

# Horizontal milling machine WHT 110



**Milling machine manufacturer**

**TOS VARNSDORF a.s.**



# FEATURES OF THE PRODUCT

## Features of the product:

WHT 110, a new, highly productive machine, is a horizontal machine tool suitable for the most demanding operations that require precise drilling, cutting threads, rotary operation, and milling. WHT 110 machines can be designed as machining centres with a wide choice of accessories, e.g. automatic change of technology palettes, tools, special accessories, additional rotary tables, and other options that satisfy even the most demanding application requirements in industries such as aviation, power industry, groundwork, oil industry as well as engineering industry. These "multi-tasking" machines can be used for both one-off and series production.



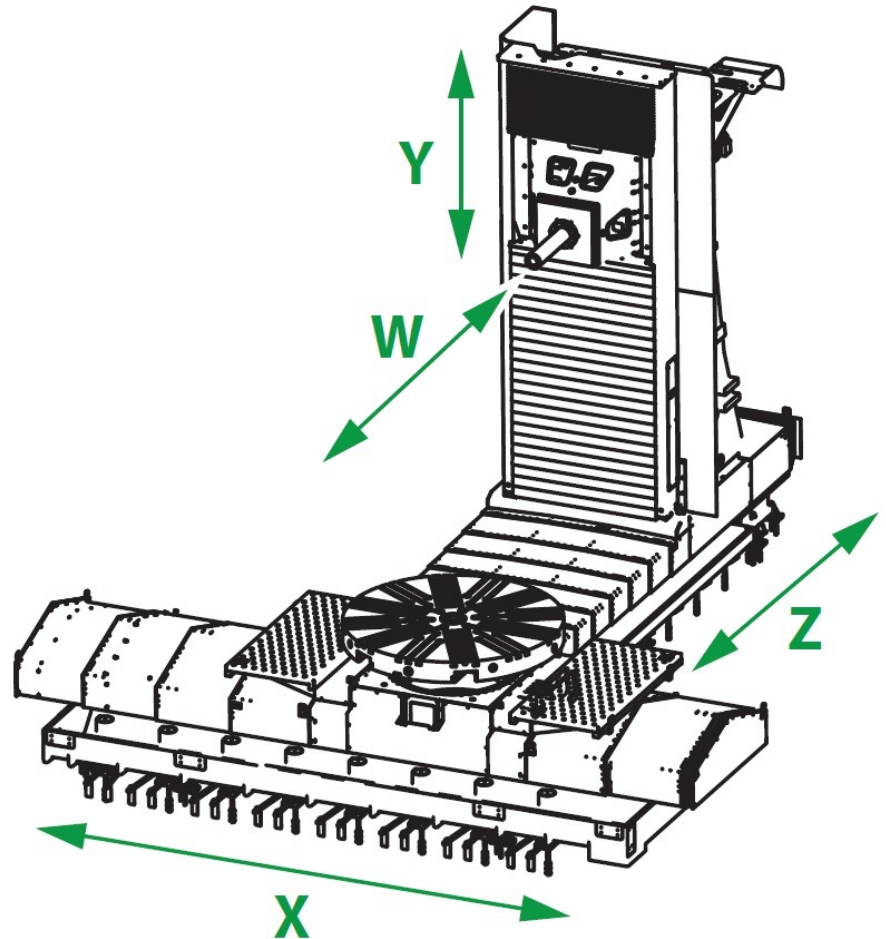
# BASIC CONCEPT OF THE MACHINE

## Basic concept of the machine:

Basic configuration of the machine has got 5 controlled axes (X - cross travel of the table, Y - vertical travel of the headstock, Z - longitudinal travel of the column, W - spindle travel and B - rotary table and CNC controlled spindle including spindle orientation feature).

WHT 110 machining center is controlled, as a standard, by HEIDENHAIN TNC 640 control and AC-digital feed drives and AC-digital spindle drive made by Siemens. Upon customer's request the machine can be also equipped with other brands of controls (Sinumerik 840 D SL).

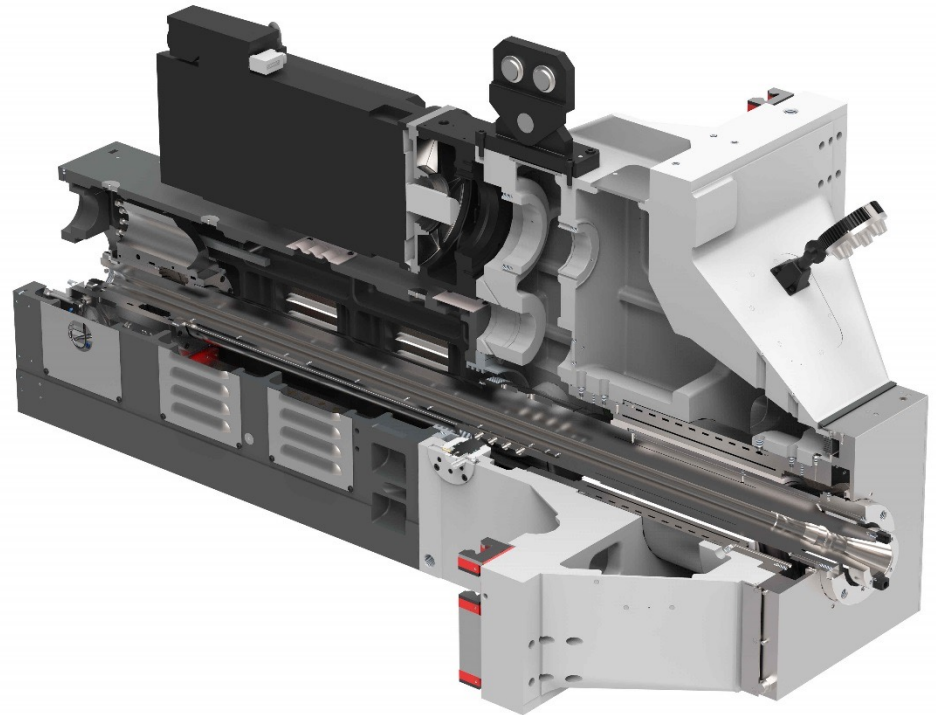
As a standard, WHT 110 machine is offered in "left" hand arrangement. It means the headstock is located on operator's left side (when watched from operator's place into machining area).



