

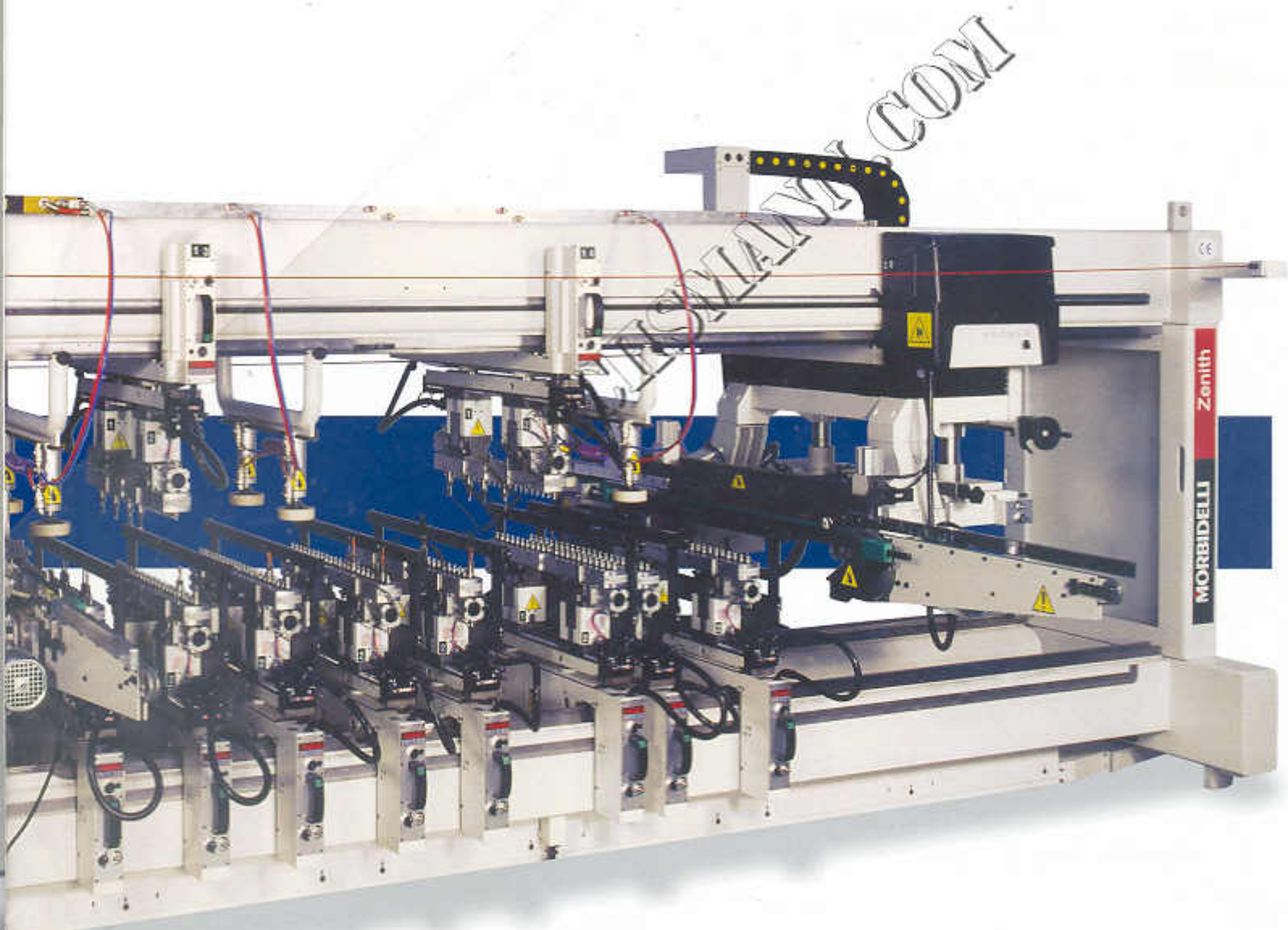
## ...Easy of use and boring precision

- **Strength and reliability** guaranteed by a steel frame with double-beam at both the top and bottom
- **High productivity**, with working cycles of up to 28 panels per minute
- **Flexibility of use never seen before**, achieved by the elimination of machine down times
- **Unequaled boring precision** achieved by the new one-piece structure of the heads and by the rigidity of the sliding supports for the machining units.
- **Absolute precision in positioning** the units by means of a reading system providing digital display of the values

