11 AMAZING FEATURES TO CHOOSE DOUBLE COLUMN GANTRY MOVING MACHINE

Understanding the basic features will enable you to make the best suitable choice for your next bigger machine, possibly a Double Column Machining Center.

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Say

HELLO!

and welcome the new age of VMC machines.

C-FRAME VS DOUBLE COLUMN

HAVE YOU ENCOUNTER RESTRICTIONS IN ACCEPTING ORDERS FOR LARGER AND HEAVIER COMPONENTS OR EVEN DIFFICULT TO MACHINE MATERIALS?

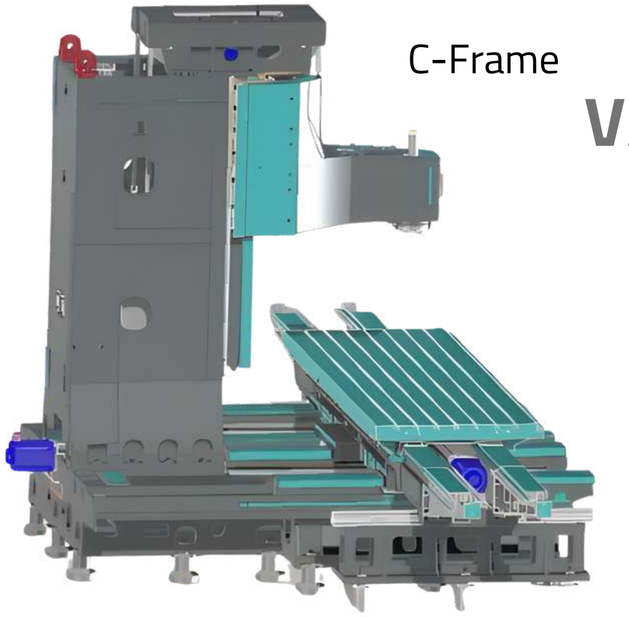
In today's era various industries such as aerospace, commercial vehicles, shipbuilding, machinery manufacturing, construction, power generation, windmills, mould & die and semiconductor etc., demands essentially difficult to machine parts or materials.

Selecting the Double Column Machining Centres can raise the capabilities of your workshop for component types and sizes which you can machine to expand your machining capability and grow over or separate you from your competition.

Double Column Machining Centers are designed to cater larger dimension parts.

Much higher stabilities compared to traditional C-Frame machines provides capabilities to machine large and heavy workpieces as well as tough materials.

A benefit of a double column machining center is the overall strength, rigidity, and support provided by the dual columns.

