

CNC COORDINATE DRILLING MACHINE

Model Arboga CNC 4000 TG

Electrical installation 415/3/50 power supply

Drawing nr. Ch-0910-1

File: 4000x4000TG_.doc

BASIC MACHINE MAIN SPECIFICATION 4000x4000 TG

Spindle head stocks

Main Spindle Motor	Heidenhain or Fanuc	
Continuous Spindle operation	Kw	22
Short time operation	Kw	30
Spindle speed step-less	rpm	4000 (6000)
Spindle nose taper	BT	50
Spindle ram head with hardened guide ways	mm	220x220
Spindle ram head travel	mm	380
Ram head feed motor z-axis		
Ram head rapid travel	mm/min	10000
Distance spindle nose-table A	mm	700
Distance spindle nose-table B	mm	1900
Spindle head stock feed motor y-axis	Heidenhain or Fanuc	
Drilling feed force z-axis	N	20000
Tool retention	mechanical/hydraulic	

Machine table

Machine table and machine foundation will be made by customer in concrete.

Arboga will supply complete drawings for this.

Concrete Table size	mm	4000 x 4000
Mounting surface table	mm	4000 x 4000
High carrying capacity of table	kg	10000

SPINDLE HEAD STOCK GANTRY

Travel of gantry	mm	4000
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One vertical drilling head.

The gantry will be equipped with working platforms for the operator:

The gantry will have the control system built in.

All electrical components for the electrical installation will be at the backside of the gantry.

The movement of the gantry will be over two non-rotating high precision ball screws.

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RAILWAY ON THE GANTRY

The machine beds will be of a welded construction.
They will be made in sections with levelling nuts. The bed will be bolted to the foundation.
The guide ways will be linear re-circulating ball bearings and hardened steel guide ways.
Measuring system on one side. The other side will have a slave motor driven system.
Preloaded, backlash protected, driving system.

THE MACHINE WILL BE FITTED WITH FOLLOWING STANDARD EQUIPMENT

Complete electrical installation for direct power supply.
Pedant control switch box with built-in CNC-system, HEIDENHAIN OR FANUC with intergrated PC.
Electronic manual encoder for just and exact setting of machine with controller

Complete servo control equipment for 5 AC servomotors in separate cabinet.
Safety switches for all axis.
Machine base and gantry welded and stress relieving annealed.
Positioning of spindle and spindle headstocks via high precision ball screws.
Automatic controlled lubrication system.
All information for service and repair.

PRICE, net FOB, ex works ARBOGA SWEDEN**SEK xxxxxxxx****SPECIAL EQUIPMENT**

Prices incl. assembling

Machine Table

In the concrete will a number of steel bars
be founded.

T-slots ISO 299, for 22 mm bolts.

Distance between the steel bars 300 mm.

SEK xxxx

Coolant system

Complete detached coolant equipment model KVV,
with tank 500 litres, motor pump effect 100 litres/min
at 30 bar, tubing's, valves and Rotating Swivel for
coolant through the drilling spindle.

SEK xxxxx

Universal paper filter automatic unit. For cleaning
the water coolant. Capacity of water cleaning
100 litres/min. Complete with pumps, tank, valves
and tubing for connection to a main coolant tank.

SEK xxxxx

Chip Conveyer

Chip conveyor to be placed on each side of the working tables. The chip conveyors will be placed in the basic concrete foundation.

The length of the conveyors will be 4500 mm. The height at one end above the floor space 800 mm.

Price each,

SEK xxxxxx

Machine colour

Standard colour of the machine is reseda-green acc. to standard RAL 6011. Other colours can also be obtained for an extra charge of

SEK xxxxx

Options for CNC-system

The standard CNC unit is Heidenhain TNC 530 or Fanuc. Siemens Sinumeric 840D with Siemens digital drives and motors can be supplied to an extra charge of

SEK xxxxx

Electronic manual encoder.

Model HR 410, portable unit in plastic protection protective housing, with integrated axis keys, and emergency-stop-button.

SEK xxxxx

OPERATION OF THE MACHINE

The CNC drilling machine will be operated from the operator's panel at one side of the machine.

