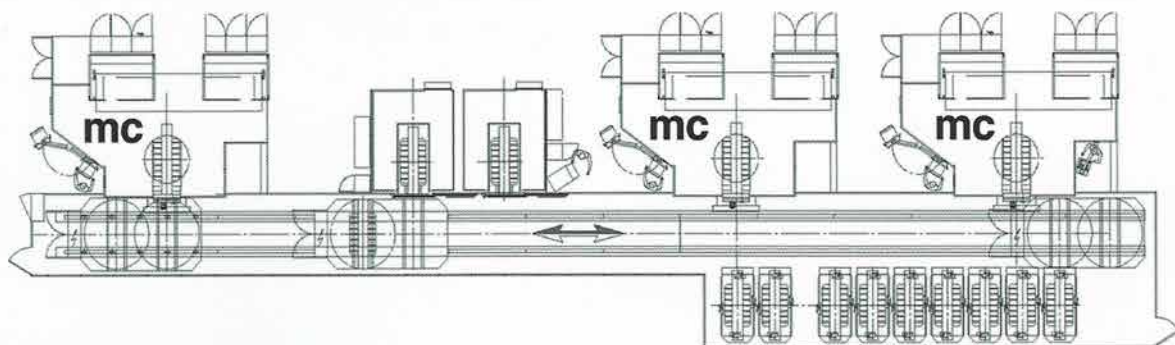


**Pallets exchangers
on vertical lathes
and machining centers**

**Automatic changing
molds on presses**



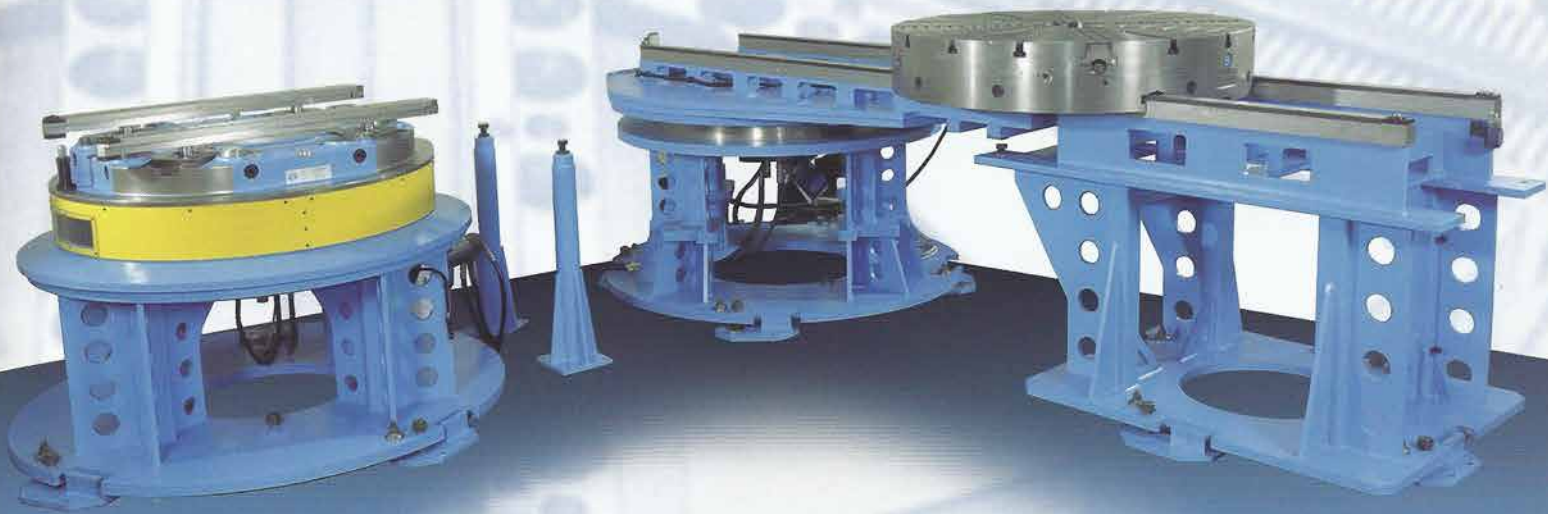


PALLETS CHANGING SYSTEM

THE ROTOMORS SOLUTIONS REDUCE “IDLE TIME” PERFORMING PALLETS CHANGING SYSTEM CONCEIVED FOR THE REAL PRODUCTIVE APPLICATIONS

THE ADVANTAGES OF CHOOSING AN AUTOMATIC PALLET EXCHANGER FOR A VTL OR MACHINING CENTER

- Idle time for part loading/unloading is eliminated
- Set-up next machining operation while the spindle is turning to improve productivity
- Possible application for “lights out” unattended operation of machines
- Most efficient handling for part loading/unloading in full safety conditions for the operator
- Dimensional controls of the parts outside the machine
- Eliminate idle work in process
- Greatly improved operator safety