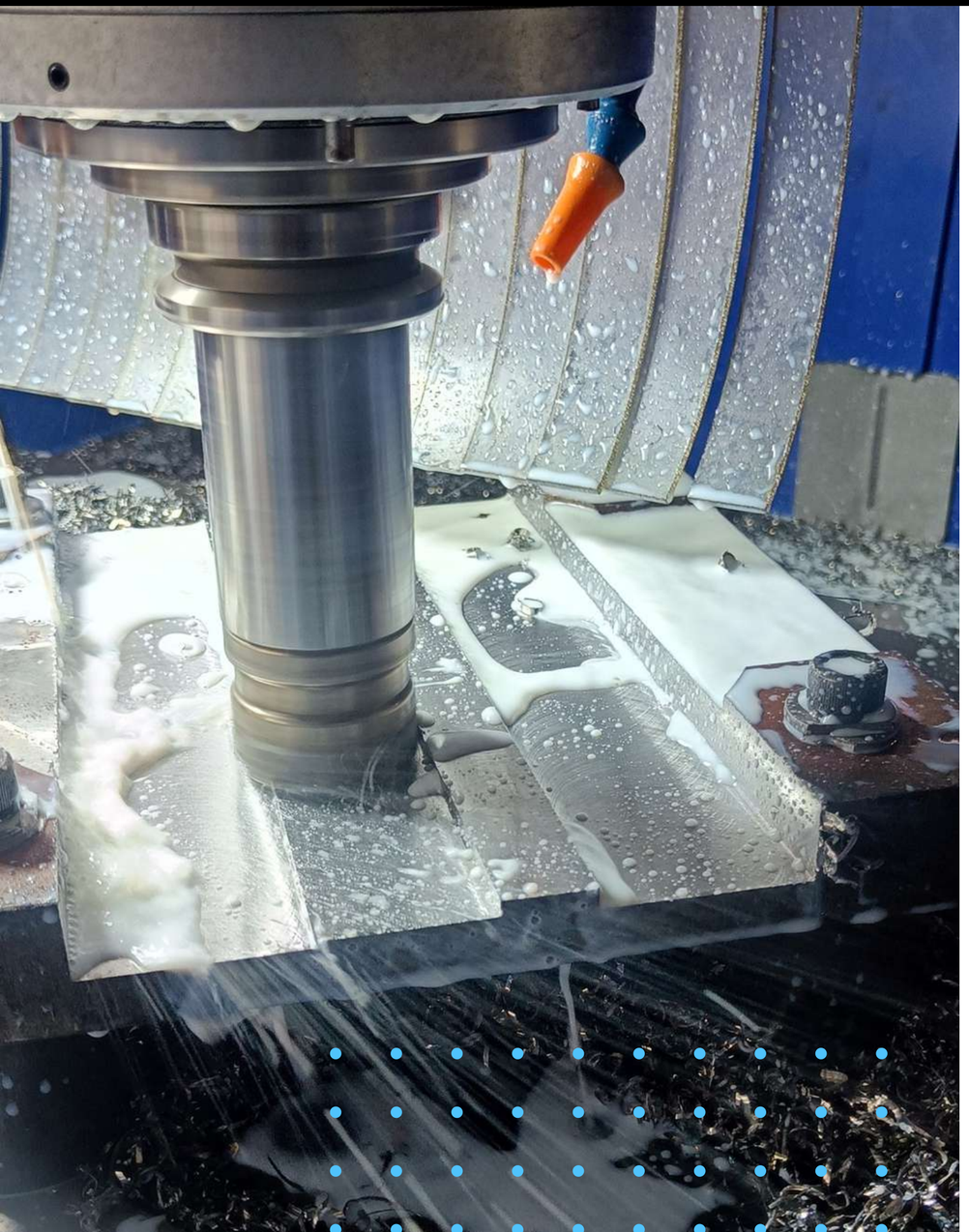


C-Frame

V/s

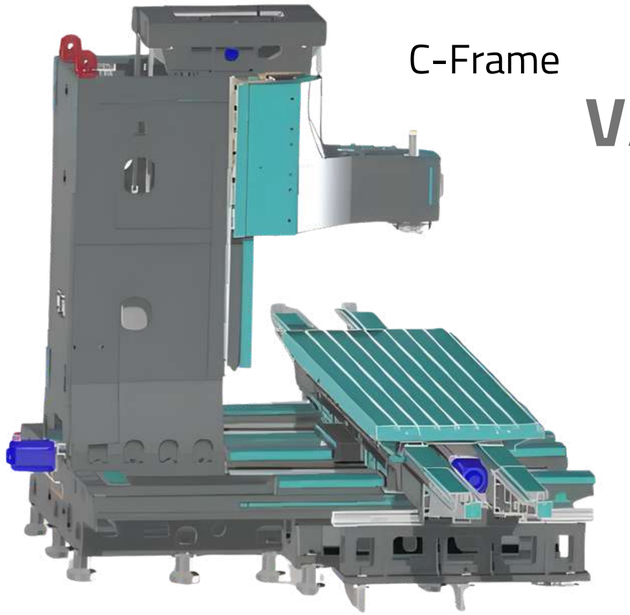
Double Column

HEAVY DEPTH OF CUTS AND LONGER TOOL LIFES



High rigidity and stability means heavy depth of cuts.

Zero vibration and No tool deflection means higher tool life.



