7 x Almac CU 1005 = Almac MCT 644

Integration
The MCT 644 is a rotary transfer machine with floating pallets, designed for machining high quality workpieces. Equipped with 24 to 26 axes, it concentrates the power of the CU 1005 vertical machining centre and multiplies it by seven. The end station houses a measuring system for monitoring workpieces.

Productivity
In addition to the renowned flexibility of the CU 1005, the MCT 644 offers the same high productivity as transfer machines. Each of its 7 machining units allows individual programming, performs multiple operations and is completely automated. A winning combination: exceptional cost-effectiveness…and production performance that outstrips the sum of its parts!

High precision
The floating pallets are transferred from one unit to another by a rotary handler and precisely positioned with the help of a 3R chuck on each machining unit. In addition, the monitoring and measuring module at the end of the production line automatically corrects machining depth (Z axis).

Specialization
The outstanding machining capabilities of the MCT 644 make it an essential element in the production of highly specialized micro-technological components.

Autonomy
The MCT 644 can also be fitted with an automatic loading/unloading system, which enables continuous production.

Versatility
Based on the same versatile design as the CU 1005, the MCT 644 can be equipped with various spindle configurations. A series of supplementary modules and equipment can also be installed to increase production capacity, without additional costs for adapting or altering the initial system. This ability to grow in relation to production requirements makes the MCT 644 a valuable long-term investment.

Ergonomic
The compact format of the MCT 644 occupies very little floor space, while its ergonomic design optimises operator-machine interaction: security, operating comfort, easy access during start-up operations, tool changes, clamping frame adjustments...
Everything has been devised in a coherent, practical and intelligent way.

Seven machining units, up to 26 axes and 28 spindles

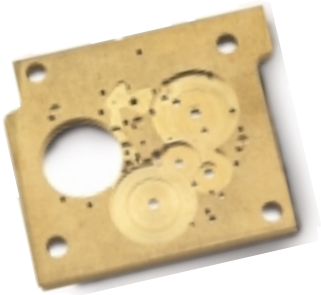
Perfectly positioned pallets

The MCT 644 offers total versatility and high productivity, and each machining unit is completely automated.
A rotary handler transfers the 3R palettes from one unit to another, while individual workholding devices on each unit ensure precise positioning to within 2 microns. During the machining process, the workpieces are held in a capstan clamping ring for absolute stability.

Rigidity and modularity, precision and capability

The CU 1005 units in the MCT 644 are equipped with X and Y slides mounted on prestressed linear rails. The vertical axis of each machining unit is formed from a solid cast iron V-guide, on which a rectangular sleeve is guided along 4 rails. Table movements are performed by means of AC brushless motors with digital closed-loop control. The X, Y and Z axes are equipped with Heidenhain optical scales, with over pressure and readout to one tenth of a micron. The seventh station, designed for monitoring and measuring, is equipped with a Renishaw dynamic sensor, which operates as an automatic correction and tool breakage detection system. The dedicated equipment and overall design of the MCT 644 ensure maximum machining capabilities.

Each machining unit can be fitted with up to four vertical spindles, while units 5 and 6 can be equipped with vertical and horizontal spindles (2+2). This gives the MCT 644 a total of 24 spindles (28 if the measuring station is replaced by an extra machining unit) and 24 axes - 26 with the loading/unloading unit. The latter is equipped with a translatory cleaning device (cleaning, suction/ extraction, blow drying).



Pallets are transferred by a rotary handler and high precision chucks. Parts are clamped in clamping frames

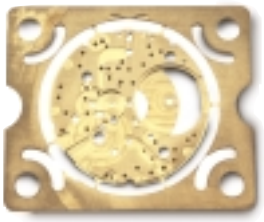
Numerical versatility and structured programming