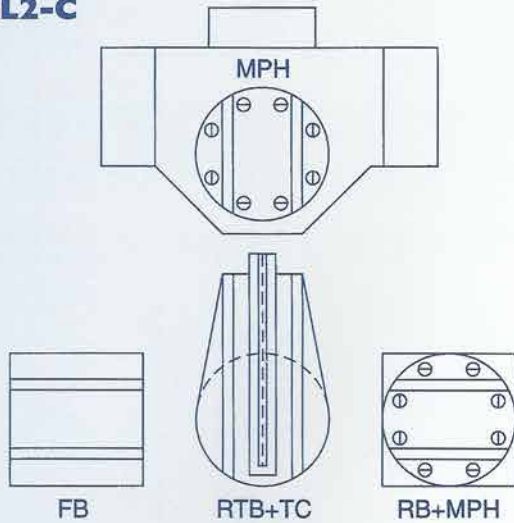
FURTHER ADVANTAGES CHOOSING ROTOMORS PATENTED PALLET CHANGING SYSTEMS

- Higher stiffness due to the coupling system between pallet and pallet carrier
- Higher accuracy reached thru a unique, adjustable and self-aligning slant rest pad system. Located at the outmost periphery of the pallet receiver, the slant rest pad surfaces offer the same advantages of very large Hirth coupling with added features.
- Able to integrate to DIN-norm existing pallets exchangers
- Available in several configurations featuring modular design concept
- Starting test and adjustment on 3D dimensional control machine by CNC
- Achievable in different size ranges from 400 up to 3000 mm - available with automatic or manual workholding including 2-3-4-5-6-12 jaw chucks.

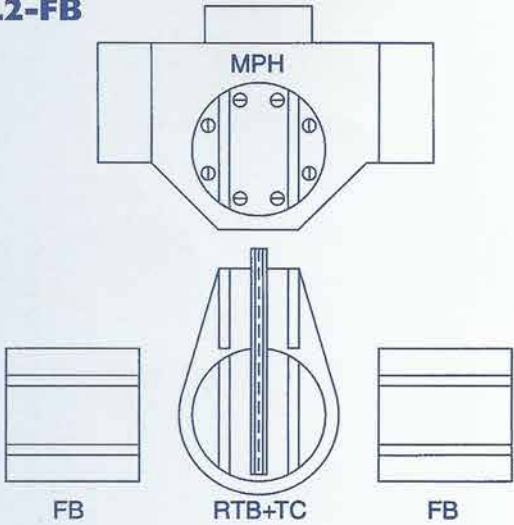
SYSTEMS

VERTICAL LATHES

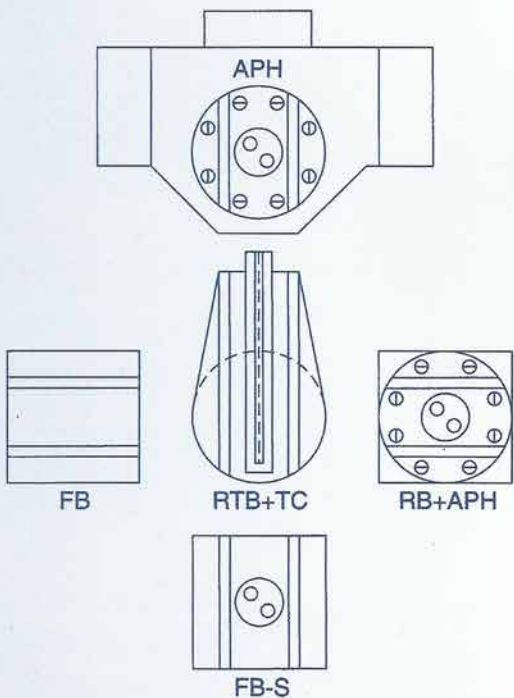
VL2-C



VL2-FB



VL3-CA



MPH

Pallet-holder for manual pallets

APH

Pallet-holder for automatic pallets

RTB+TC

Fixed transfer station

FB+TC

Fixed transfer station

RB+MPH

Rotary checking station for manual pallets

RB+APH

Rotary checking station for automatic pallets

RB+MPH (APH)+TC

Rotary checking and transfer station with slide ways support-shelf which rotates combined independently from the checking station