C-Frame

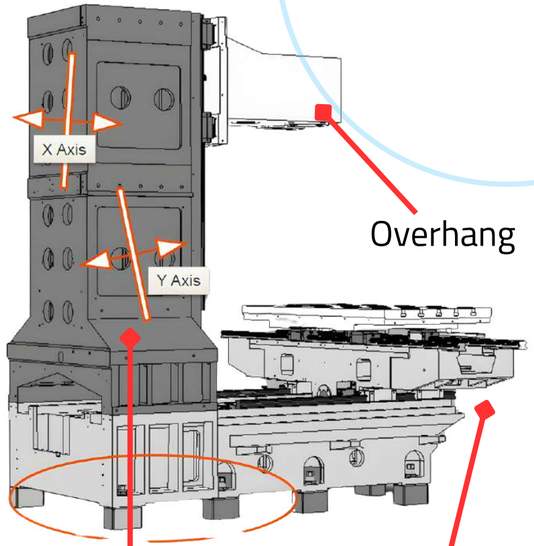
V/s

Double Column

MACHINE STRUCTURE & DESIGN

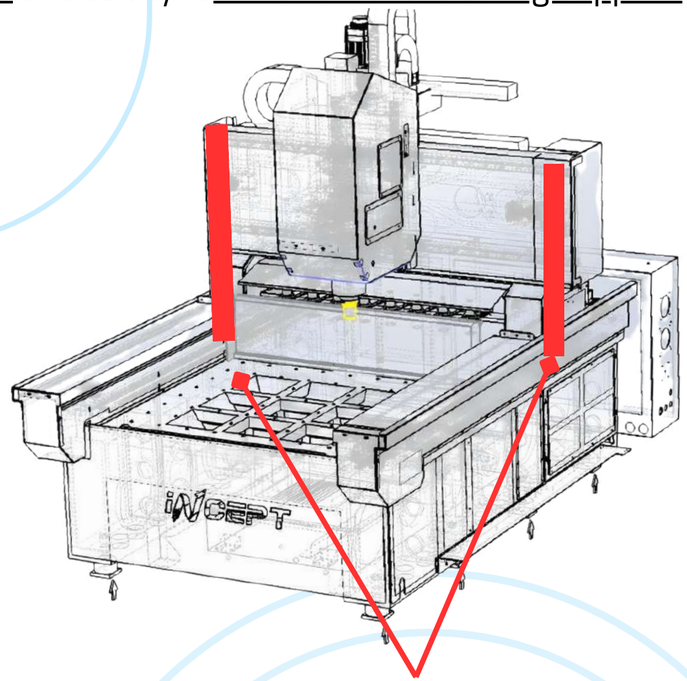
MUCH HIGHER STABILITIES COMPARED TO TRADITIONAL C-FRAME MACHINE

The strength and support of the beam (bridge) structure are superior than a C-frame design,
because of its separation of X Y and Z axes and ability to have full load-bearing support above all range of movments.

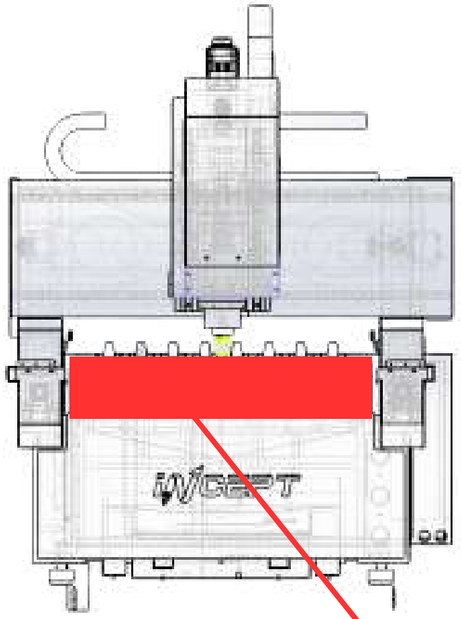


One Column

Overhang



Rigid support at both ends with`Two columns



Large size of Jobs along Y Axis is possible

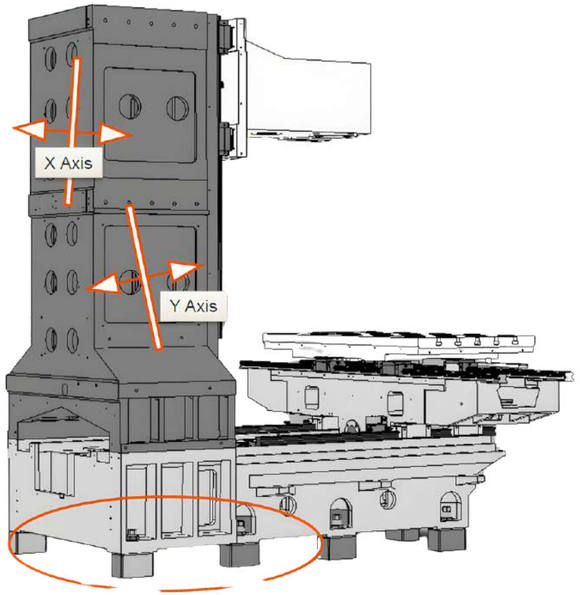
Unlike traditional C-frame construction, the **X-axis travels on the base and Y-axis travels overhead on the bridge cross-slide.**
By using double columns rather than a single column, the rigidity and stability of the VMC machine tool are greatly increased to significantly eliminate vibrations, tool deflection and, eventually, achieve tighter tolerances while providing superior cutting conditions.

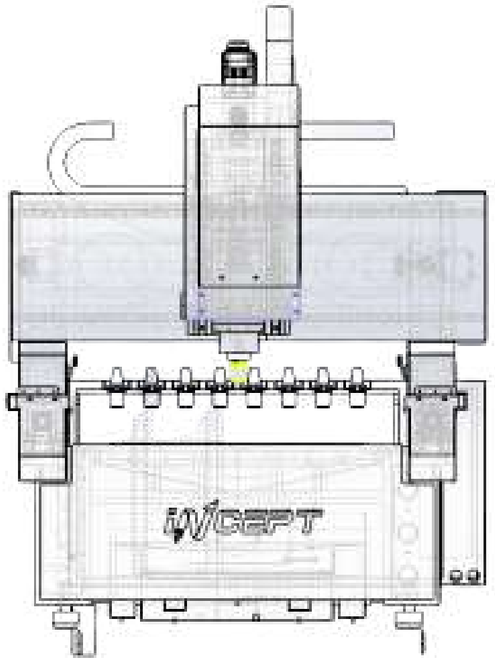
Y Axis moving on the beam supported at both ends gives excellent straightness and stability during cutting.