The hydraulic clamping system for working tools of the drilling heads will be operated close to the drilling heads making it easy to change tools quickly.

Clamping and unclamping of the work pieces will be in hand of the operators. A free electronic hand wheel will make it possible to place the spindle heads at the start position.

The coolant system will be working when the spindle heads starts for drilling operation and stop as soon as the drilling operation has stopped.

Splash guard around the drilling spindles will take care of chips and coolant water.

The chips will fall down to the chip conveyors on both sides of the working table and automatically fed to the end of the machine, where the chip trolleys take care of the transport.

The coolant water will be filtrated and will be pumped back to the main coolant tank.

All driving units a measuring systems on the machine will be protected against dust and dirt.

ACCURACY OF THE MACHINE

Horizontal movement of spindle (y-axis)

+ - 0.025 mm / 300 mm
+ - 0.05 mm / full length

Vertical movement of spindle (z-axis)

+ - 0.025 mm / 300 mm
+ - 0.05 mm / full length

Longitudinal movement of gantry (x-axis)

+ - 0.025 mm / 300 mm
+ - 0.2 mm / full length

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REPEATABILITY OF THE POSITIONING

Horizontal movement of spindle	0.01 mm
Vertical movement of spindle	0.01 mm
Longitudinal movement gantry	0.025 mm

The accuracy of the machine will be measured at 20 degrees C.

CORRECTION OF MEASURED VALUE TO CONTROL SYSTEM

At the installation of the machine has to be measured by a **LASER INTERFEROMETER**.
The measuring result obtained will be fed into the control system for compensation of the different of measurement.

CONTROL SYSTEM HEIDENHAIN TNC 530

We refer to the enclosed pamphlet of the control system. All functions needed are included in the control system.

DRILLING TOOLS

As we have had a long time of cooperation with Sandvik Sweden, we can also deliver special drills for the drilling of your work pieces.

SPARE PARTS FOR TWO YEARS MAINTENANCE

Spare parts of the machine for two years maintenance can be delivered together with the machine.
Numbers and quantity will be agreed at the changing of order and acknowledgement.
We estimate that the price for recommended spare parts will be approx SEK 150.000

GUARANTEE

The warranty of parts (free of charge), shall be for a period of 12 months or 1800 working hours from the date of installation at your factory.

Installation and training of operators.

Cost of installation for the machine are in the price. (15 working days)
Training for 2 operators 5 working days in Sweden included in machine price.
Additional training and education at customer 4000 SEK/day.

The machine has to be inspected and tested in Sweden before dispatch.

Before arrival of our personal the work site should be prepared for immediate start of installation. The machine should be unpacked and cleaned from rust protection by customer.
You will be responsible of arranging necessary lifting for installation of heavy parts. Electrical connection with main fuse (63amp) is arranged by customer.
All delay without our fault will be paid by customer.4000 SEK/day

Boarding and lodging of our personal is paid by customer

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Hotel of European standard.

ACCEPTANCE OF THE MACHINE

The acceptance of the machine is divided into 2 steps. Pre-acceptance in our factory and final acceptance in your factory. The report shall include the records of full process of both pre- acceptance and final acceptance.

During the acceptance test in our factory we will perform the technical training for your engineers. The price for training of 2 or your operators during one week time in Arboga is included in the price of the machine. The air tickets from customer to Sweden will be taken care of by you. Transportation and lodging in Arboga will be taken care of by us.

TIME OF DELIVERY

Not later than 9 months after order acknowledgement. Inspection and testing time included.

COLOUR OF THE MACHINE

Our normal colour of our machines are green. At the ordering we can make any colour of the machining parts needed to be protected painted. All parts will have a protection against rust and dirt.

TERMS OF PAYMENT

All prices are FOB, ex works Arboga, Sweden.

Against an irrevocable letter of credit for 100 % of contract price. The letter of credit should be confirmed by a Swedish Bank.

30 % of total value to be paid when order and acknowledgement has been changed.

30 % 4 months after the first payment. Both payment against bank guarantee.

40 % after final inspection at our factory.

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ARBOGA SWEDEN

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