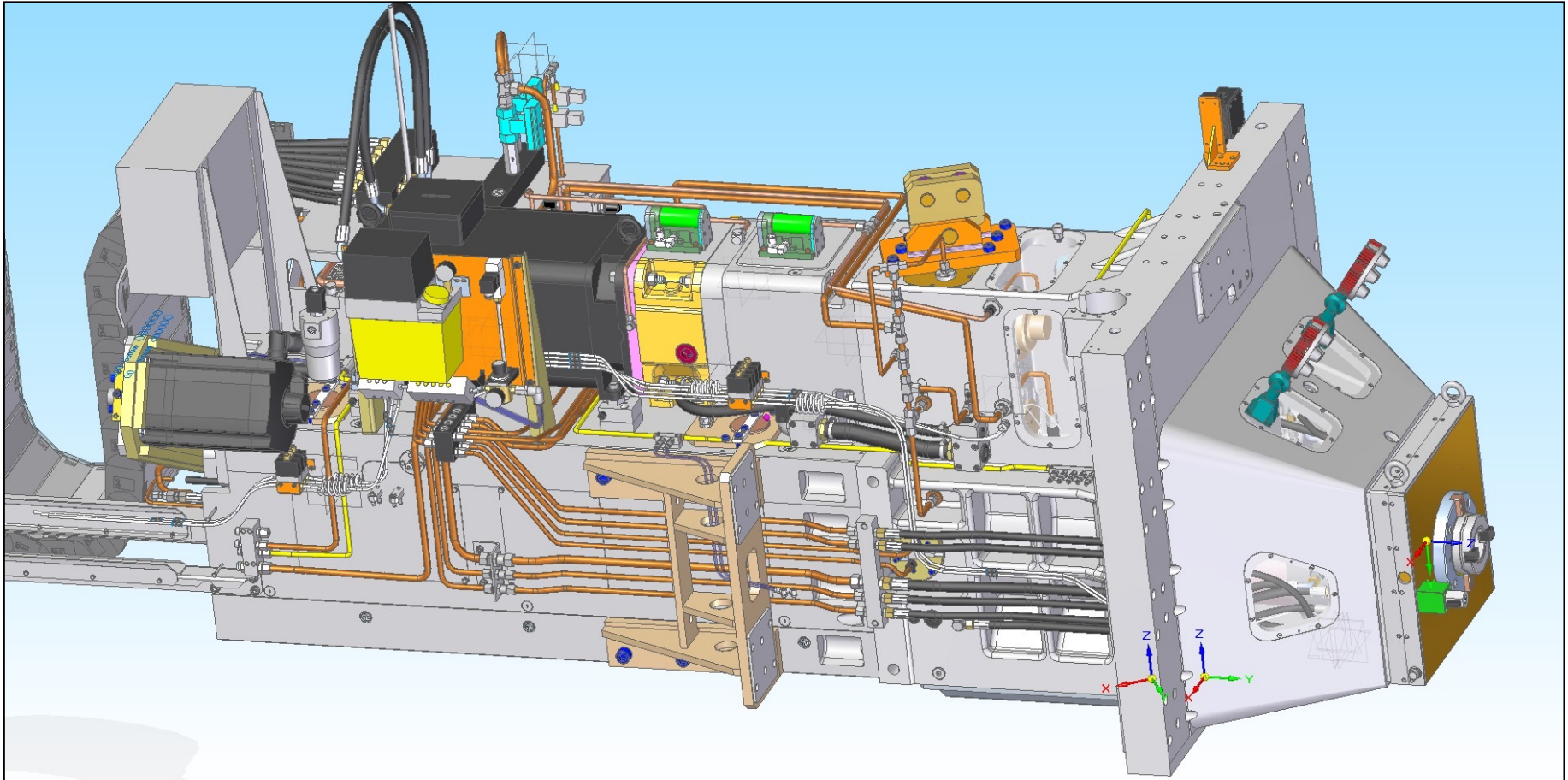
# HEADSTOCK

## Headstock:

Headstocks for machines WHT 110 are produced with centrally conducted spindle. This concept is optimal as regards even thermal and power load on the machine's frame. The spindle drive is provided by standard gearbox which is attached to the main motor. The gearbox has got 2 gear stages.