- **Easy tooling up** due to ergonomic design of the devices
- **Quick and simple use** by means of the dedicated governing unit



# Zenith A



MORBIDELLI Zenith

## ...Boring precision at the service of productivity

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- **Absolute precision in positioning** the units by means of a reading system providing digital display of the values

- **Excellent boring quality** due to bits advancing along the Z axis driven by brushless motors and with electronic control.
- **Easy tooling up** due to ergonomic design of the devices
- **Quick and simple use** by means of the dedicated governing unit



# Zenith Zenith CDM



# Superior technology, productivity and reliability

The objective that Morbidelli set itself with the new **Zenith** was that of **reducing all unproductive stages to the absolute minimum**, the cause of higher production unit costs. Mere improvement of the machine tooling up procedure was not thought enough to reach this objective, it was considered indispensable to intervene in a general context too, in order to **overcome old concepts regarding line boring machines** that force the customer to carry out checks on the first panels produced.

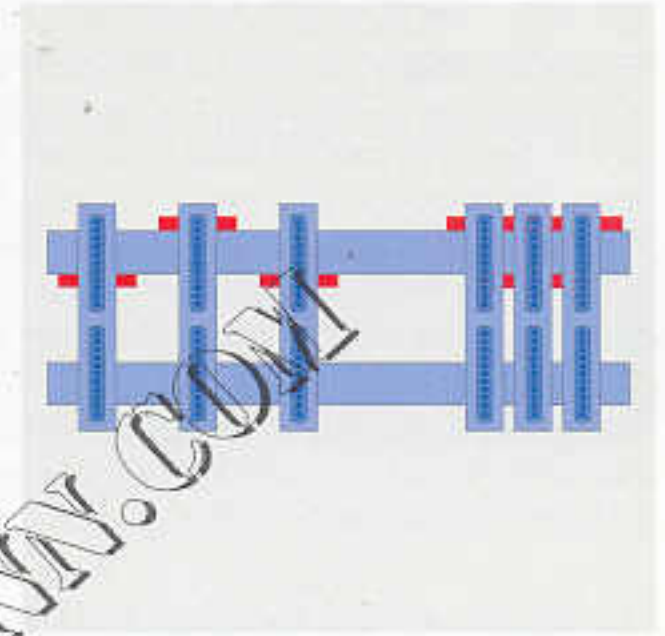
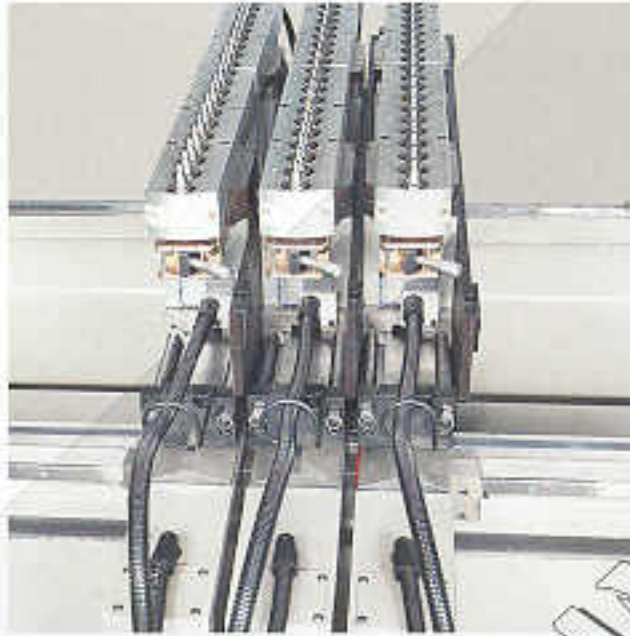
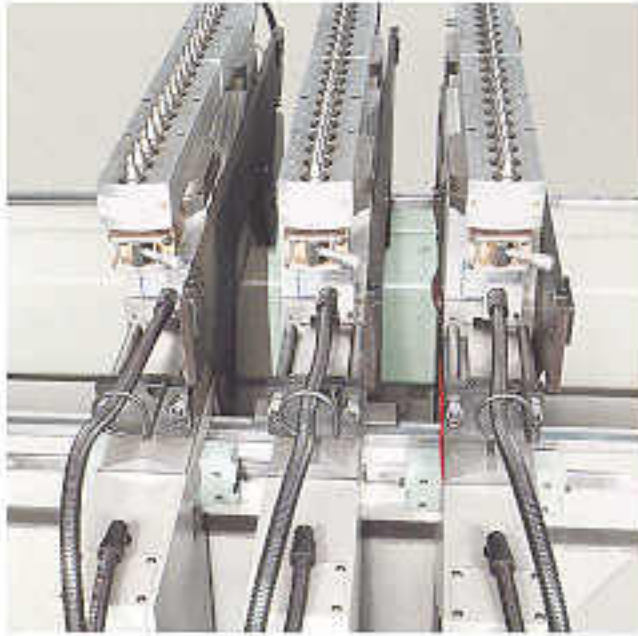
If the first step was that of **eliminating machine down times** and to aid the operator in the tooling up operation, the next step was to understand that in order for these solutions to truly translate into **economic advantages**, it was necessary to offer **unequaled boring precision**. It would in fact be a pointless exercise to cut down tooling