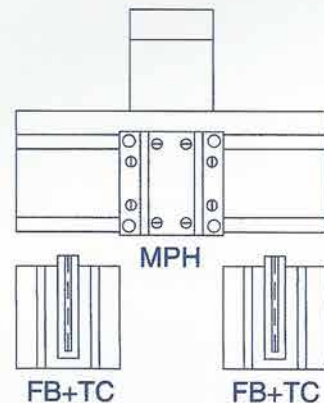
FB

Fixed parking and loading/unloading station for manual pallets

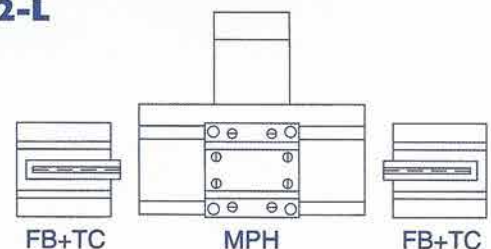
FB-S

Fixed parking and loading/unloading station for automatic pallets

MC2-F



MC2-L



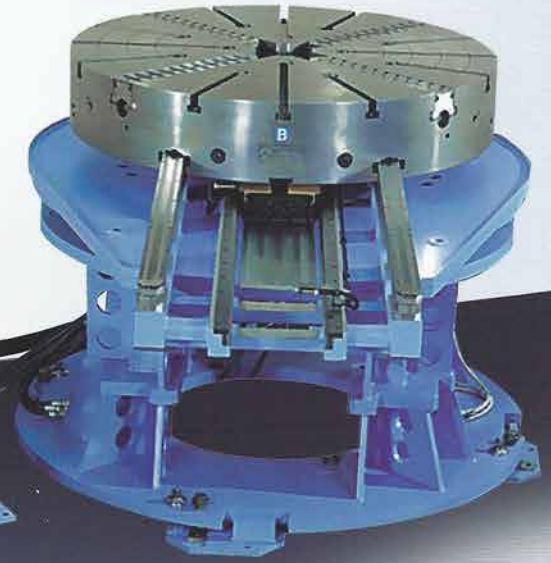
STATIONS

RTB+TC

Rotary and fixed station for the transfer of pallets with transfer mechanism "TC" with double chain hydraulically actuated with fixed hook or with automatic resetting.

Suitable for both Vertical lathe as well as Machining center applications

RTB+TC



RB+MPH



RB+MPH (APH)

Rotary checking station with pallet-holder suitable for manual or automatic pallets. The presence of the pallets-holder ensures the same conditions existing on the machine /clamping forces, concentricity and flatness accuracy).

This provides ideal conditions for accurate dimensional checks.

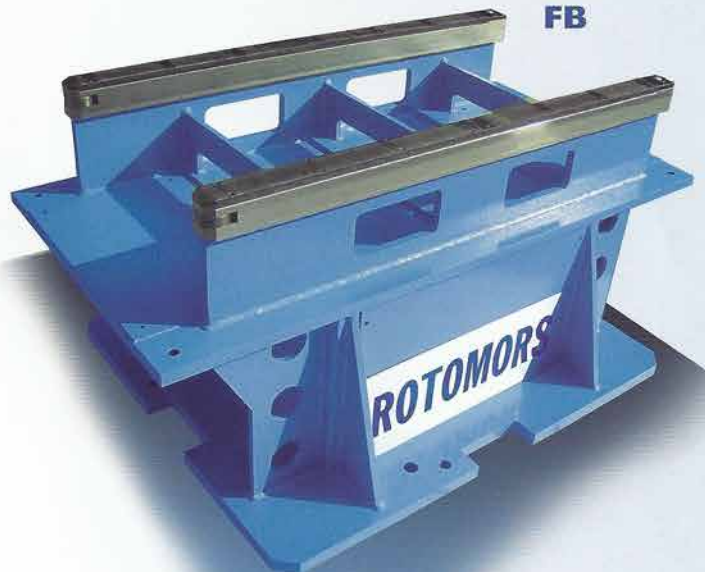
FB (FB-S)

Fixed station for pallets delivery or for loading/unloading of components, suitable for manual pallets (FB) or automatic pallets (FB-S).

The station FB-S allows the opening and closing of jaws on automatic by means of a lifting device with 2 hydraulic connectors with 2 locating pins.

The hydraulic pressure is achieved through 2 hydraulic connections on the automatic pallet.

FB



PALLET-HOLDERS

MPH



VERTICAL LATHES CARRY PALLET-HOLDERS ON THE SPINDLE OF THE MACHINE AND ON THE INSPECTION STATION

All pallet-holders are equipped with:

- 2 moving slideways for lifting, sliding and clamping of pallets; they are actuated by 4 or 6 hydraulic cylinders with clamping power of 10.300 kg. per cylinder at 60 bar
- 8 adjustable location pads at an angle and self-aligning with air blast for cleaning; the air also gives the signal that the pallet is properly located
- the internal area can accept an encoder
- inspection can be carried out from the top

APH



MPH for manual pallets.

Rotary distributor with 2 hydraulic inlets and 1 air inlet

APH for automatic pallets.

