or Cartesian coordinates measuring system
49 zero point shifts direct by G-function
Inclusive of additive zero point shift
Turning of coordinates; Mirror; Scaling factor
Insertion of chamfer or radius
Siemens standard drilling and milling cycles
(additional G81 - G86 same as Siemens 840C)
Rigid tapping
32-digit alphanumeric tool identification
Tool data input by program or direct with input panel
at inserting station
Tool life monitoring wear or number of parts
Cutter radius compensation G41/G42 by calculation of
intersection points or transition radius
Restart of program
Prompt facility
Editing and programming during machining
Conversational programming according to DIN 66025
including graphical generating of contour
up to 3 axis.
Diagnostic displ. and operating feed back in clear text
Oriented spindle stop
Measuring system: digital absolute incremental encoders
Screen saver

Swivel Bridge with 1 Torque C-Axis NCC500
Swivel bridge will be installed between the torque rotary
table and the counter support of the basic machine.
Equipment designed for machining of parts with highly
sophisticated shapes and angles in 1 set up. Incl. mechanical
equipment for locking of C-axis, hydraulic equipment for locking
and actuating the clamping fixture , oil-distributor 5-fold with
integrated clamping cylinder, connections on the rotary table and
the necessary NC-axes in the control.
Equipment is applicable for simultaneous machining.

Technical data:

- > Bridge-Length 1440 mm
- > Table diameter: 500 mm
- > Table pos. - Single: Central to middle of bridge
- > Tilting angle 360 degree
- > Repetition accuracy rotary ± 5 sec.
- > C-Axis: Water cooled and temperature controlled
- > Table speed rotary 100 rpm
- > Torque (tables locked) 1090 Nm
- > Peak torque 850 Nm
- > Transport load (workpiece + fixture) max. 300 kg

VS_3100.3332

Counter Support designed as NC-Axis Torque 360

Counter support of the basic machine will be designed as a water cooled nc-torque axis 360 - TANDEM drive -.

The two A-axis torque drives are synchronized to eliminate the twisting of the optional fixture- / swivel-bridge.

- > Surface plate, diameter 280 mm
- > Max. rpm 90 1/min.
- > Permissible torque (hydraulic locked) 3500 Nm (per A-axis)
- > Permissible torque during rotary milling 1610 Nm
- > Permissible table load 500 kg
- > Positioning time: 0-90° / 0-180° = 1,5 / 2,5 sec
- > Resolution 1/1000 degree
- > Repetition accuracy rotary ± 5 sec

1 VS_MC_AM

Extension Stages Machine

VS_2700.0520

Direct Measuring System of X-Axis

Linear scale for X- axis.

VS_2700.0530

Direct Measuring System of Y-Axis

Linear scale for Y- axis.

VS_2301.0014

Coolant Filtration Paper350 l/min

Coolant tank 900 l, compact design.

Filter performance 350 l/min - emulsion.

Filter performance 200 l/min - oil.

With feed-back facility in the event of paper shortage.

Incl. 1 roll of filter paper, width 710 mm

Paper transport actuated by level switch.

Suitable for all current materials.

This filtering does not prevent a silting-up of the coolant system.

> Flushing pump for rinsing at the spindle

> 40 l / min - 3.7 bar (emulsion)

> Flushing pump for additional rinsing functions

> 250 l / min - 2.2 bar (emulsion)

VS_2301.1002

Internal Coolant through 1 Spindle 70 bar

Internal coolant supply through work spindle.

> 70 bar high-pressure pump for coolant

> with frequency controlled drive motor

Flow rate: Q= up to 40 l/min

> Incl. Vario valve, pressure is programmable in 7 steps by M-functions.

(Applicable only in combination with coolant filtration system filter mesh 60 microns).

> Incl. Double Filtration 100 microns

> Double cartridge installed in coolant cycle of

> internal coolant supply. Mechanical step-up to second

> filter element. Contamination indication through

> differential pressure switch.

> Incl. 2 filter elements (metal mesh)

> Filtering quality 100 microns.

> To protect downstream components from coarse dirt

1 VS_2700.0040

Measuring device TS27R

Stationary 3-D probesystem with adaptor plate for tool breakage control. Without covering cap.

Included software for measuring of tool length and radius at drilling and milling tools.

1 VS_2700.0003

Probe Unit Preparation

Installation of hard- and software for later use of a probe, incl. standard measuring cycles and infrared receiver. (probe not included)

The customer have to inform STAMA latest until to the Start Up Meeting about the technical datas and the used type / manufacturer of the probe unit.