up time only to then lose precious minutes in checking the accuracy of the holes on the first panels and then subsequently carry out modifications to the machining unit positions. **The frame architecture, the new one-piece structure of the heads, the boring units' resistance to stress and the very precise and technologically advanced system of measurement readings** have endowed Zenith with that precision which, combined with speedy setting up operations, allows the customer to proceed with production in series with no more restrictions and to achieve **much higher productivity levels** compared to traditional systems.



# Zenith A · Zenith · Zenith CDM

## Side-by-side stacking system

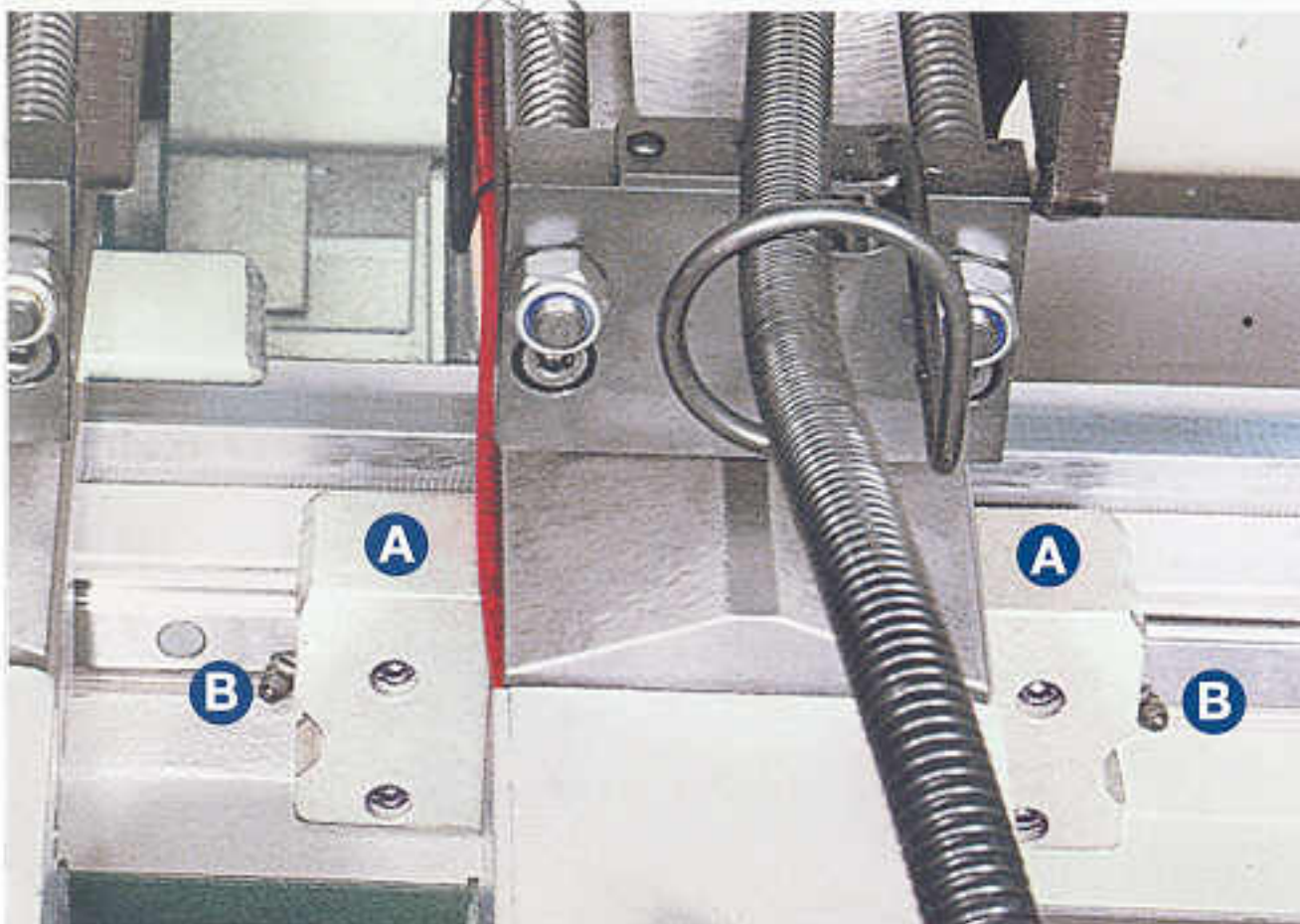