- rotary distributor with 4 or more hydraulic inlets and 1 air inlet
- 2 or more hydraulic supply inlets fully sealed for continuous feeding of hydraulic automatic pallets, equipped with incorporated hydraulic cylinder

MPH+TC

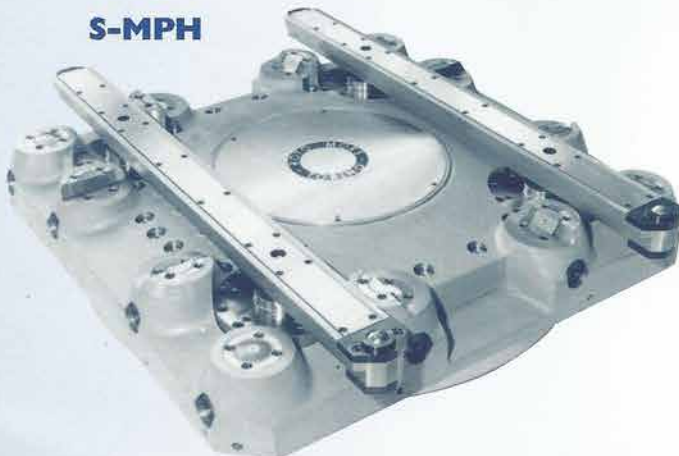


MPH+TC

- transfer double chain device TC for transferring pallets hydraulically actuated
- the travel of the pallet's hook is twice the diameter of the pallet-holder
- this version with transfer chain applies also to automatic pallet-holders type APH

MACHINING CENTERS CARRY PALLET-HOLDERS ON THE ROTARY TABLE (AXIS "C")

S-MPH



S-MPH equipped with.

- 2 moving slideways hydraulically controlled for lifting, sliding and clamping of pallets
- 8 location pads at an angle adjustable and self-aligning
- 4 location adjustable flat positioned at the 4 corners of square or rectangular pallet-holders to support the 4 angular ends of the pallets
- hydraulic distributors with 2 inlets and 1 inlet for compressed air
- the internal area can accept an Encoder, inspection can be carried out from the top

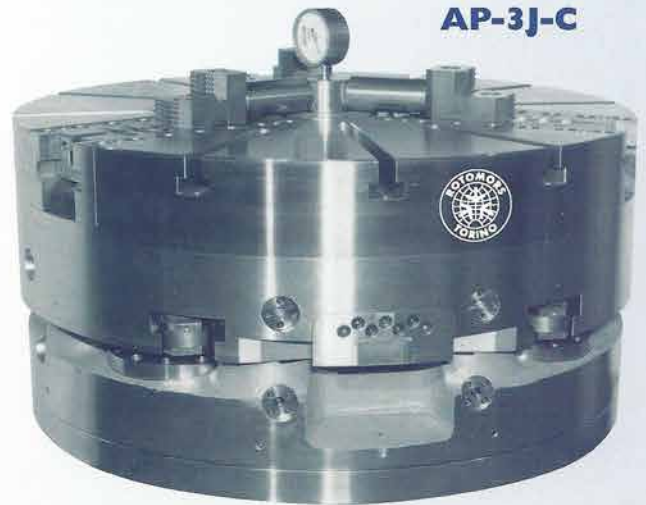
AUTOMATIC PALLETS

FOR VERTICAL LATHES

AP-3J-C

Self-centering pallet with 3 jaws:

- built-in hydraulic cylinder
- automatic radial stroke 25 mm per jaw
- manual adjustable stroke 32 mm (Combination Chuck feature)
- steel hardened and ground inserted slideways
- 2 hydraulic connectors with automatic check valves
- clamping force for each jaw 12000 kg t 60 bar

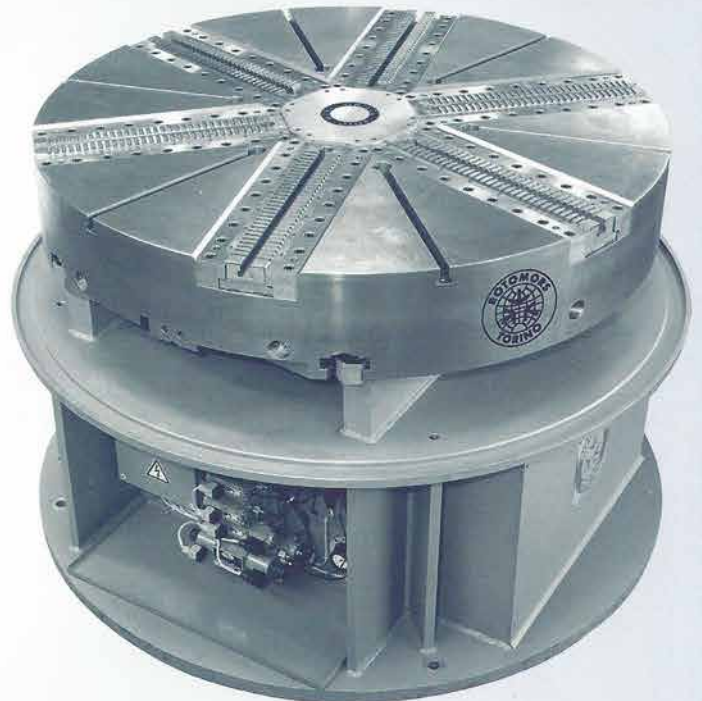


AP-3J-C

AP-6J-C/2+2+2

Automatic self-centering pallet with 6 jaws which are connected 2+2+2 by means of a swivelling link which ensures that all the clamping forces run through the center of the pallet:

- built-in hydraulic cylinder
- guides protected through automatic, forced lubrication system
- automatic locking of the swivelling links (lock's out compensation feature)
- centrifugal counterweight applied to the master jaws
- 3 hydraulic connectors with automatic check valves



AP-6J-C/2+2+2

AP-3J-F/6C

Automatic self-compensating pallet with 3 floating jaws:

- built-in hydraulic cylinder
- radial clamping with 6 self-centering jaws
- 2 hydraulic connectors with automatic check valves



AP-3J-F/6C

MANUAL PALLETS

FOR VERTICAL LATHES

MP-3J-C

Self centering pallet with 3 jaws manually actuated:

- radial stroke 50 mm
- adjustment stroke 20 mm per jaw

MP-4J-I

Pallet with 4 independent jaws manually actuated

- radial stroke 50 mm

MP

Plain pallet table with "T" slots and cross tenons (for use with fixtures or boring mill jaws)

MP-3J-C



MP-GR4

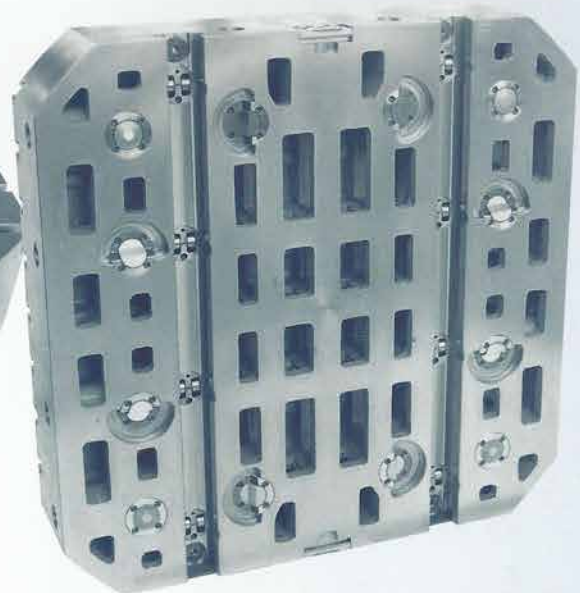


FOR MACHINING CENTERS

S-MP

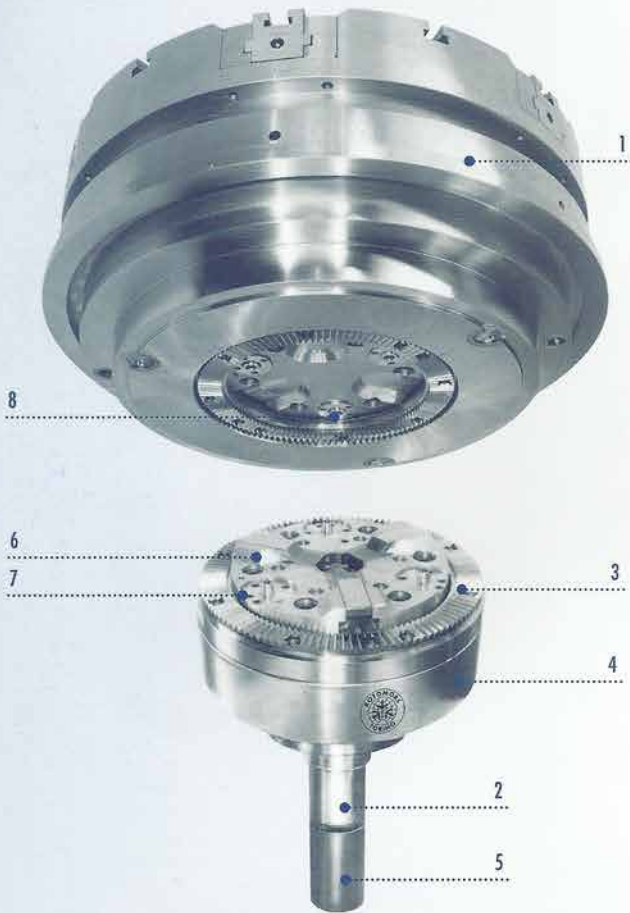
Square rectangular or round pallets with down clamping area parallel "T" slots and axial centering as per ISO standards

S-MP



AUTOMATIC PALLETS CHANGE SYSTEM BY 180°

PO



ROTOMORS PALLET CHANGE SYSTEM FOR VERTICAL LATHES WITH 2 OR MORE POSITIONS SUITABLE FOR PALLETS FROM 500 UP TO 1800 MM DIAMETER