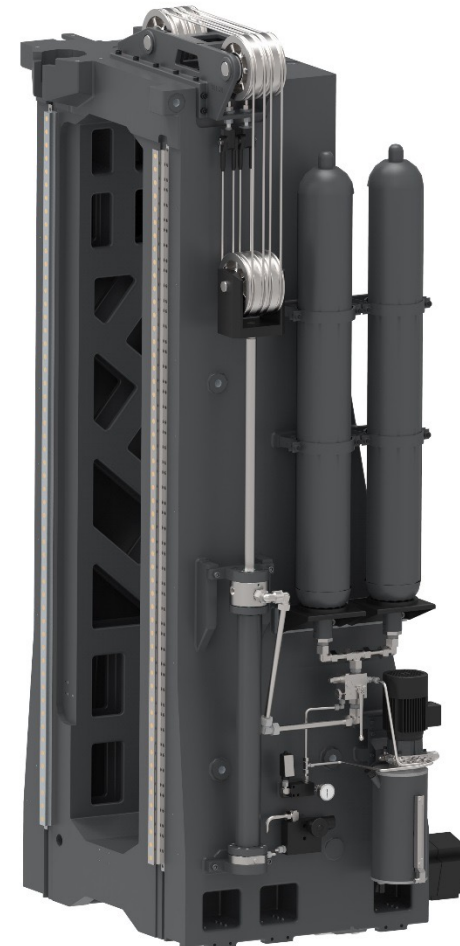
# HEADSTOCK



# BALANCE AND DRIVE OF AXIS Y

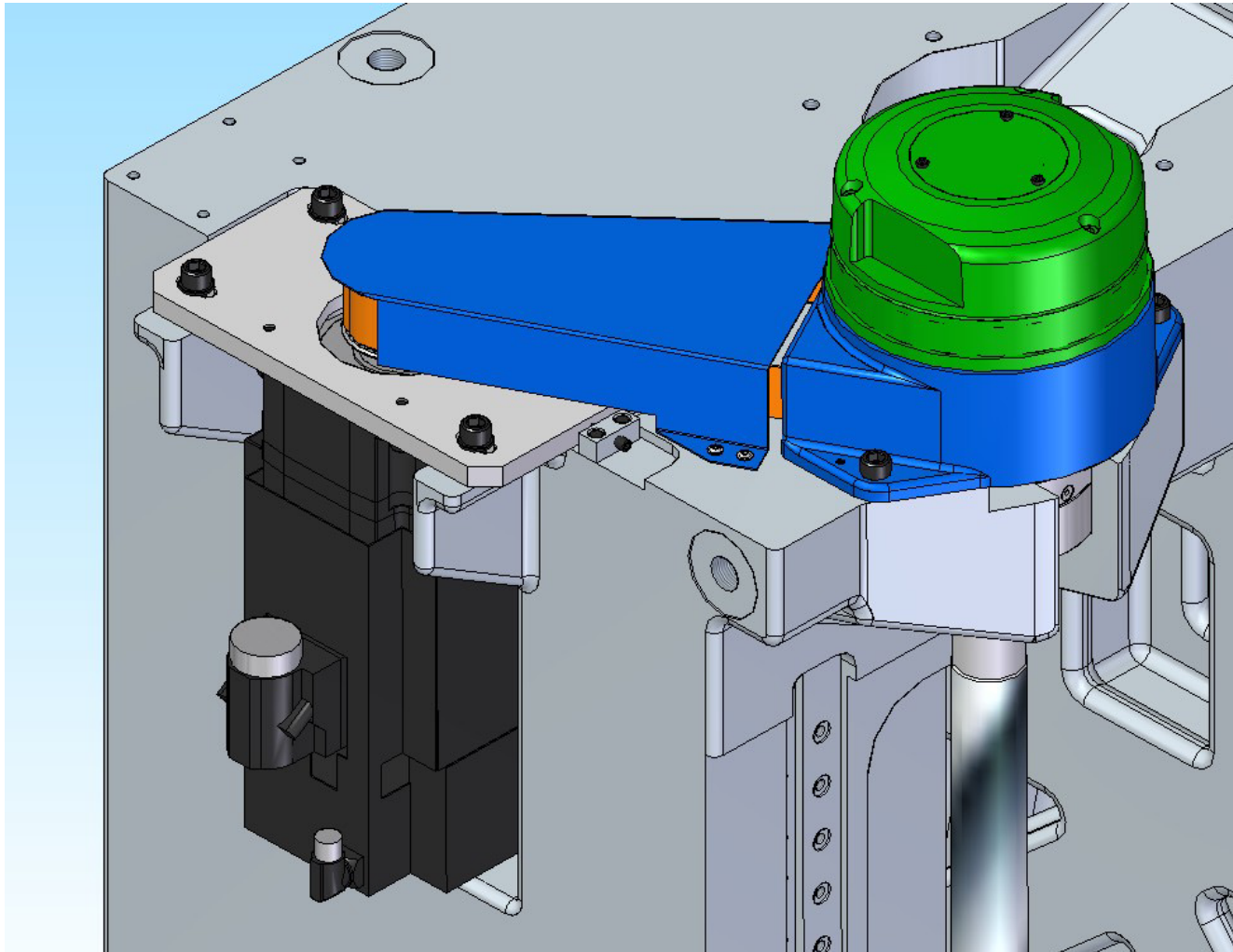
## Balance and drive of axis Y:

Feed drives of all linear axes are provided by individual servodrives with standard gearbox and steep pitch ballscrew. Weight of the headstock is balanced hydro-mechanically by means of standalone hydraulic unit.



Column (Axis Y)

# BALANCE AND DRIVE OF AXIS Y



Column (Axis Y)

# FEED DRIVES AND CLAMPING

## **Feed drives and clamping:**

The linear axes are driven by separate servo drives with incorporated belt gear and ball screws with steep lead.