The size and construction of the pads ensure the units are **perfectly balanced**. The supports, sliding alternatively along the two THK guides fitted on either side of the beam **overlap** each other, allowing the units to be stacked side-by-side as little as 96mm apart.

This feature has allowed the support sizes to be increased to 180 mm, so that a **double pad** can be used. The advantage of this system is that a **base and sliding area** can be achieved up to three times greater than seen on traditional systems.

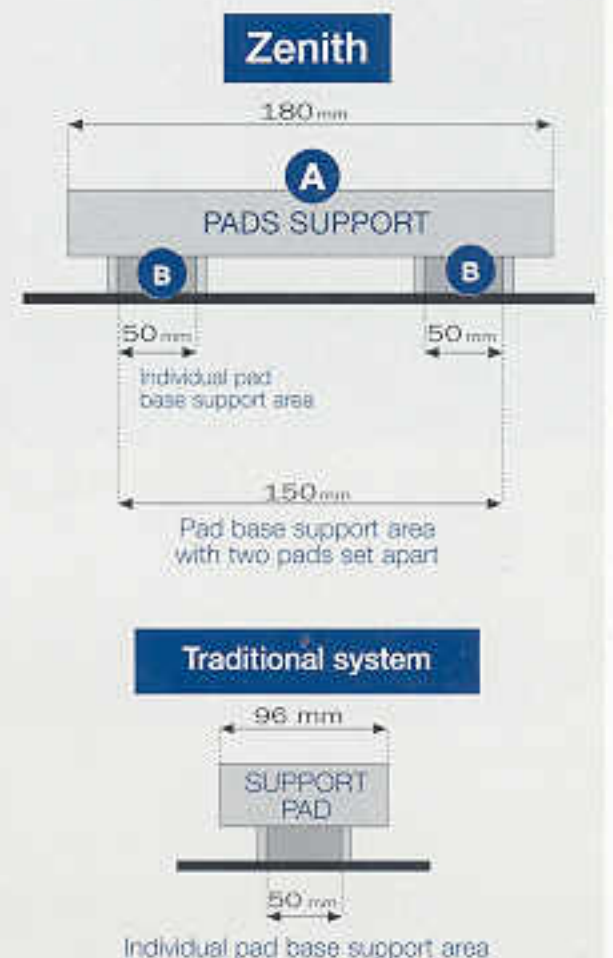
This gives Zenith more precise squareness between the X - Z and X - Y planes and absolute rigidity of the whole operating unit / frame assembly, even under conditions producing considerable stresses.