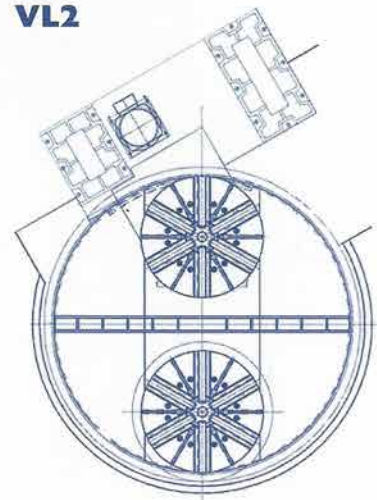
The pallet-holder table of the lathe lifts and rotates by 180 degrees delivering the pallets on 2 or 4 clamping stations which are located on the spindle of the machine and on the external loading/unloading station.

The accuracy of the angular positioning is 0.01 mm and is achieved by means of Hirth coupling fixed to the pallet, to the machine spindle and to the external station.

- 1 - automatic pallet with 6-jaw, self centering chuck with unique features. Adjacent jaws are linked 2 by 2 to allow for centering of out-of-round parts. Optionally, the links can be locked out. Also, includes anti-centrifugal counterweights for lower part distortion.
- 2 - pallet clamping fixture with rotary distributor
- 3 - Hirth coupling fixed to the machine spindle and to the pallet
- 4 - machine spindle
- 5 - rotary distributor with 6 oil ways and 1 drain
- 6 - hydraulic self-compensating pallet clamping devices
- 7 - hydraulic automatic connections feeding the pallet
- 8 - hydraulic connector at the chuck with check valve

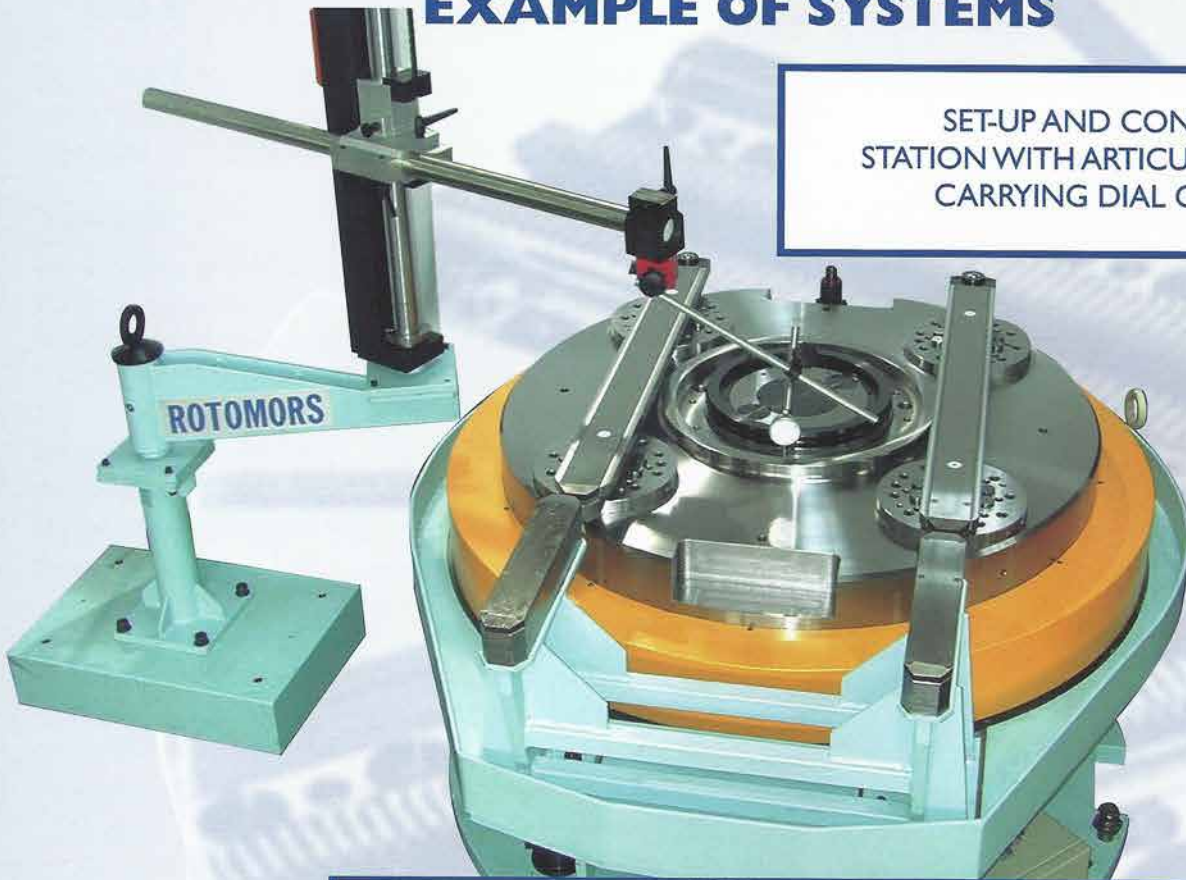


VL2



EXAMPLE OF SYSTEMS

SET-UP AND CONTROL
STATION WITH ARTICULATED ARM
CARRYING DIAL GAUGE



AUTOMATIC PALLET CHANGING SYSTEMS
WITH 2+2 BASE JAWS,
BUILT-IN HYDRAULIC CYLINDERS AND
ROTARY TRANSFER STATION WITH 2 PLANCES

