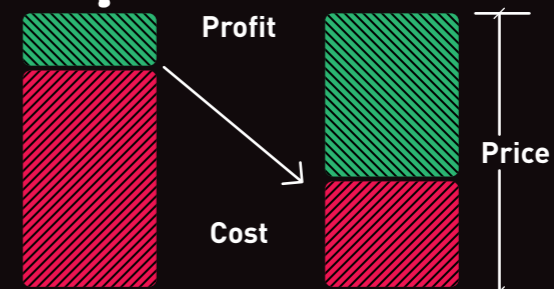


PORTACENTER

1 PROCESS, 3 TIMES FASTER

1 PROCESS, 3 TIMES FASTER

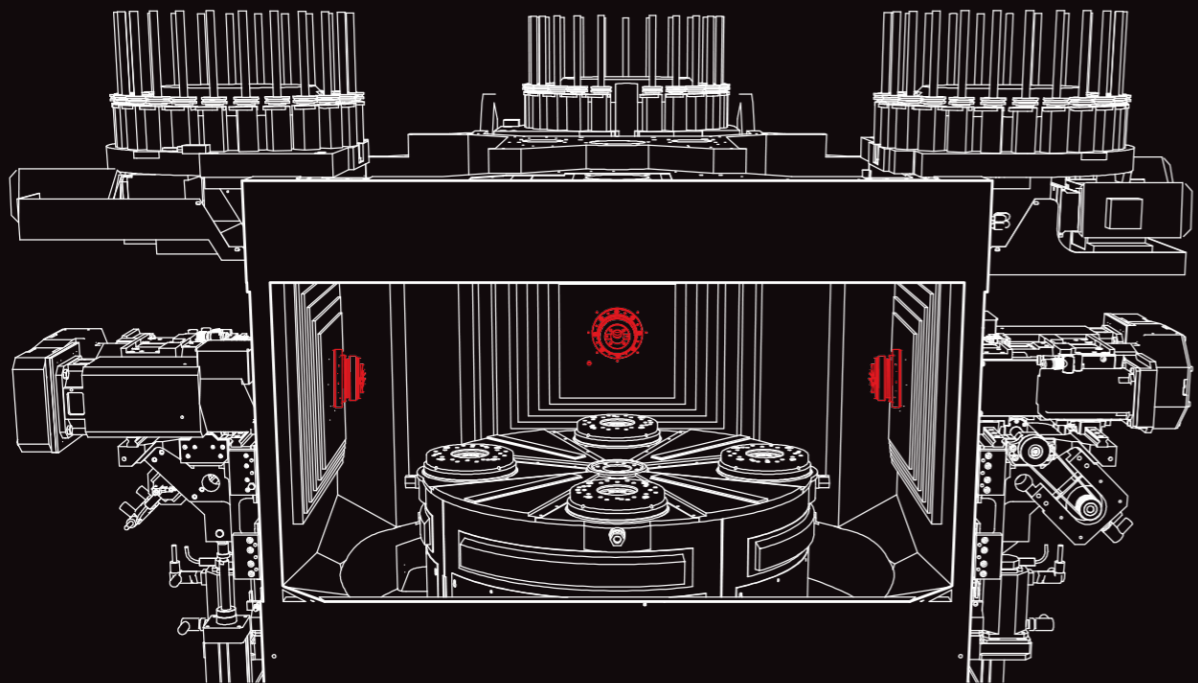
 **PORTA**
PRODUCTION METHOD



3 Machining Centers



PORTACENTER



PORTACENTER

- > 4 station pallet table (3 machining stations, 1 load/unload station)
- > Nr. 3 horizontal machining modules with XYZ movement

Machine suitable for processing complex parts in nonferrous, ferrous, and exotic materials.