## Comparison of the system used on Zenith and a traditional system



**A** Supporto

**B** Pattini



# Incomparable boring precision

The boring units are equipped with **new heads** with a **one-piece structure**. The heads are made from a single aluminium extrusion allowing the bearing housings to be formed in a single operation and the moving parts assembled without having to dismantle the structure. The advantage of this design is **perfect alignment between spindles** and absolute perpendicularity between the spindles and the head. This has led to **up to five times more precision** compared to traditional head structures (obtained by two units operating separately which are then combined).

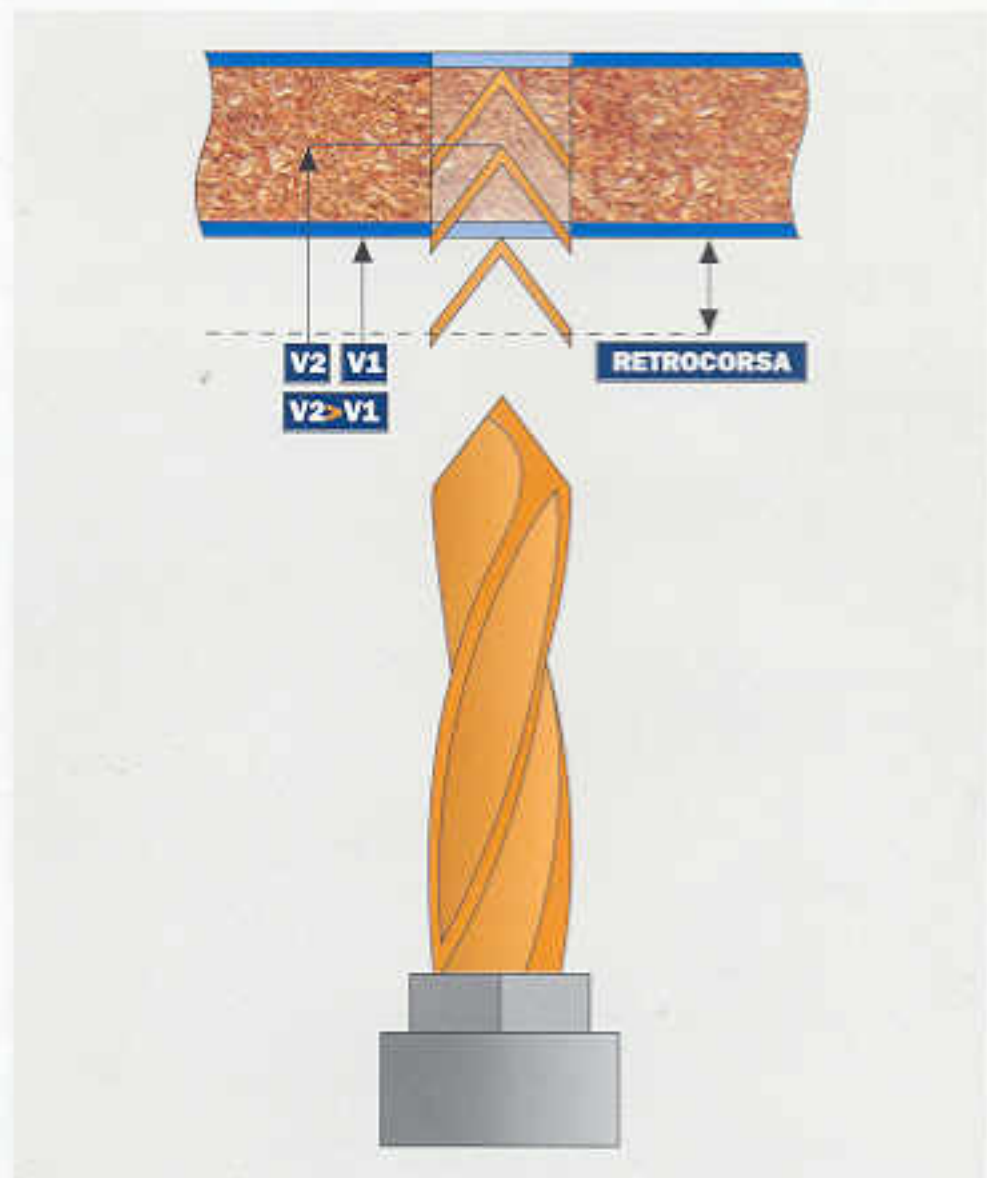
Maintenance procedures benefit from this new design too: thanks to the use of removable lateral side elements, cleaning and greasing operations are much quicker and efficient now.