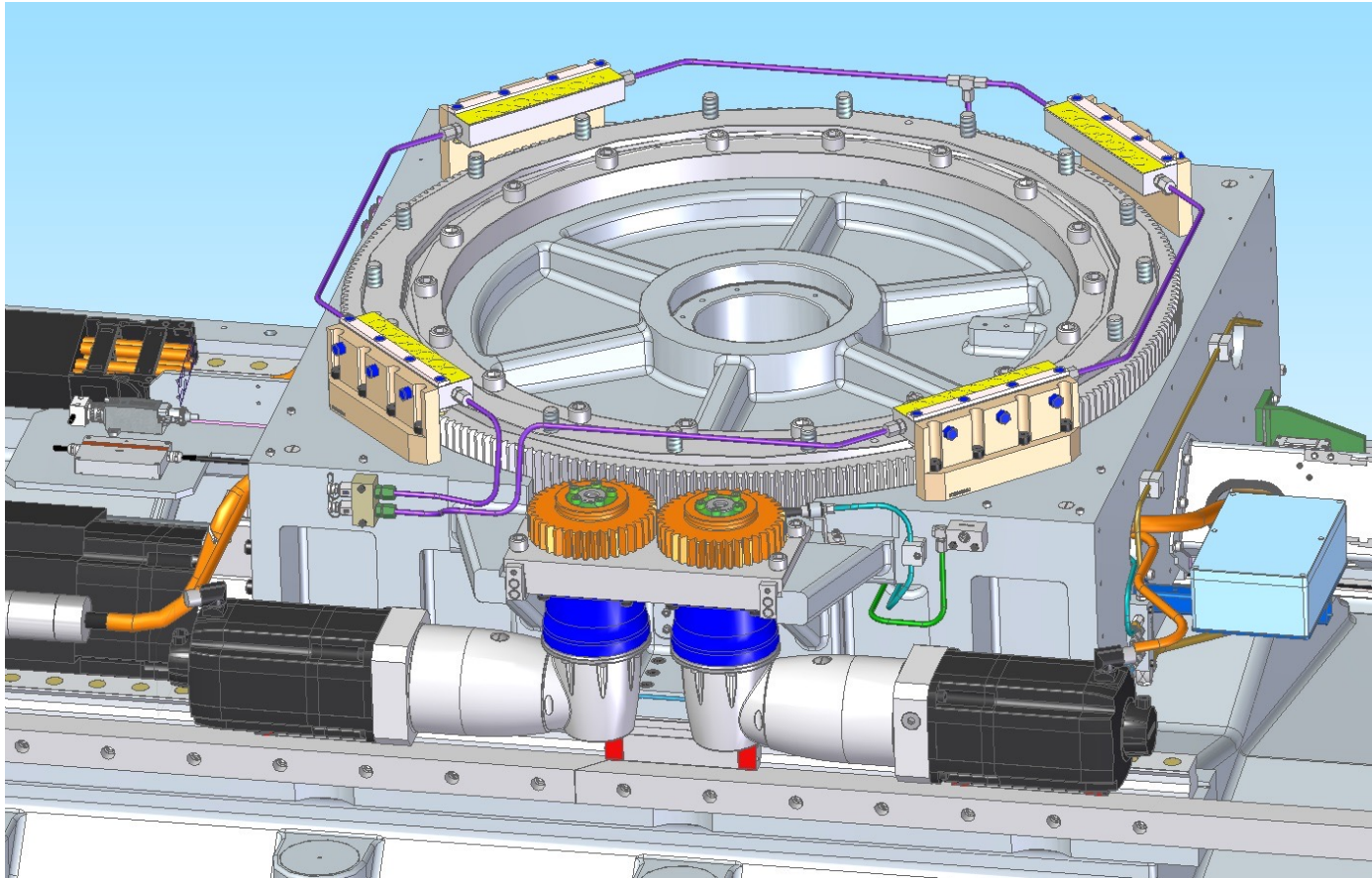
X and Z axes are driven by a ball screw with a rotating ball nut. The Y and W axes are driven by a rotating ball screw.