1 VS_2700.0021

Master Cube incl. Mounting Elements

1 Master cube for mounting at clamping fixture, rotary table or at machine table including mounting elements
At two working areas 2-fold required.

1 VS_3000.0011

Transfer of Standard Voltage

In case of voltage deviation from standard and electricity supply without loadable neutral.

For the properly function of the machine with the transformer at customers facility at time of installation, STAMA requires the electrical details of the power supply, latest at time of purchase order in written form!

1 VS_3000.0014

Deviation Of Power Frequency - 60Hz

Power frequency 60Hz instead of standard frequency 50Hz
Change the drive motors to power frequency 60Hz.

1 VS_MC_AS

Extension Stages NC-Control System

1 VS_1503.0354

Remote Diagnosis via Internet (SIEMENS)

Equipment of machine for remote diagnosis services.

- > Simatic Step 7
 - > Teamviewer installed on PCU
 - > installed software in NC-control
 - > Ethernet card control-integrated and prepared for connection to a LAN with TCP/IP protocol
 - > Network bushing RJ45 installed in switch gear cabinet
- Customer has to provide latest 4 weeks before machine delivery:

Network connection with internet access
and data sheet checklist connection dates

Additionally required work at customers plant will be invoiced after expenditure according to the STAMA service regulations.

Price Summary

Pcs	Item	Description	Unit price
1	VS_MC_GM	Basic Machine	\$
1	VS_0000.0140	Machining Centre MC 533	
1	VS_2400.0155	Swivel Bridge 1 Torque C-Axis NCC500	
1	VS_2400.0155	Zero Clamping System for NCC 500 -	
1	VS_3100.3205	Counter Support NC-Axis Torque 360	
1			
1	VS_MC_AM	Extension Stages Machine	
1	VS_2700.0520	Direct Measuring System of X-Axis	\$
1	VS_2700.0530	Direct Measuring System of Y-Axis	\$
1	VS_2301.5002	Coolant Filtration Paper (350 l/min)	\$
1	VS_2301.1002	High Pressure Coolant Package 70 bar	\$
1	VS_2700.0040	Measuring device TS27R	\$
1	VS_2700.0003	Probe Unit Preparation	\$
1	VS_2700.0021	Master Cube incl. Mounting Elements	\$
1	VS_3000.0011	Transfer of Standard Voltage	\$
1	VS_3000.0014	Deviation Of Power Frequency - 60Hz	\$
1	VS_MC_AS	Extension Stages NC-Control System	
1	VS_1503.0354	Remote Diagnosis via Internet (SIEMENS)	\$
1	Special	Delivery DDP (Incoterms) Sr. Louis Designs	\$





Air Supply Requirements

Volume: maximum 15 cubic feet per minute

Pressure: minimum 85 to 90 PSI

Water allowed up to 10 grams per 35 cubic feet (no Contaminants)

Specifications

The machining centers quoted are built to Stama standards. Therefore, adherence to customer standards cannot be guaranteed in all instances

Maximum ambient temperature not to exceed 104 °F.

The manufacturer (Stama-America Stama-Germany) of the equipment quoted will produce the items purchased in compliance with their understanding of "OSHA" regulations as they pertain to said items. Although it is the user's responsibility to comply with "OSHA" in the use of this equipment, we have previously installed similar Stama equipment and have found them to be acceptable.

Cutting tools

The cutting tools have to be balanced according to DIN ISO 1940, class G 2.5 in two levels, with max. operating speed

Coolants

The machine quoted is designed for use with standard water soluble coolants without an enclosure as described in our brochure. If the coolant mixture is higher than 15% oil or if cutting oil is used, a top enclosure and mist collector should be installed to minimize the chance of explosion.

Recommendations for Cooling Lubricant

The Stama machines contain various plastics, lacquers, resinous substances and adhesives, all of which have been selected with great care for use with cooling lubricants

Use of aggressive agents and additives can lead to damage and can cause the machine to break down.



Water-soluble cooling lubricants:

The materials used with Stama machines are designed for use with normal cooling lubricant which can be diluted with water, with a ratio of mixture up to 1:9

We recommend the following products:

- Blaser - Blasocut series (e.g. BC25)
- Castrol - Hysol X or Alusol B
- Houghton - Hocut AS 5000
- other products with the same specification.

Cutting Oils:

Attention when using cutting oil! Due to fire hazard, Stama machines may only be used when sufficient and suitable fire protection measures are in place!

The materials used with Stama machines are designed for use with cutting oils with a viscosity of $<10 \text{ mm}^2/\text{sec}$ at 40°C .

We can recommend the following products:

- Motorex - Swisscut Ortho NF-X
- Shell - Garia 601 M8
- other products with the same specification.