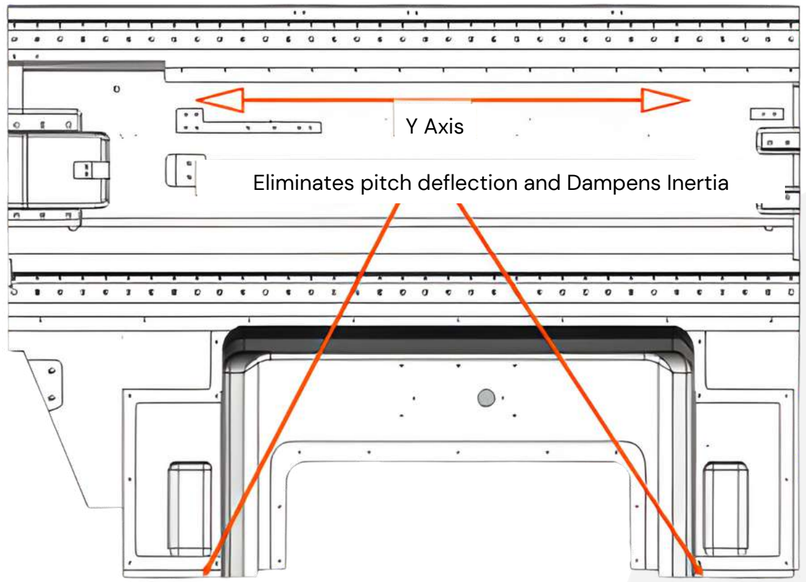
LOW CENTER OF GRAVITY STRUCTURE

MUCH HIGHER STABILITIES COMPARED TO TRADITIONAL C-FRAME MACHINE

The symmetrical bridge type gantry structure of the Machine disperses the vibration, load and heat to both columns equally. This enables stable cutting and very little deformations.





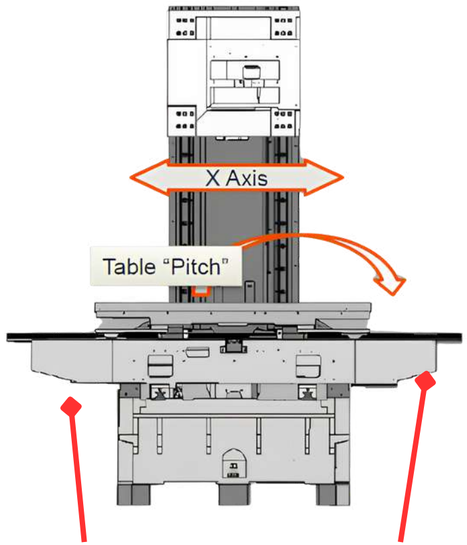


Small changes in leveling due to settling or environmental changes are amplified by the C-frame column.

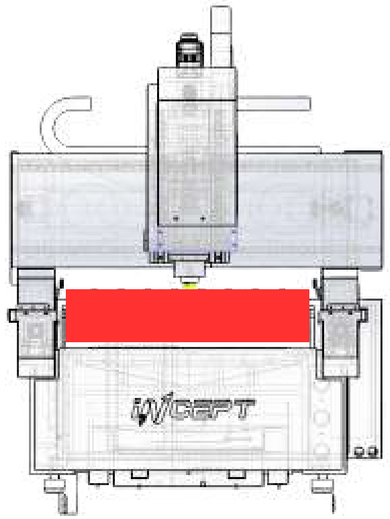
The geometry of the machine is stable with a double-column, compared to the single-column design.

When the column moves, the Z-axis geometry changes, which causes accuracy and straightness problems. Since the double-column geometry is established when the CNC machine is built, it isn't affected by changes in leveling.

ZERO DEFLECTION DUE TO JOB WEIGHT



Overhang of table at the end of X Axis



Full support of job along X and Y Axis

ANY JOB IS FULLY SUPPORTED ON BED.