Axis Z



# FEED DRIVES AND CLAMPING

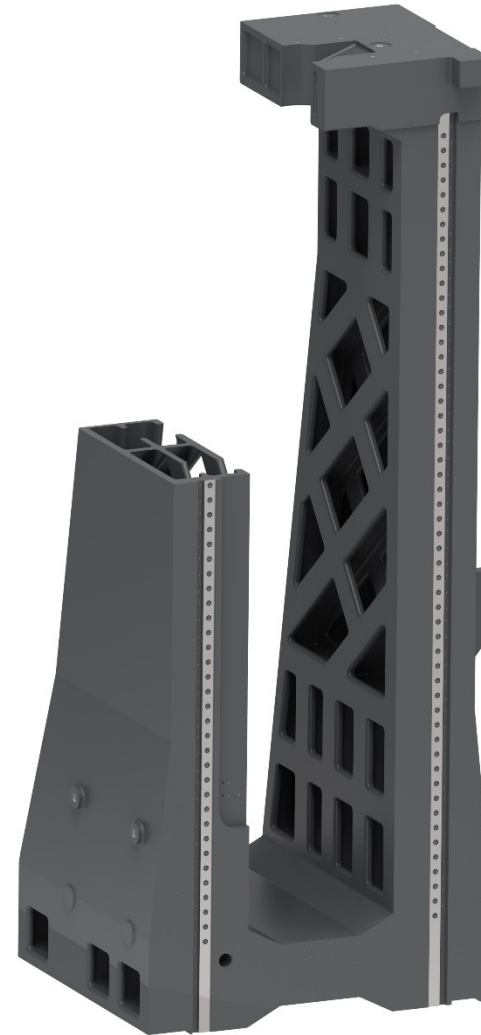


Axis B and X

# GUIDEWAYS OF MOVABLE GROUPS

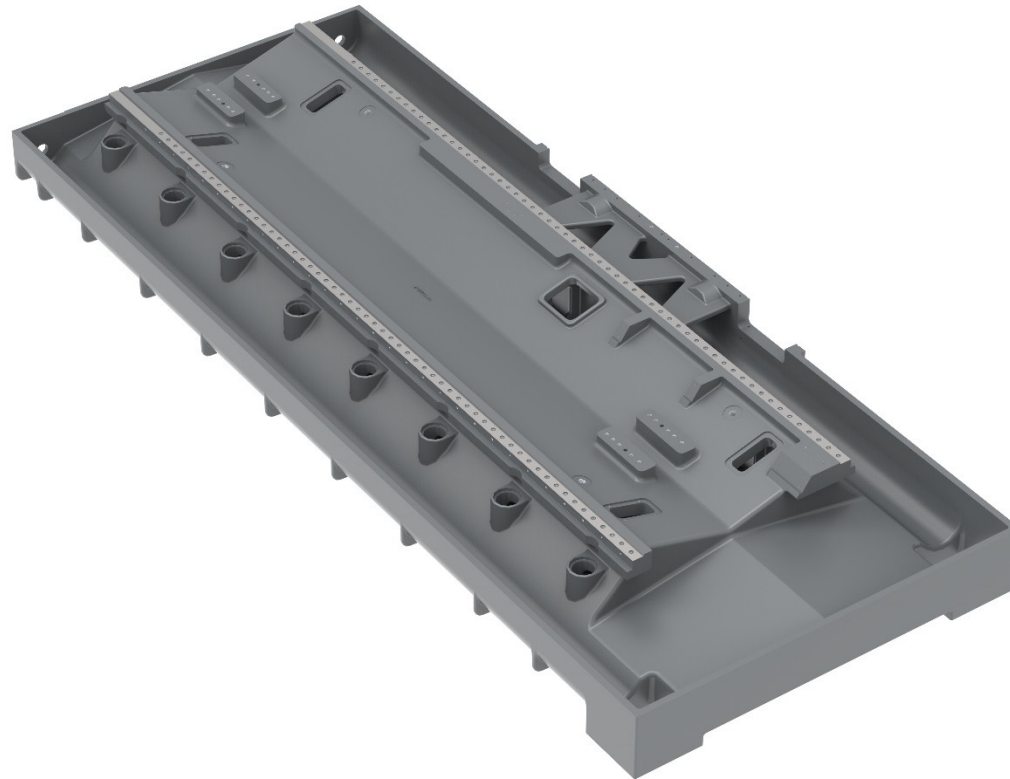
## Guideways of movable groups:

Guiding of all linearly adjustable groups in the X, Y, Z axes is achieved by pre-stressed compact linear rolling guides. The extendable spindle is slidingly guided in the hollow spindle. The table is housed on a large radial-axial ball bearing, thus having a high bearing capacity and rigidity.



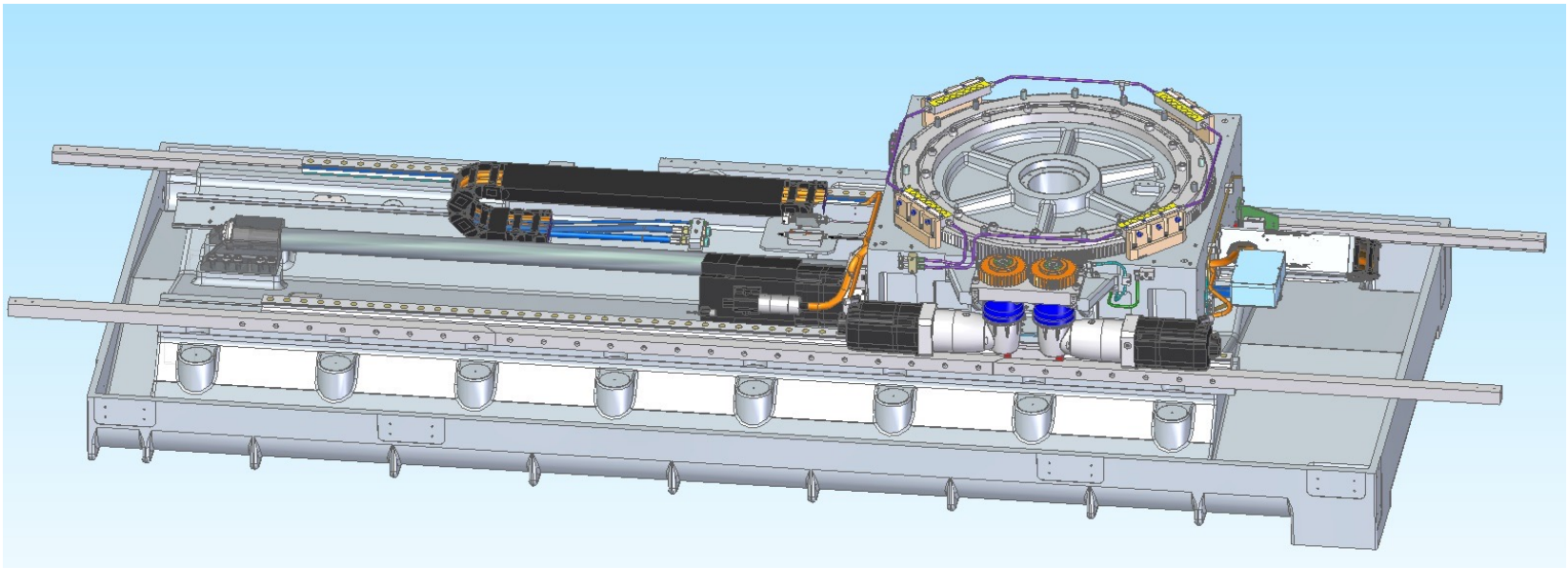
Column (Axis Y)