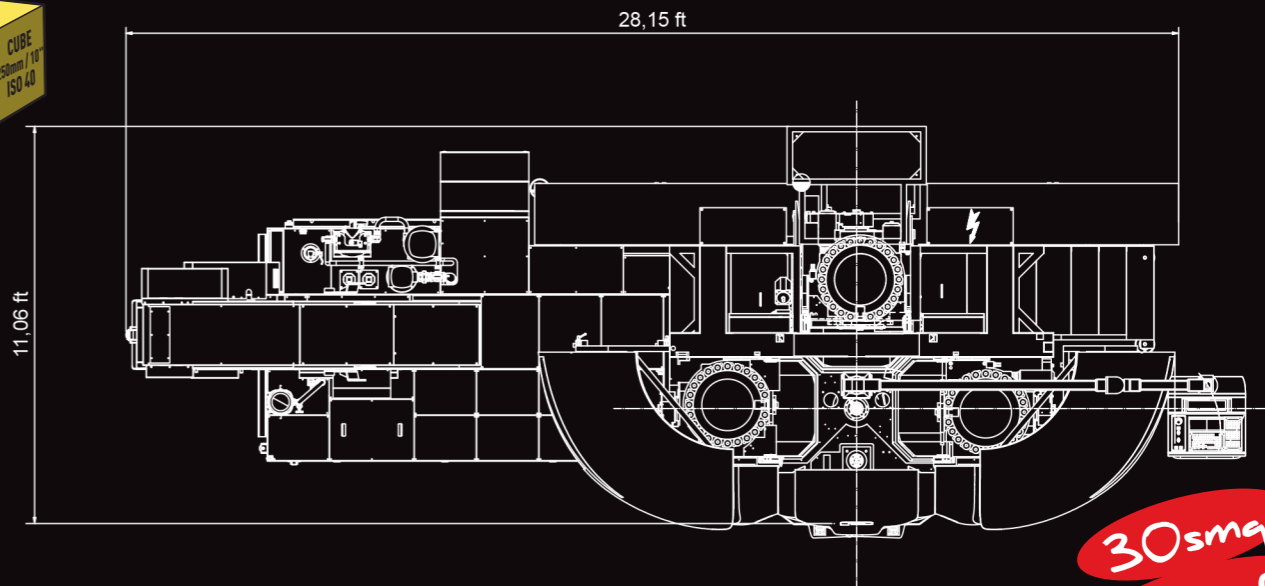
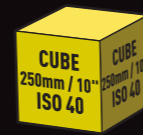
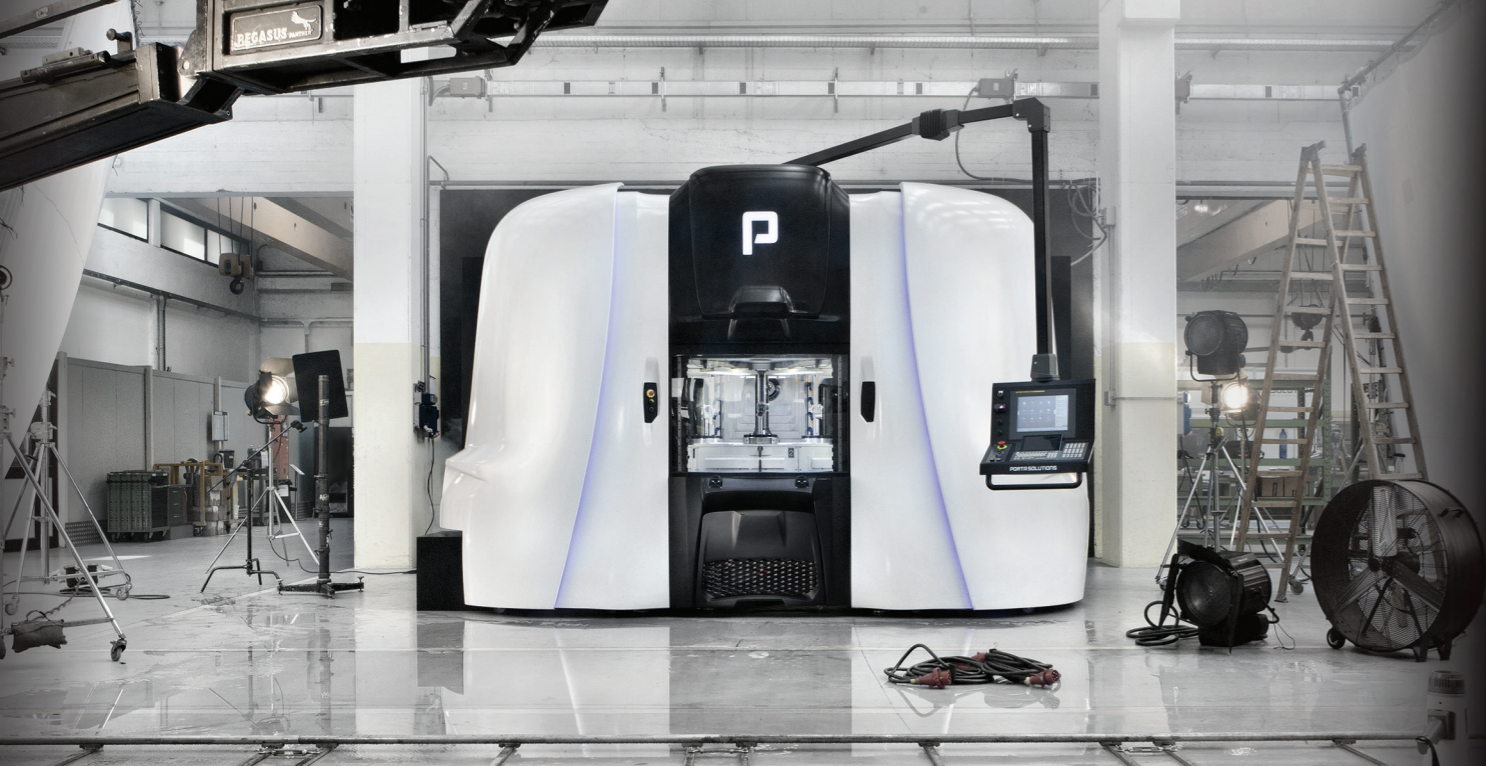
It is possible to carry out machining in interpolation on multiple axes (4+1 axis machining capable), and by operating on a single part or with multiple parts clamped.