The operating units are fitted with **coaxial spindle motors** and rotational movement is transmitted directly to the head, avoiding the need for any transmission mechanisms which absorb power and are subject to wear.

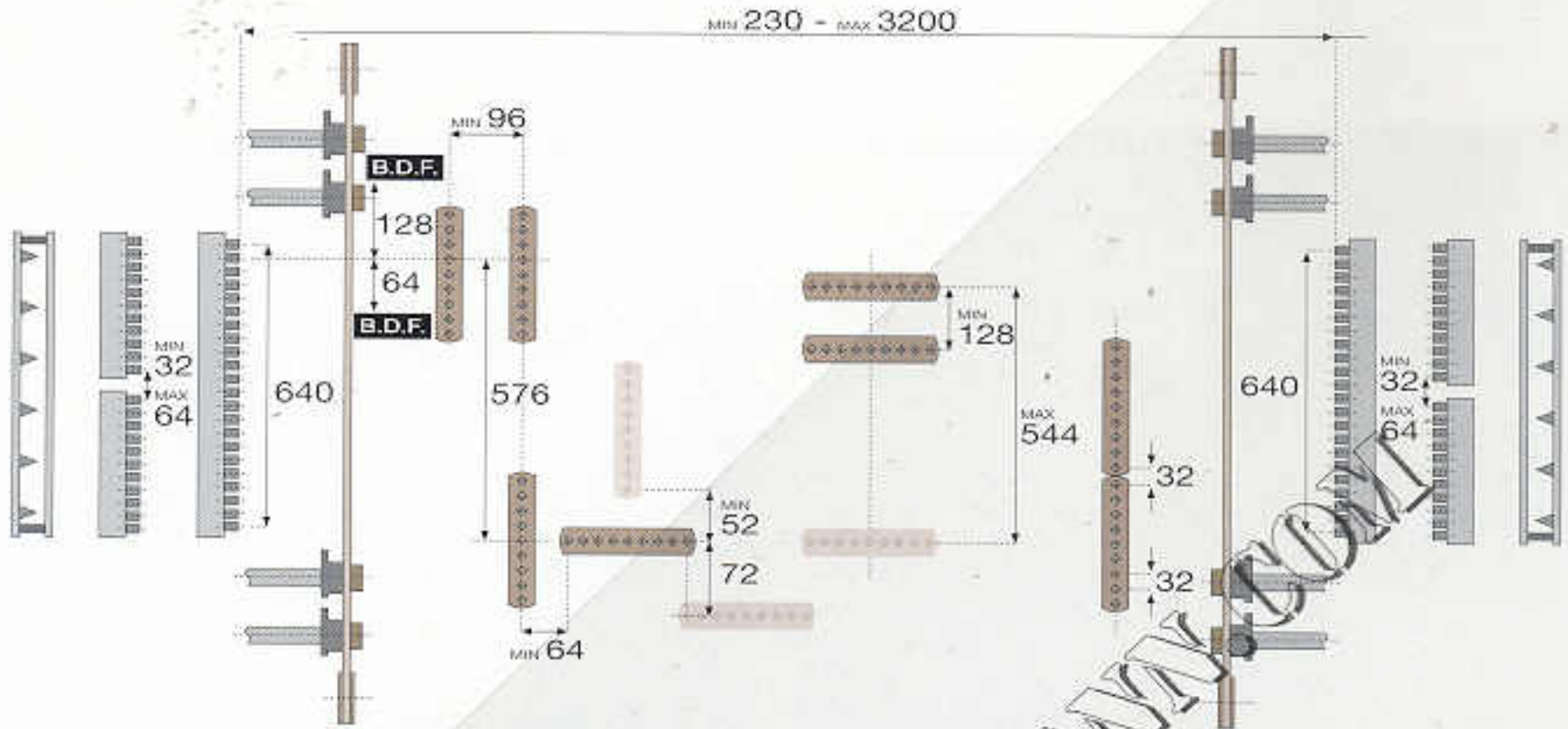
An **inverter** controls the power emitted from the motors to obtain a uniform rotational speed under any conditions.