# GUIDEWAYS OF MOVABLE GROUPS



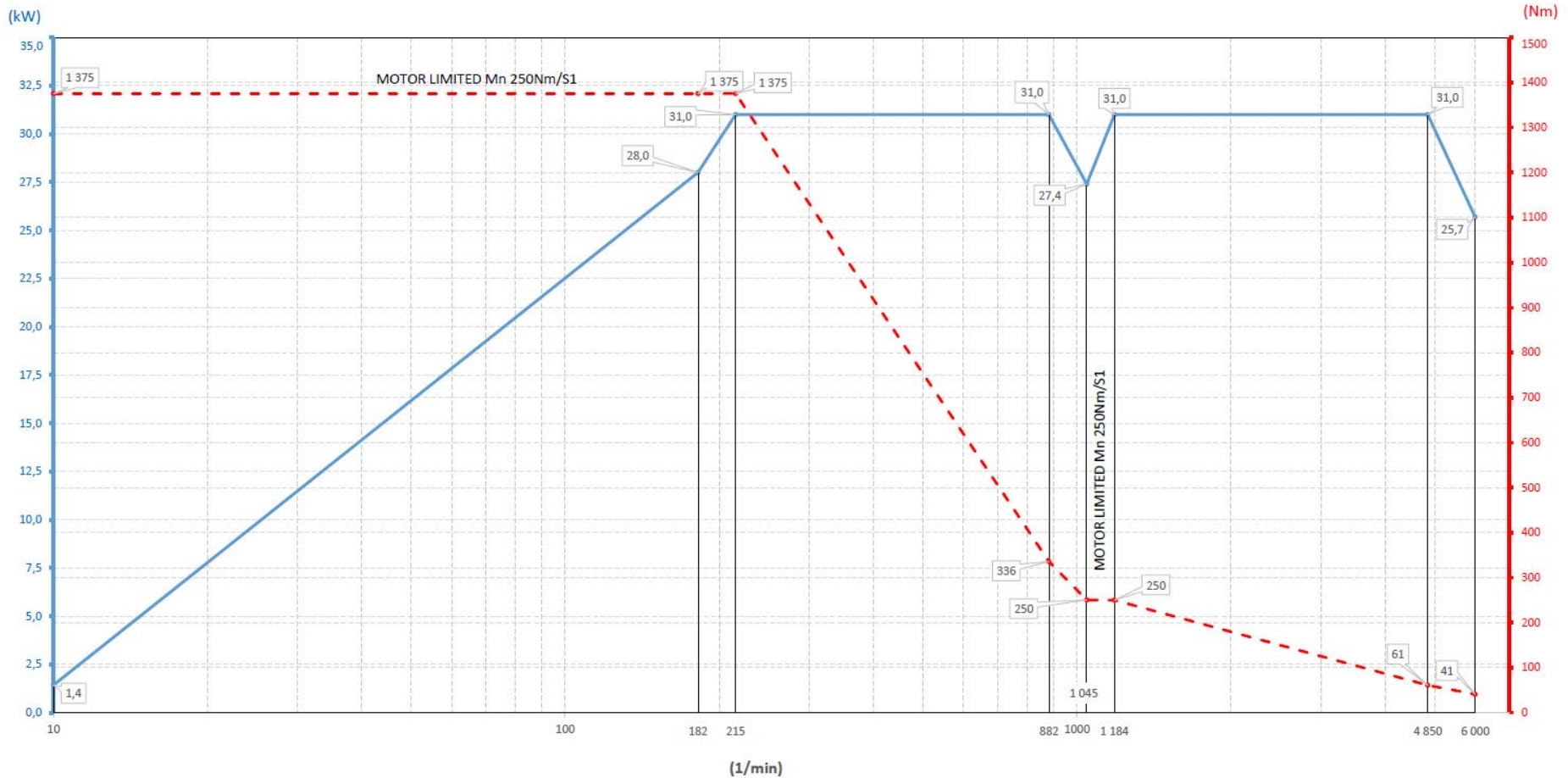
Axis X

# GUIDEWAYS OF MOVABLE GROUPS



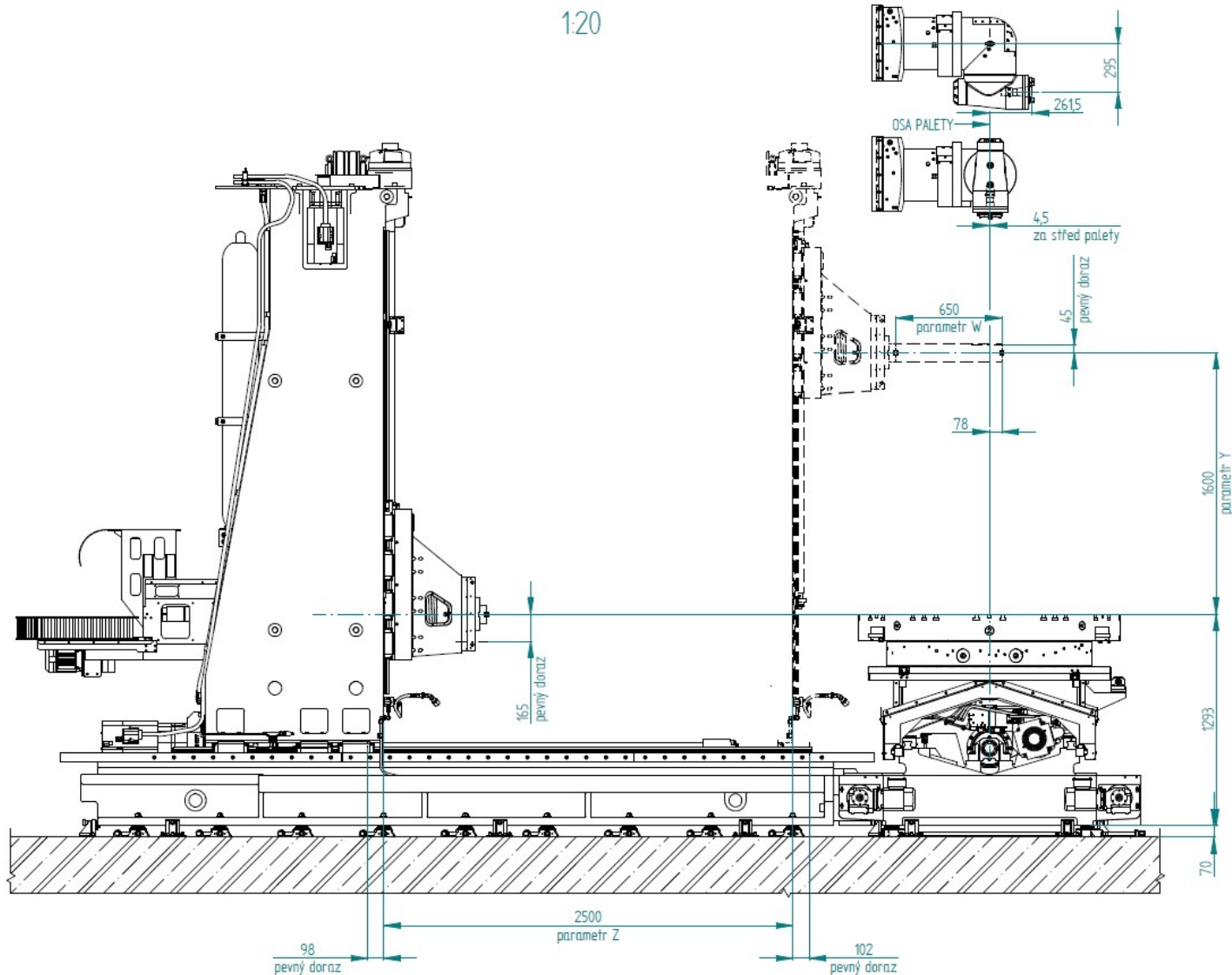
Axis B and X

# CURCUIT DIAGRAM

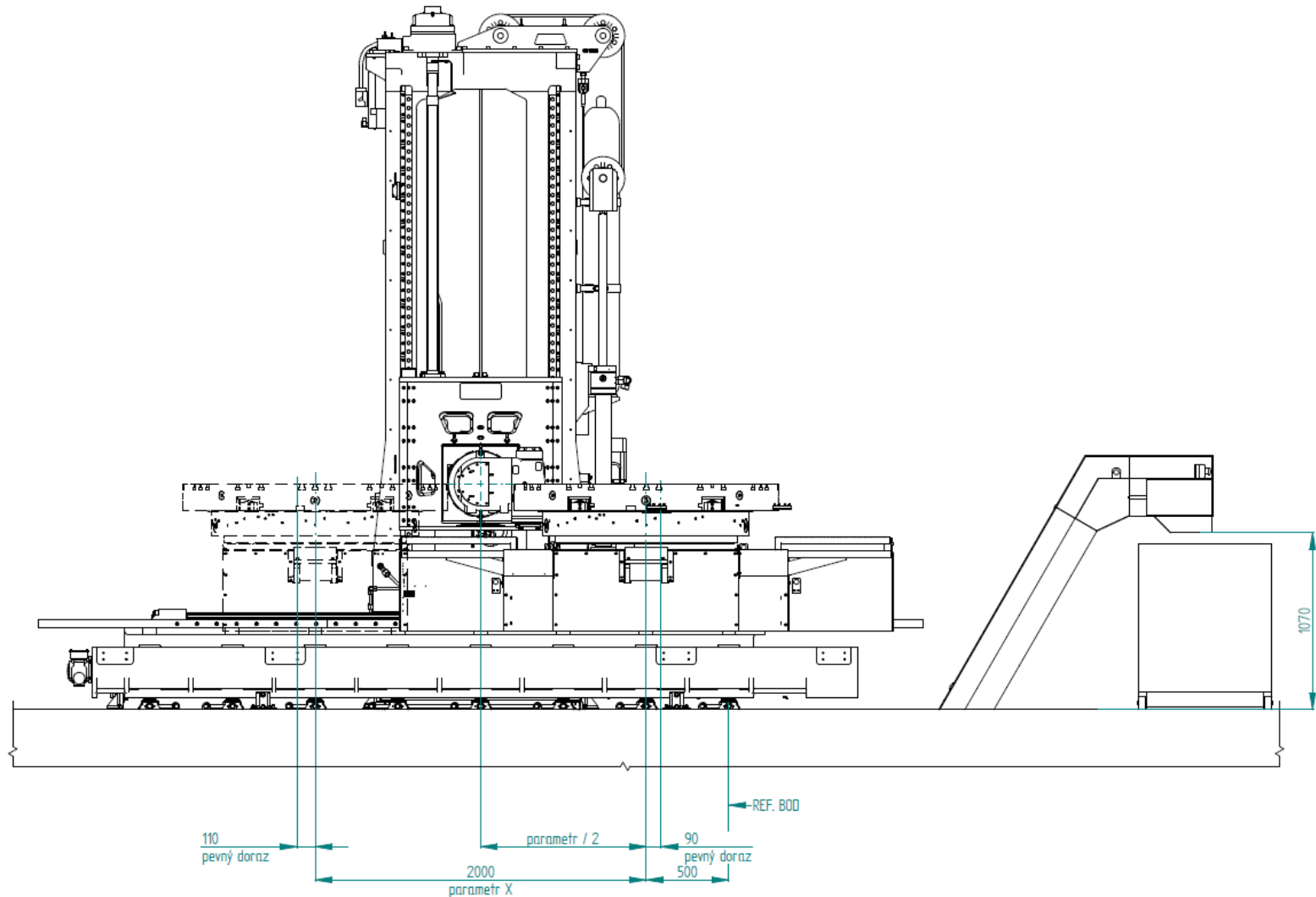


# EXAMPLE OF A DIMENSIONAL SKETCH

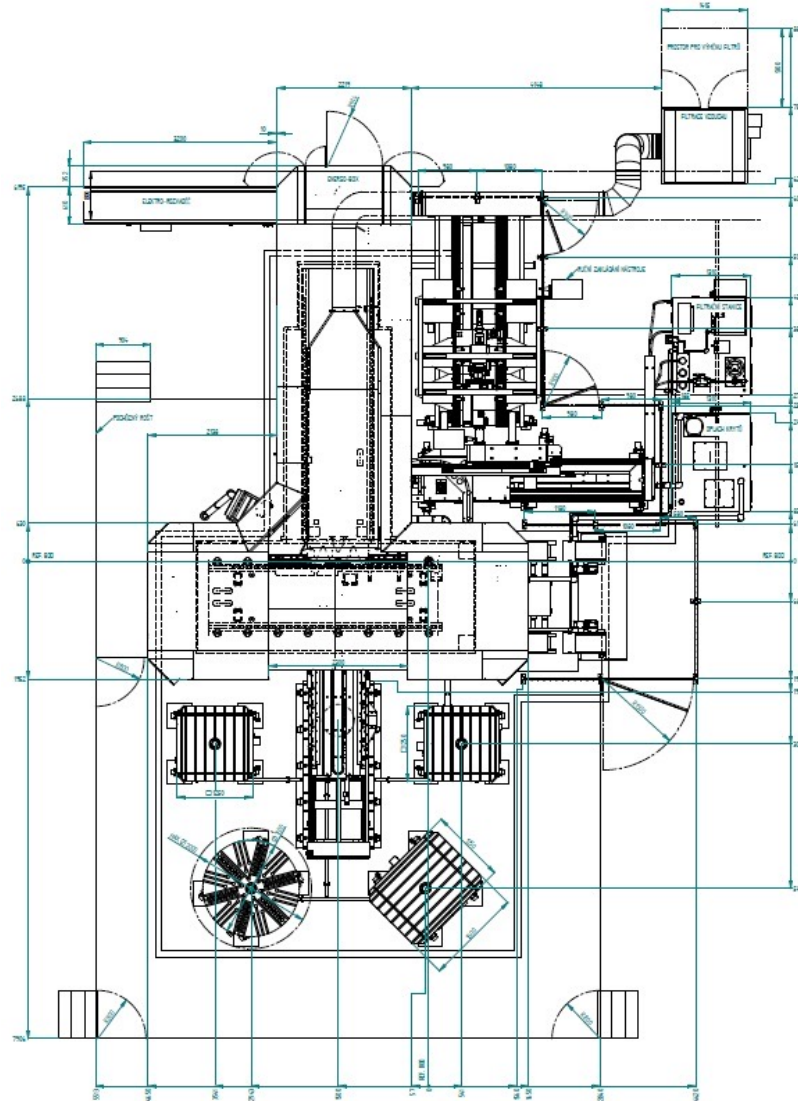
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# EXAMPLE OF A DIMENSIONAL SKETCH



# EXAMPLE OF A DIMENSIONAL SKETCH





# BASIC PARAMETERS

Basic machine		WHT 110 S	WHT 110 L	WHT 110 SC	WHT 110 LC
<b>Headstock</b>					
Spindle diameter	mm	112			
Spindle taper		ISO 50			
Spindle speed range	1/min	10 - 4 000		10 - 6 000	
S1 Main motor nominal power	kW	31		31	
S1 Spindle nominal torque	Nm	1 205		1 375	
Spindle stroke <b>W</b>	mm	650			
<b>Column</b>					
Headstock vertical travel <b>Y</b>	mm	1 250	1 600	1 250	1 600
Column longitudinal travel <b>Z</b>	mm	1 500	2 500	1 500	2 500
<b>Rotational table</b>					
Table transverse travel <b>X</b>	mm	1 500	2 500	1 500	2 500
Max. workpiece weight	kg	6 000			
Table clamping surface dimensions	mm	1 250 x 1 250	1 250 x 1 600	1 250 x 1 250	1 250 x 1 600
<b>Feeds</b>					