EXAMPLE OF SYSTEMS



PALLETS
EXCHANGER
WITH 3 PALLETS

PALLETS
EXCHANGER
WITH PALLET
TRANSFERRED
BY CRANE



EXAMPLE OF SYSTEMS

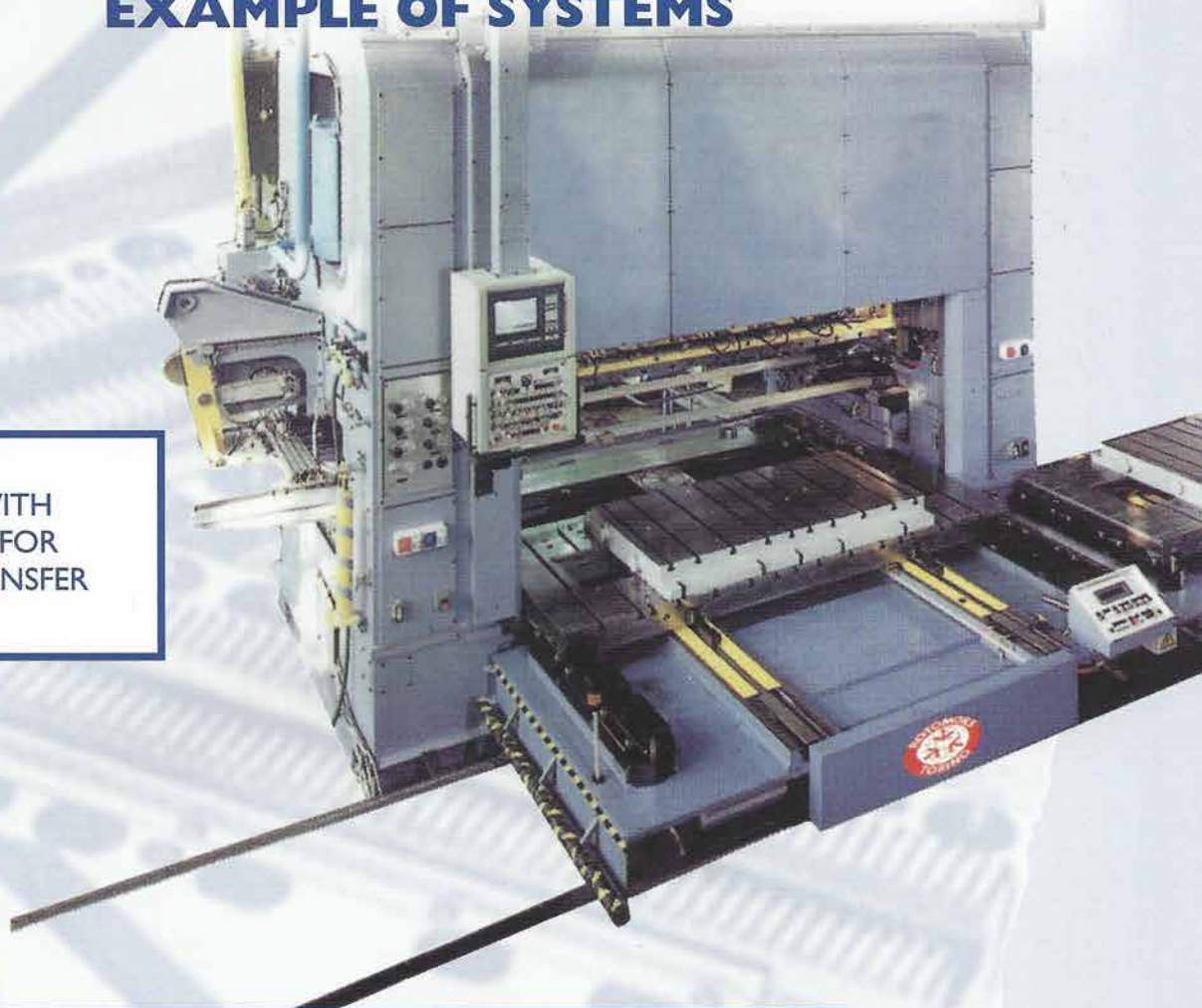
PALLETS EXCHANGER
WITH 3 PALLETS
WITH DISTRIBUTING
DEVICE BY
3 POSITIONS AT 120°