Visit our web site www.porta-solutions.com

In the PORTACENTER section it is possible to view a video showing the machine functioning.

LOWER YOUR PART COST THANKS TO:

- ↑ INCREASED PRODUCTIVITY COMPARED TO 3 MACHINING CENTERS
- ↔ DECREASE TO JUST 1/3 OF THE OCCUPIED FLOORSPACE
- ↗ CPK IMPROVEMENT, ONLY 1 PROCESS INSTEAD OF 3 PROCESSES
- ↓ DRASTIC REDUCTION OF LABOR/ROBOTS/MATERIAL HANDLING
- ✂ CUT 50% OF YOUR ENERGY CONSUMPTION
- 📦 SIGNIFICANT FIXTURE COST SAVINGS
- 🕒 PART CHANGEOVER TIME MINIMIZED (ONLY 15 MINUTES)



PORTACENTER 250 - CUBE 250mm / 10" ISO 40

TOOL CHANGE	Metric	Imperial
tools	from 36 to 120	from 36 to 120
max tool weight	8 kg	17,63 lbs
max tool length	250 mm	9,84 in
max tool diameter	80 mm	3,15 in
max tool diameter with free position	120 mm	4,72 in
tool change	1,4 sec	1,4 sec
tool holder	option HSK63	option HSK63

CONTROL	
human machine interface	touch-screen with full keyboard
teleservice	included
programming language	ISO code
CNC	Fanuc / Siemens