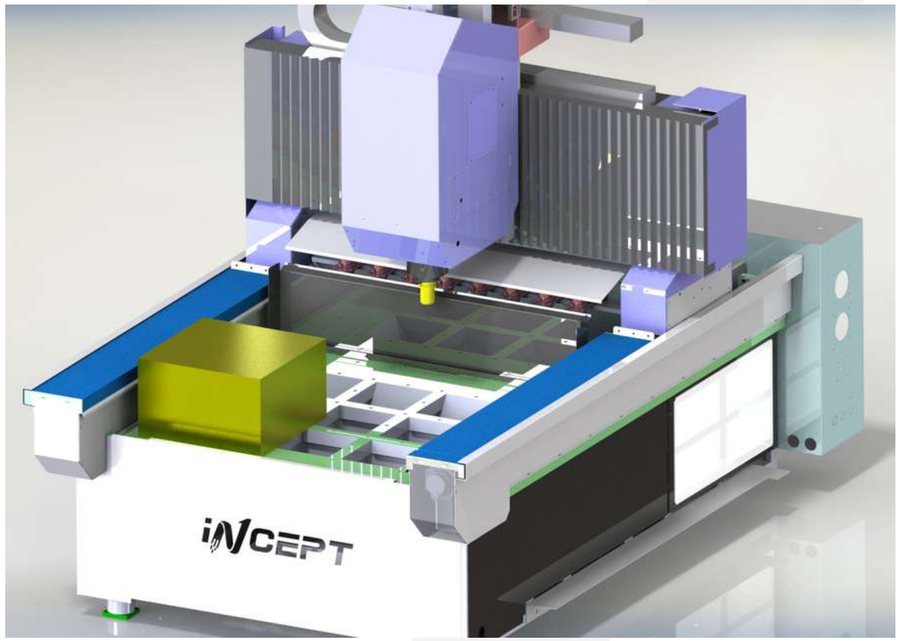
Because the Job is fully supported (and therefore no overhang as discussed in the C-frame design) and the spindle is also fully supported.
A part can be mounted anywhere on the base and have a full range of motion without any unsupported mass, achieving a harmonic-balanced signature and structural stability.

SPACIOUS BED FOR WORKPIECE MOUNTING

Double Column Machining Center typically consists of a spacious Base (Bed), two columns and a beam mounted on the columns, to hold and support the spindle head.

The extra wide bed provides ample space to mount single large part or multiple workpieces anywhere on the bed with single set up at one time.

The part can be mounted anywhere on the bed or multiple workpieces can be set up at one time. The C-frame design is not as flexible because you have limited access to the table.



NO OVERSHOOT OR UNDERSHOOT OF AXIS

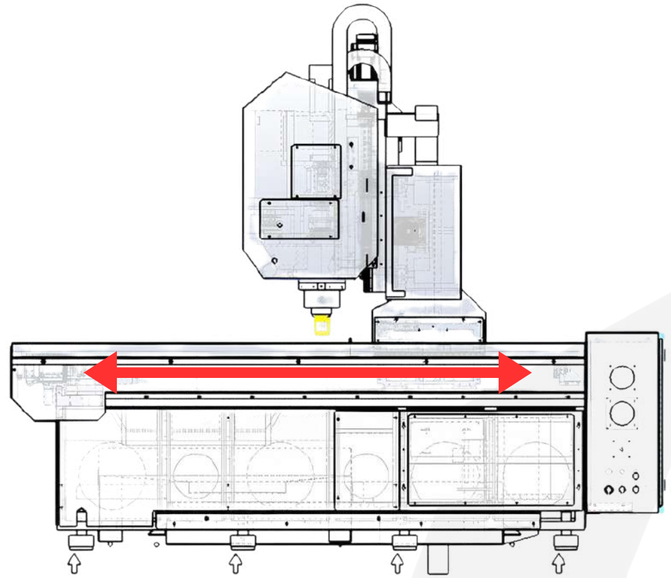
AXES ARE FREE FROM EXTERNAL OR CHANGING WEIGHT INFLUENCE

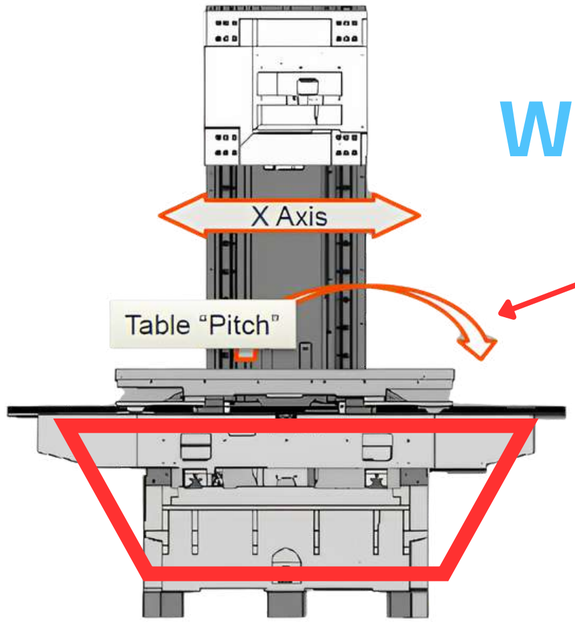
Double Column VMC machine is a mid-range vertical machining center with the following advantages:

- It can be optimized for the inertia of each axis.
- It effectively avoids the problem of overshooting of Axis when the job weight is low and
- Undershoot or slow response when the Load weight is large.

Workpiece does not move in any of the direction of X,Y or Z.
All the X,Y and Z axis are free from external or changing weight influence and condition.