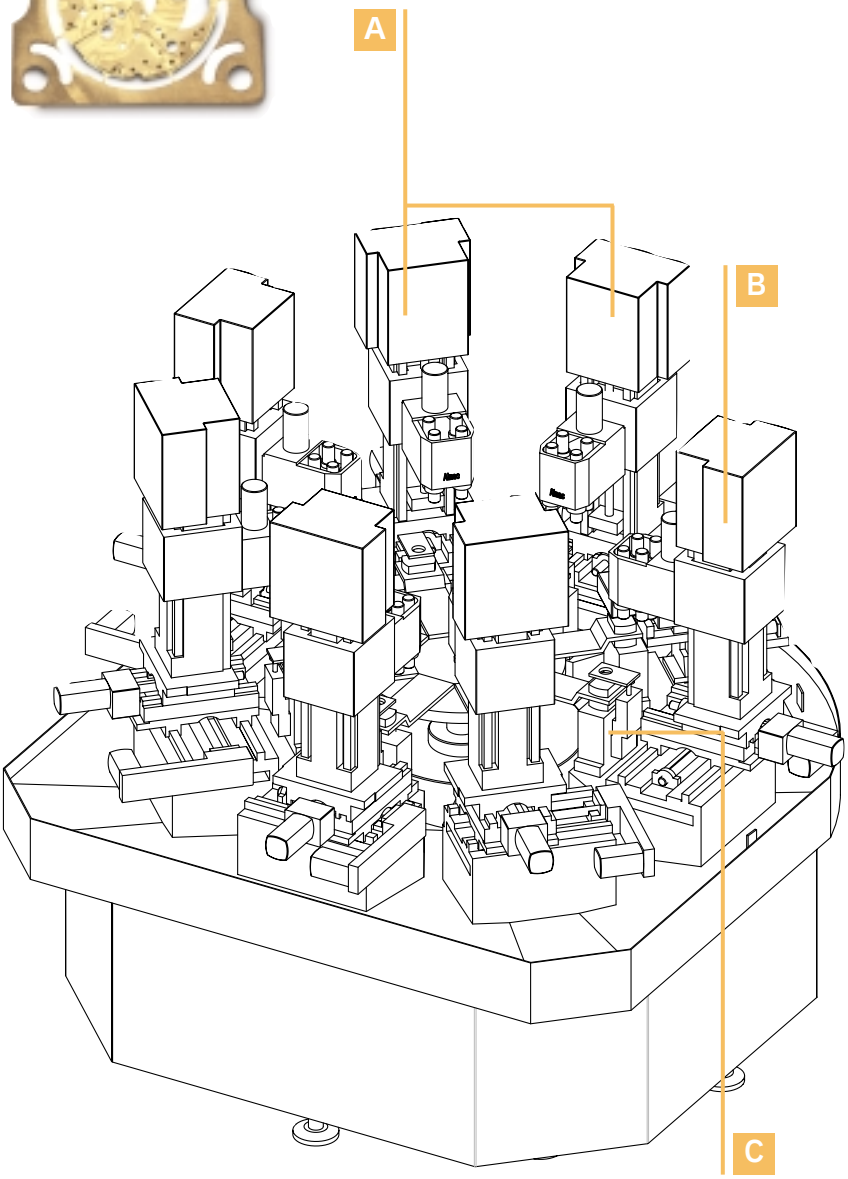
The MCT 644 is equipped with a NUM 1060 Series 1 multigroup CNC system with a high definition LCD colour monitor. Located on an articulated arm, the control panel swivels on its own axis and around the machine, keeping it continually within reach of the operator. The control panel also has CN rigid tapping on 3 units as well as high precision profile/ contour options.

MCT 644: the little extras that make all the difference

An offspring of the CU 1005, the MCT 644 offers many significant advantages:

- excellent productivity and cost-effectiveness
- ideal flexibility and modularity
- great production autonomy
- high level of specialization
- guaranteed precision
- intelligent versatility
- efficient technical assistance and customer support (programming, maintenance, etc.)
- limited floor space
- uncompromising reliability and security





A. Machining stations 5 and 6 can be fitted with vertical spindles (4), or both horizontal and vertical spindles (2+2)

B. Measuring unit (station 7)

C. Loading/unloading unit

Measuring station with Renishaw dynamic sensor

Main technical specifications

Travel	X / Y / Z		150 / 120 / 230 mm
Feed	feed rate X / Y / Z		0 to 12 000 mm/min
	fast rate		40 m/min
	resolution		0.0001 mm
Drive systems	motors		AC motor
	closed loop control		digital
	ball screw		ø 20 x 10 mm
Pallets	floating		type 3R (601-7.P)
	transfer system		by rotary cam handler
	transfer time		2 s
Standard spindle	speed		1000 to 20 000 min^{-1}
	number and configuration		stations 1 to 4: vertical (4 x)
			stations 5 and 6: vertical (4 x)
			or vertical/horizontal (2/2)
	mechanical power		0.8 / 1.9 kW
	toolholder taper		ISO 10
			biconical collet ESX 16
	max. clamping diameter		10 mm
Rigid tapping	on 3 machining stations		
Measuring unit	station 7		Renishaw sensor
			ø 0,2 mm
Coolant tank	capacity		300 l
	flow		40 l/min
	filtration		35 µm
Temperature control	power		1300 W for t 3º C
Numerical control			NUM 1060 Series 1 multigroup
			10.4" LCD colour monitor
Power supply	installed power		15 kVA
	voltage		3 x 400 V/50 Hz
	pneumatic pressure		6 bar
Weight	machine + control box		5000 kg
Dimensions	machine	L x D x H	2480 x 3300 x 2400 mm
	control box	L x D x H	2000 x 1000 x 2000 mm
	CN panel operating range		2300 mm

The Almac programme

Almac SA, established in La Chaux-de-Fonds, Switzerland, since 1987, are machine tool specialists. They design and manufacture a range of units for machining small parts and technical components requiring very high precision operations. Drawing on the human resources of the region, noted for its skilled workers, microprecision industries and a long tradition of technical expertise, Almac initially earned a name for itself in the up-market watchmaking industry. Today it is diversifying into other sectors of microtechnology, such as medical equipment, jewellery, the connector industry, aeronautics, etc. Its product range is now centred primarily around four CNC machine lines:

- rotary transfer machines
- 3 to 5-axis machining centres
- bar milling machines
- 3-axis drilling-engraving machines

CU 1005

Machining centre

The CU 1005 uses vertical machining on 3, 4 or 5 simultaneous axes to produce flawlessly finished parts. With its **modular** design, the CU 1005 is reliable, **efficient** and **versatile.**

700 Range

Bar/dial drilling machine
Circular grainer/decorating machine

High precision within easy reach: the 700 Range consists of a 4-axis horizontal bar drilling machine (PB 700) and a 3-axis dial drilling machine (PC 700). Each one is a dedicated professional for specific types of machining, offering **compact** design, user **friendliness** and **rigidity.**

FB 1005

Bar milling machine

Designed to machine round, rectangular or profiled bar stock, its versatile feed system reduces raw material waste to a minimum. The FB 1005, for horizontal machining on 3 to 6 axes, is flexible, **modular, evolutionary** and **productive.**

Represented by

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MCT 644 PRODUCTION TO THE POWER OF SEVEN

CNC rotary transfer machine