AXES X,Y and Z	Metric	Imperial
axes stroke	250/310/200 mm	9,84/12,2/7,88 in
speed	30/30/30 m/min	98,4/98,4/98,4 ft/min
acceleration	6,5/5,5/6,5 m/s ²	21,3/18,1/21,3 ft/s ²
4th axis	continuous	
positioning system	encoder / digital scale	

TOOL HOLDER SPINDLES

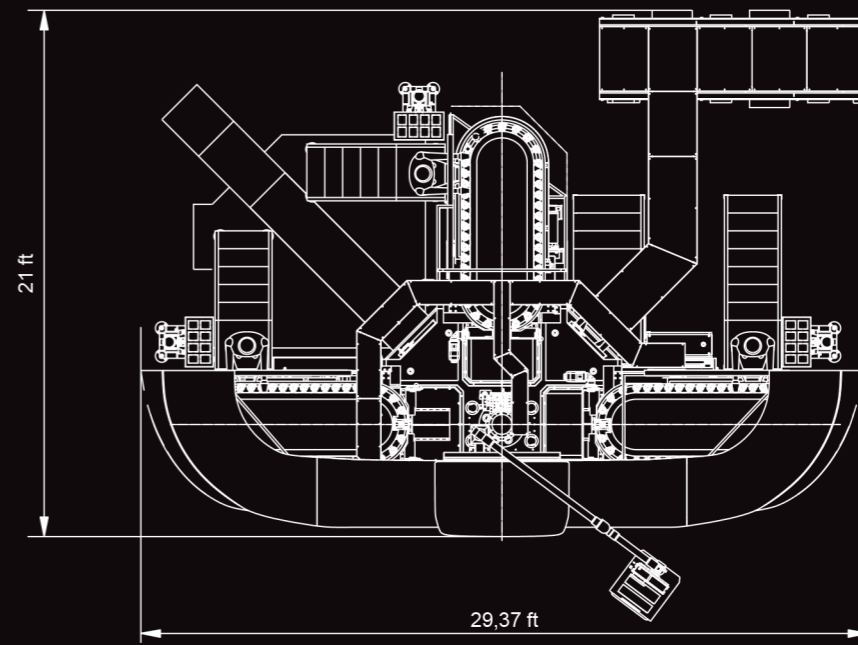
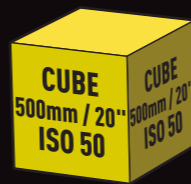
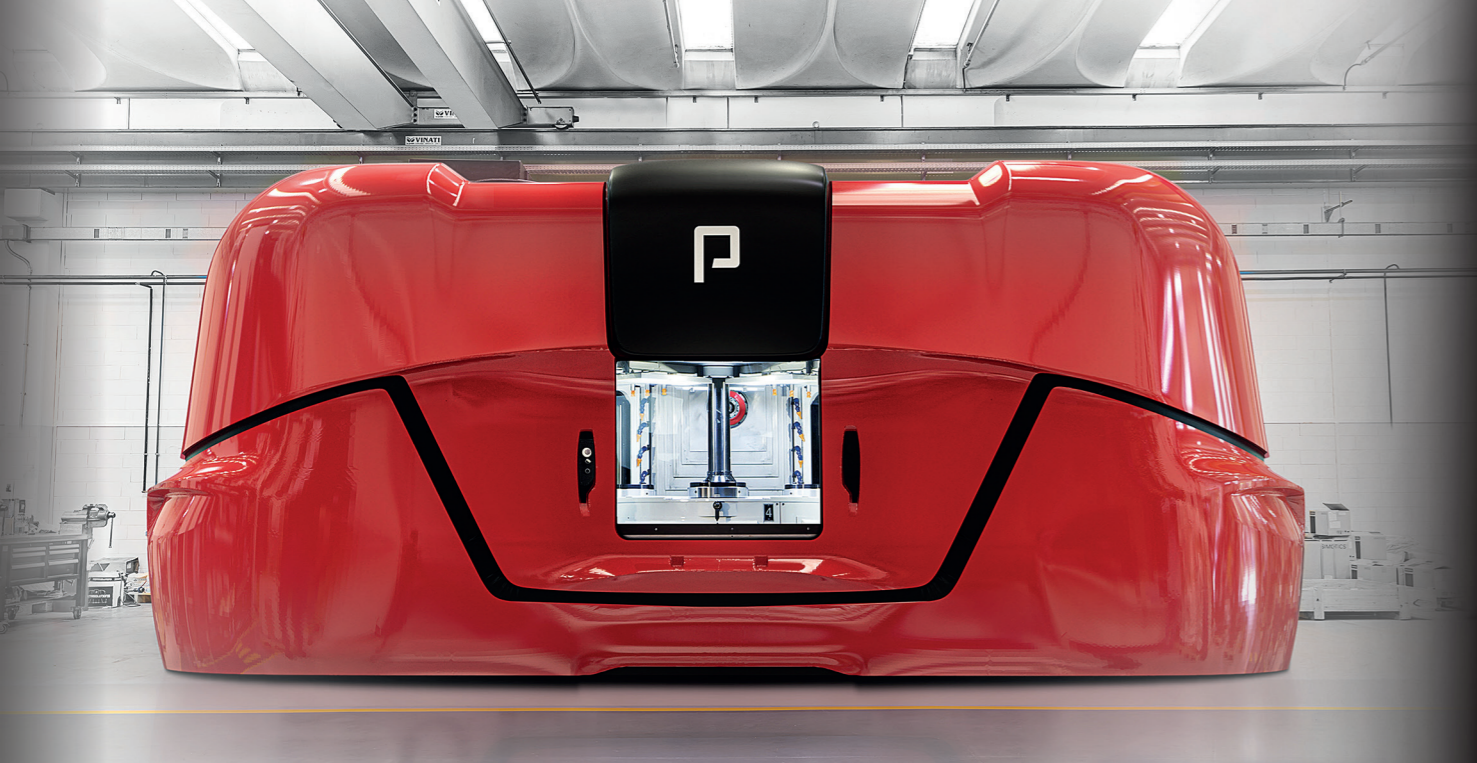
tool holder	ISO40 / HSK63
spindle speed	6000 / 13000 rpm
max power	up to 25 kw
max torque	150 Nm