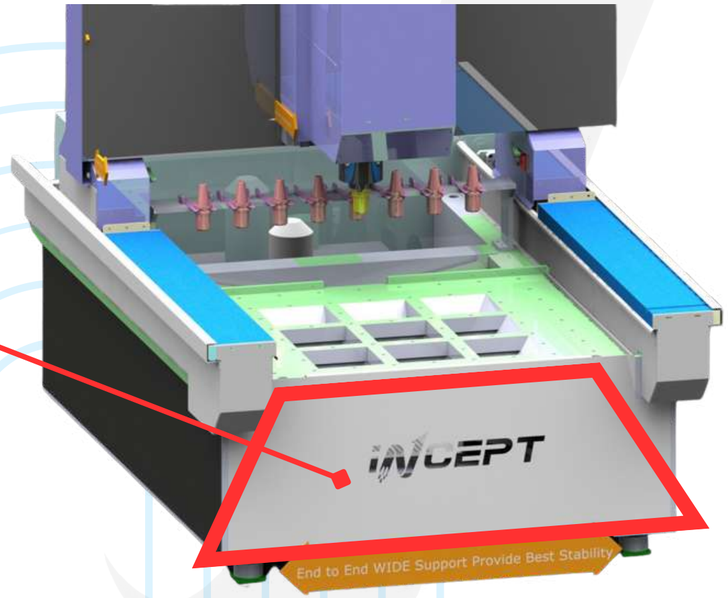
Geometry of the Z-axis is not affected by the weight inertia of the large table loads.
Thus, provide a very high stable and precise cutting.



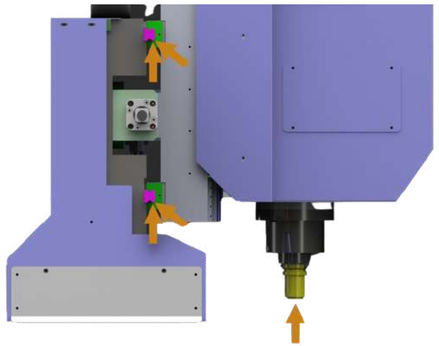


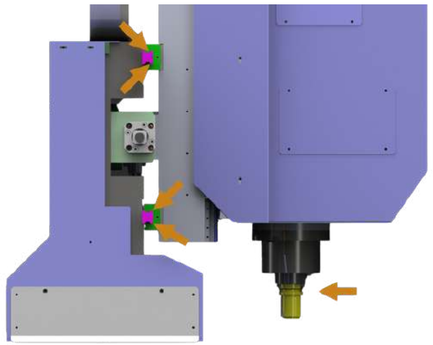
WIDER FOUNDATION OF BASE

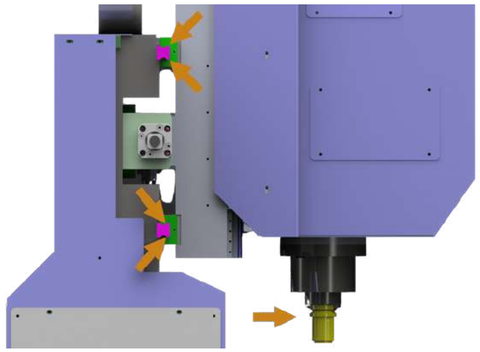
Wider placement of the foundation because of the large width of the base, also eliminates table pitch that is found on C-frame CNC machines.



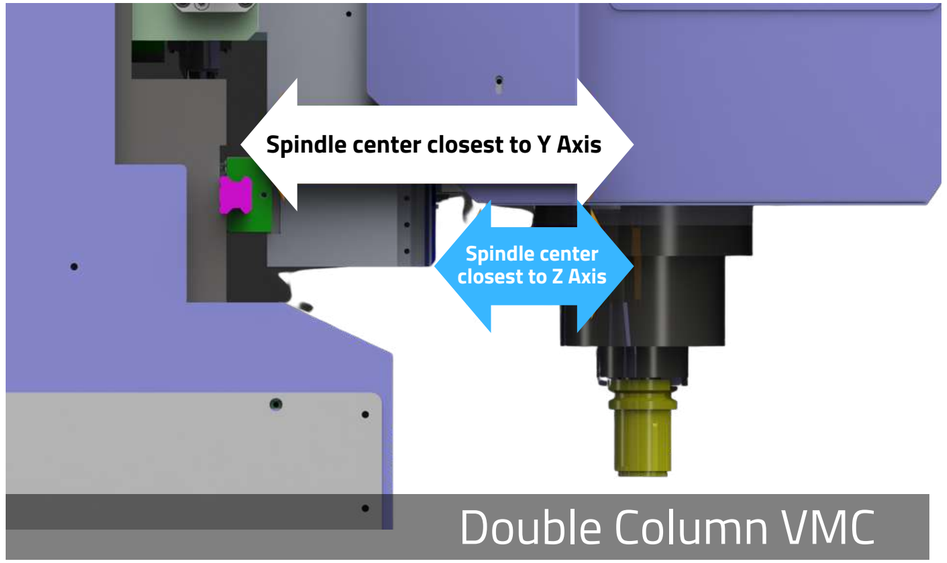
SPINDLE CLOSE TO Y AND Z AXIS







The center of the spindle, where most of the cutting force will be applied, is close to the Y-axis.
This increases rigidity and stability of the whole machine.
Tighter tolerance will be achieved while enabling the machine to operate at optimum cutting speed.