Feed and rapid traverse ranges - <b>X, Y, Z, W</b>	mm/min	25 000		40 000	
Feed and rapid traverse ranges - <b>B</b>	1/min	3			
<b>Machine standard equipment</b>					
Chips conveyor		•		•	
Machine operator covering		•		•	
X-axis covering		•		•	
Modification for the manual change of manually adjustable milling heads		•			
Remote diagnostics		•		•	
Machine complete covering (including the machine operator)				•	
ATC40 Automatic Tool Change				•	
Modification for the automatic milling head change (UPPT)				•	
CHZ Tool cooling (with external nozzles)				•	

# BASIC PARAMETERS

Machine type		WHT 110	WHT 110 C
<b>Headstock</b>			
Working spindle diameter	mm	112	
Spindle taper		ISO 50	
Working spindle speed range	1 / min	10 - 4 000	10 - 4 000   10 - 6 000
S1 Main motor nominal power	kW	31	31   31
S1 Spindle nominal torque	Nm	1 205	1 205   1 375
Spindle stroke <b>W</b>	mm	650	
<b>Column</b>			
Headstock vertical travel <b>Y</b>	mm	1 250, 1 600, 2 000*	
Column longitudinal travel <b>Z</b>	mm	1 500, 2 000, 2 500	
<b>Rotational table</b>			
Table transverse travel <b>X</b>	mm	1 500, 2 000, 2 500, 3 000	
Max. workpiece weight	kg	6 000	