SECTORS

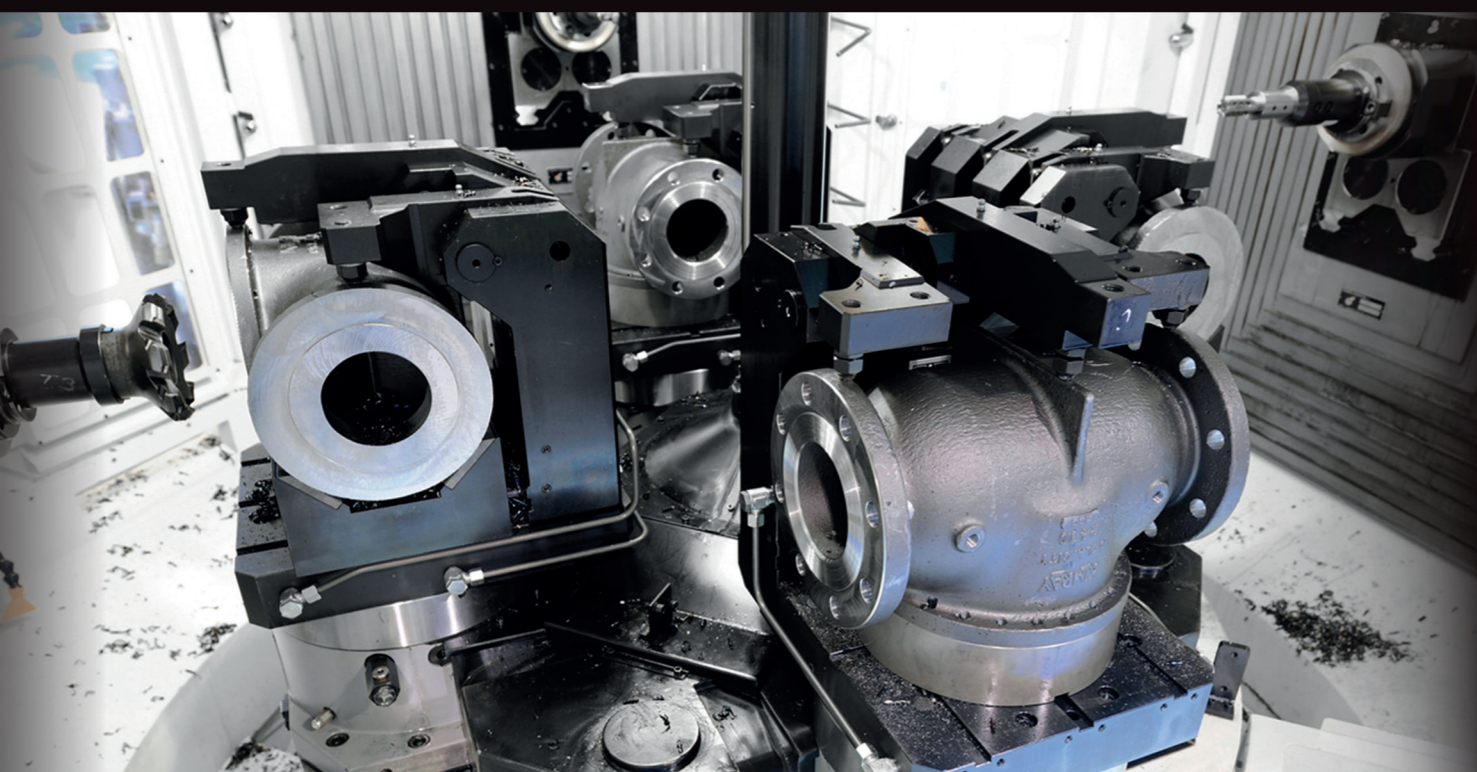
Automotive	Fittings
Fluid Handling	Military
Oil & Gas	Transportation
Aviation	Fasteners

The information which are present in the catalogue are approximate and are not binding. Porta Solutions Spa reserves the right of modifying them at any time without prior notice.





60smq
646sqft



PORTACENTER 500 - CUBE 500mm / 20" ISO 50

TOOL CHANGE	Metric	Imperial
tools	from 36 to 120	from 36 to 120
max tool weight	20 kg	44,1 lbs
max tool length	400 mm	15,75 in
max tool diameter	125 mm	4,92 in
max tool diameter with free position	200 mm	7,87 in
tool change	3 sec	3 sec
tool holder	option HSK100	option HSK100

CONTROL	Metric	Imperial
human machine interface	touch-screen with full keyboard	
teleservice	included	
programming language	ISO code	
CNC	Fanuc / Siemens	

AXES X,Y and Z	Metric	Imperial
axes stroke	500/500/500 mm	19,7/19,7/19,7 in
speed	30/30/30 m/min	98,4/98,4/98,4 ft/min
acceleration	4,5/3,5/4,5 m/s ²	14,8/11,5/14,8 ft/s ²
4th axis	continuous or 1° increment	
positioning system	encoder / digital scale	