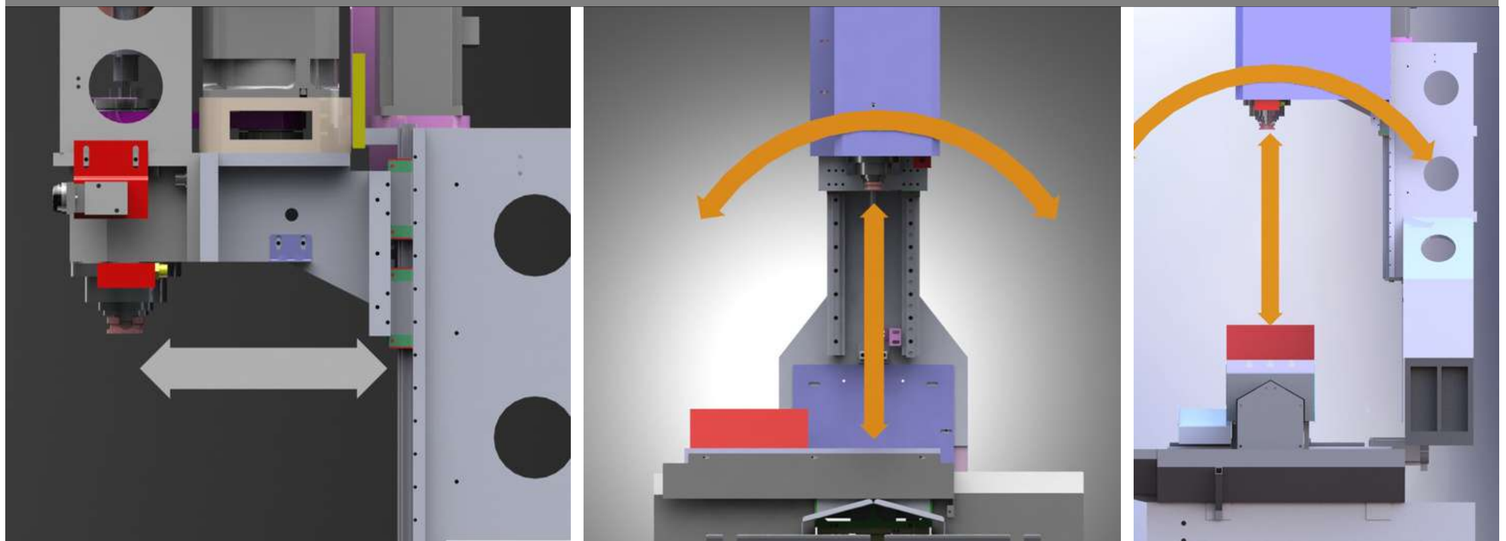
Double Column VMC

As the spindle is closer to the columns of the machine, there is very little "overhang", so the machine accuracy achieved is higher.

The rigidity and stability of the overall machine significantly reduce negative vibrations, tool deflection and therefore offers much better cutting conditions.

No Deflection of tool for heighted jobs also.
While in traditional C-frame, deflection increases with the height of the job.
So we get same accuracy at heights also.

Traditional C Frame VMC



ERGONOMICS

Due to the design of the double-column machine, the base is lower, and the machinist has easy access to the spindle since one axis is now traversing overhead.

Wide access doors and well-designed, full enclosures make part and tool loading easier from floor level.

Traditional C Frame VMC

Double Column VMC

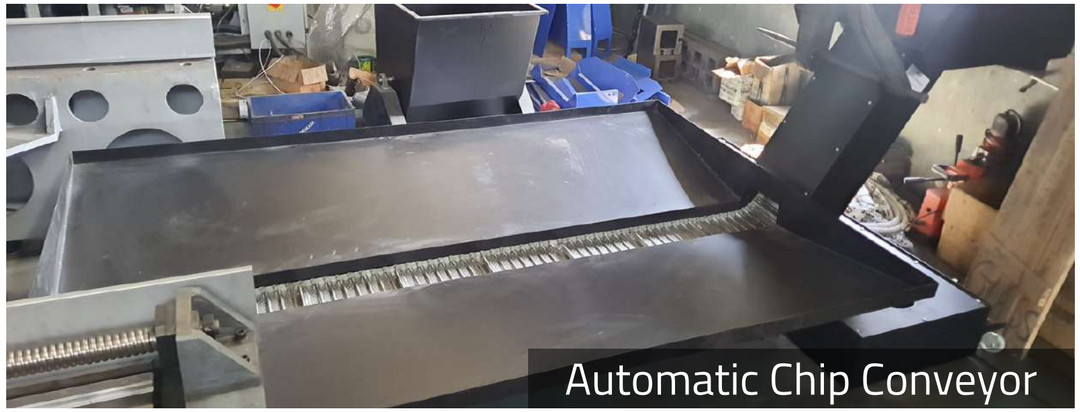
The fixed workbench makes it easier for the operator to approach the job and the spindle. The operation of loading and unloading the workpiece is easier and time saving. Thus operator fatigue is greatly removed.