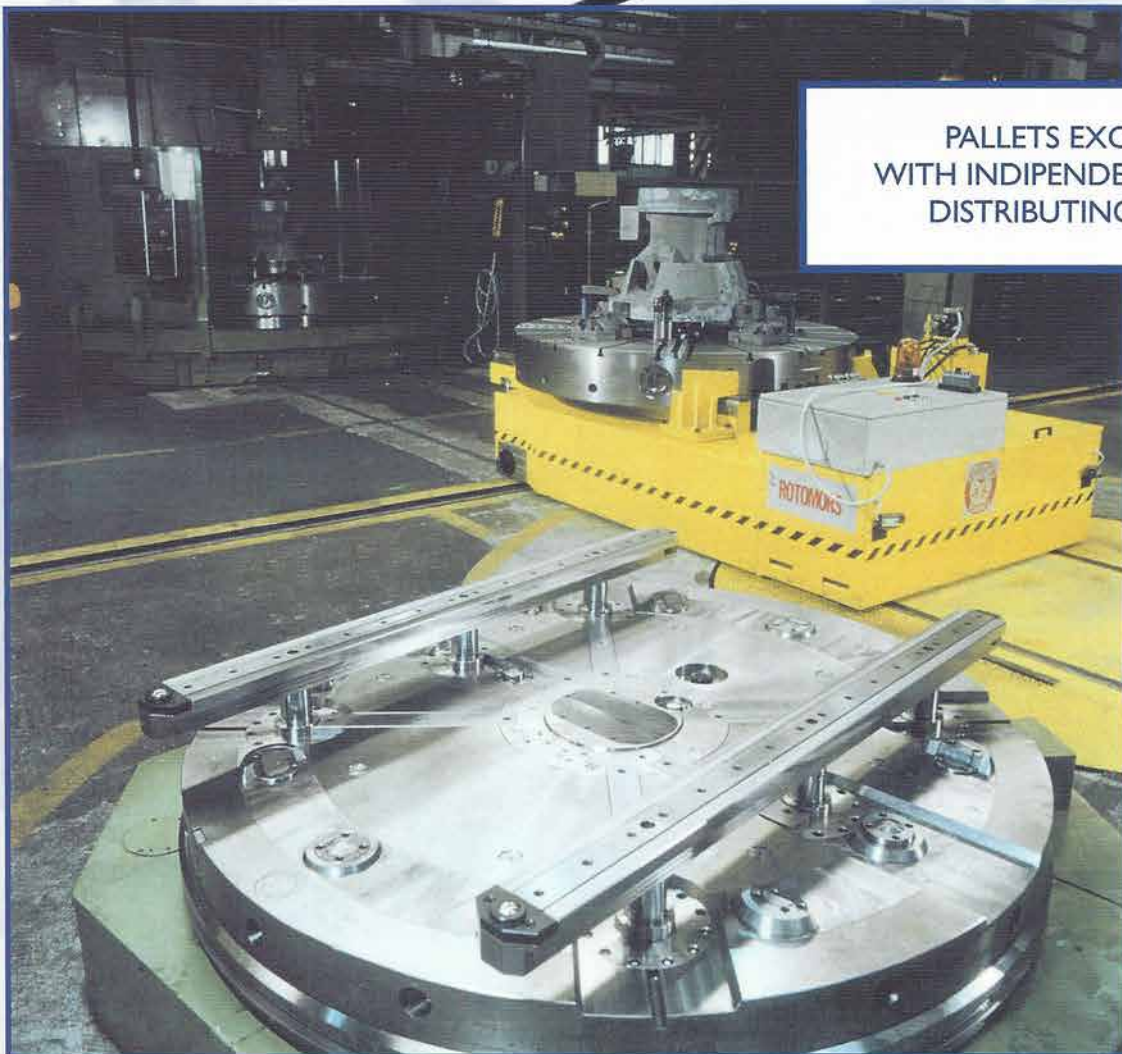
PALLETS EXCHANGER
BY 2 POSITIONS
WITH DISTRIBUTING DEVICE
AT 180° WITH BUILT-IN
MAGNETIC SURFACES

EXAMPLE OF SYSTEMS

SHUTTLE WITH
2 WAGONS FOR
PRESS DIE TRANSFER



PALLETS EXCHANGER
WITH INDEPENDENT POWERED
DISTRIBUTING SHUTTLE



EXAMPLE OF SYSTEMS

AUTOMATION SYSTEM
FOR TOOL CHANGE & TOOL
HOLDER ON PRESSES



AUTOMATION SYSTEM
FOR TOOL CHANGE & TOOL
HOLDER ON PRESSES



PALLETS
EXCHANGER WITH
DISTRIBUTING
DEVICE FOR
ROTARY STATION
BY 2 PLACES