The units' movement along the **Z axis** is **governed by the control unit**, which can be used not only to vary the spindle entry speed on the panels in relation to the cross panel and exit speeds, but also to govern the return path of the units to position the bits at the minimum distance from the panel. These features **simplify** drastically the complex control operations of the vertical stroke for through holes and offer **superior quality boring** in **quicker machining times**.

One-piece head structure



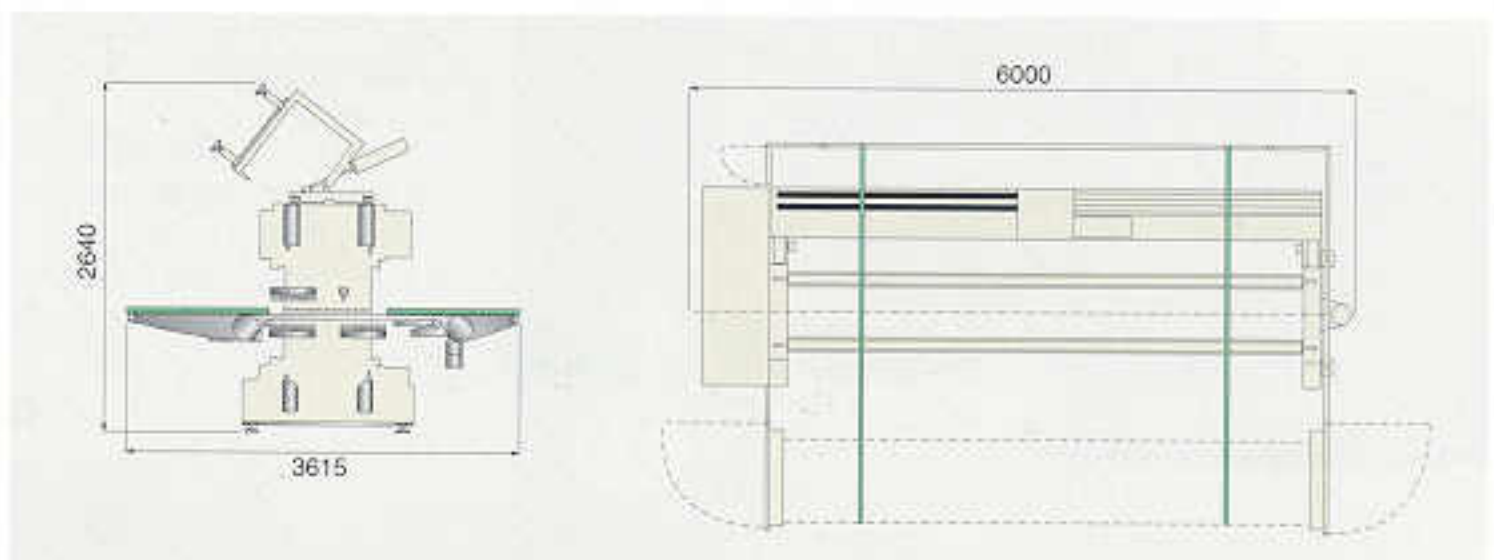
## Working area



## Technical specifications

Panel length (mm)	230/3200	Panel feed motor power (Hp)	0,35
Panel width (mm)	50/800	Panel feed speed at 50 Hz (m/min)	50
Panel thickness (mm)	10/70	Maximum feeder range from side fence (mm)	275
Z axis stroke (mm)	70	Working pressure (bar)	6-7
Height of work table (mm)	900/950(A)	Waste suction air speed (m/sec)	30
Power rating of vertical units (kW)	1,3	Z axis motor power (Hp)	0,85
Min. spacing between vertical heads (mm)	96	Max. boring speed (m/min)	6
Min. distance between parallel heads (mm)	121	Z axis return path adjustment (mm)	40
Max. distance between parallel heads (mm)	544	Boring thrust (N)	4780
Backstop range (mm)	+64/-128	Max. production capacity (panels/min)	26
No. vertical units (max.)	8+4	Weight (kg)	6000
Spindle rotational speed (rpm)	4500		

## Overall dimensions



In this catalogue, machines are shown with options. The firm reserves the right to modify technical specifications without prior notice, provided that such modifications do not affect safety as per E.C. certification.