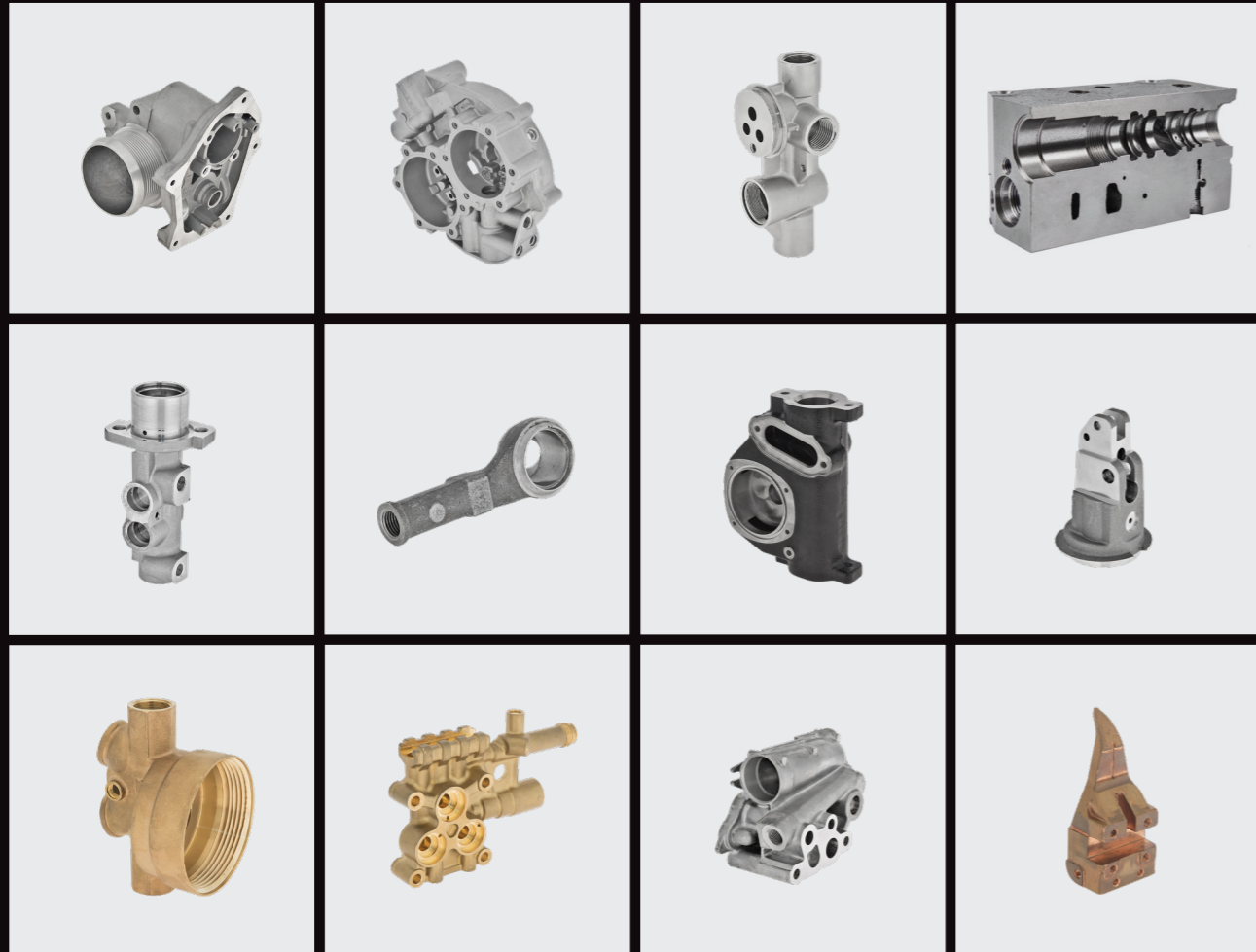
TOOL HOLDER SPINDLES	
tool holder	ISO50 / HSK100
spindle speed	4000 / 10000 rpm
max power	up to 50 kw
max torque	300 Nm

SECTORS	
Automotive	Fittings
Fluid Handling	Military
Oil & Gas	Transportation
Aviation	Fasteners