Table clamping surface dimensions	mm	1 250 x 1 250, 1 250 x 1 600	
<b>Turning table</b>			
Table transverse travel <b>X</b>	mm	1 500, 2 000, 2 500, 3 000	
Max. workpiece weight	kg	6 000 (4 000)	
Table clamping surface dimensions	mm	Ø 1 600	
<b>Automatic palette change</b>			
Table transverse travel <b>X</b>	mm	1 500, 2 000, 2 500, 3 000	
Max. workpiece weight	kg	4 000	
Palette clamping area	mm	1 250 x 1 250, 1 250 x 1 600	
Max. number of palletes	ks	2 až 4	
<b>Automatic tool change</b>			
Number of pockets – drum type magazine	ks	20	
Number of pockets – chain type magazine	ks	40, 60, 80	
Number of pockets – rack type magazine	ks	100 a více	
Max. tool diameter			
- with the magazine fully occupied	mm	125	
- With the free adjacent positions	mm	300	
Max. tool length	mm	500	
Tool change time	sec	10	

\* Pouze pro WHT 110

# TOS VARNSDORF a.s.

Říční 1774

407 47 Varnsdorf

Česká republika

Tel: +420 412 351 203

Fax: +420 412 351 269

E-mail: [info@tosvarnsdorf.com](mailto:info@tosvarnsdorf.com)

[www.tosvarnsdorf.com](http://www.tosvarnsdorf.com)



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