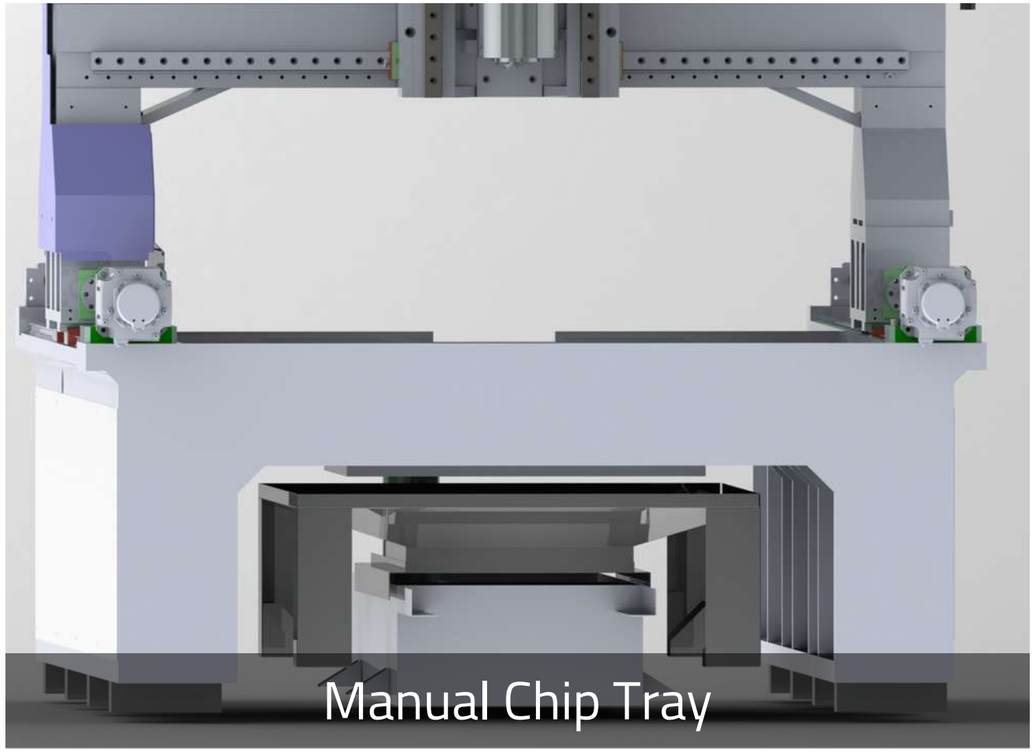
EFFIECIENT-NO EFFORT CHIP REMOVAL

MANUAL OR AUTOMATIC CHIP CONVEYOR

Rigid slant covers and chip conveyors installed at the bottom of the base ensure sufficient and effective chip removal, even during large volumes of chips being removed from the workpiece.

Virtually all chips neatly and cleanly exit the base and the work area with very little manual cleaning required.
A large C-Frame VMC is inherently not as cleanly. Manual cleaning is necessary.


Automatic Chip Conveyor


Manual Chip Tray

SAVES 40% OF FLOOR SPACE

Double Column Machining Center typically take up less floor space, which translate to savings in overall operational costs, compared to a same size C-Frame machine.

THANK YOU

Have any question?

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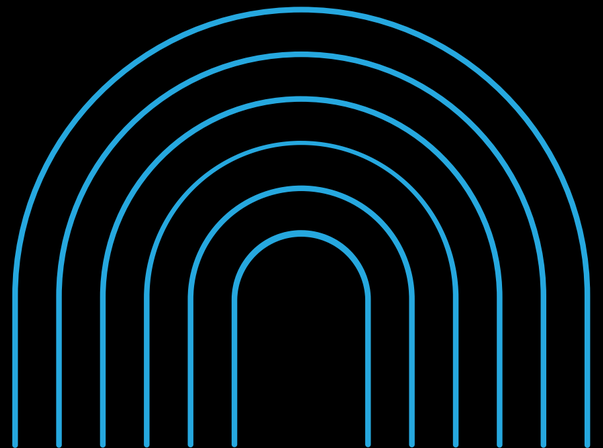

“LET’S KEEP MOVING FORWARD.”

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