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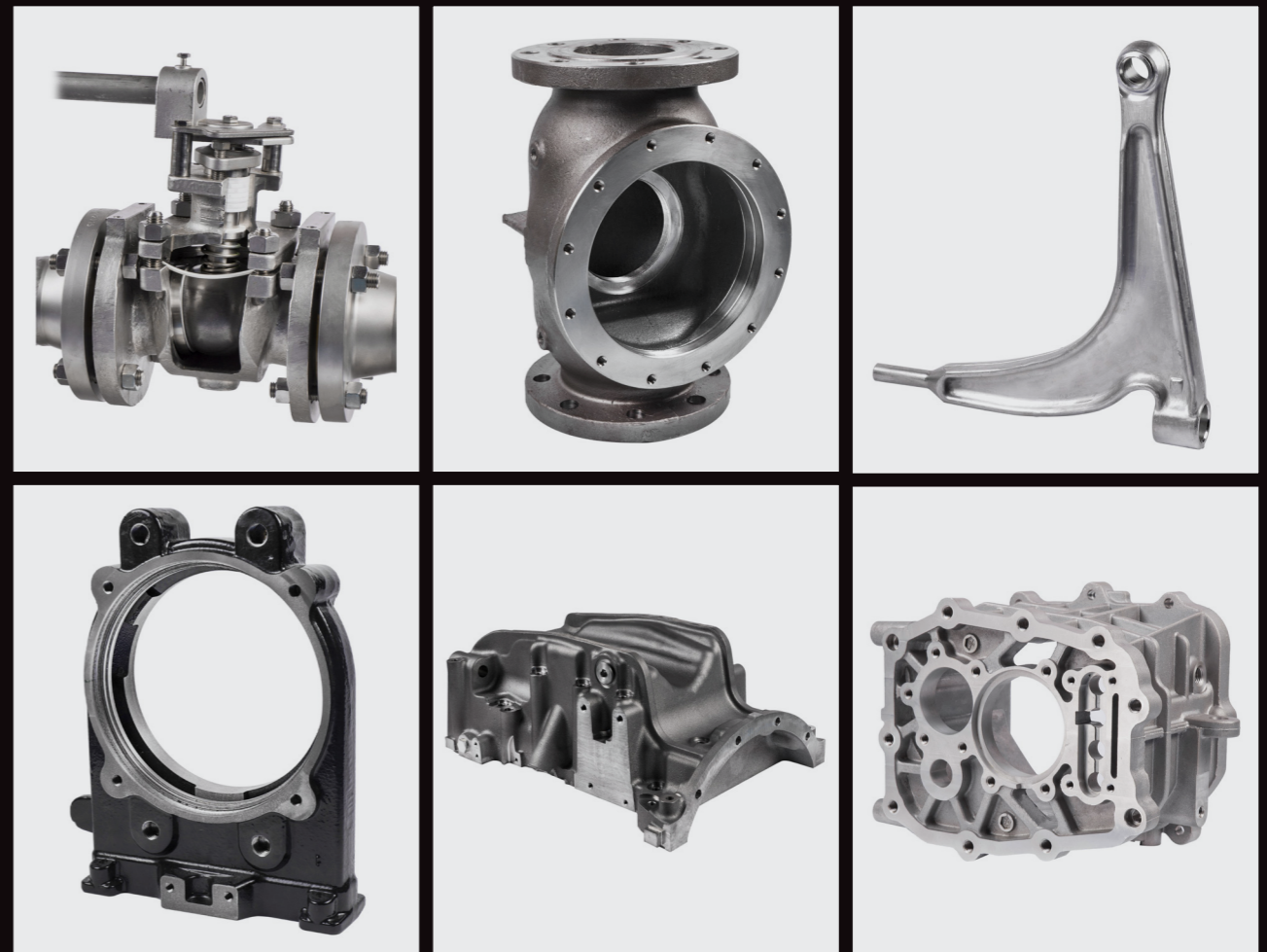
CUBE
250mm / 10"
ISO 40

CUBE 250mm / 10" ISO 40



CUBE
500mm / 20"
ISO 50

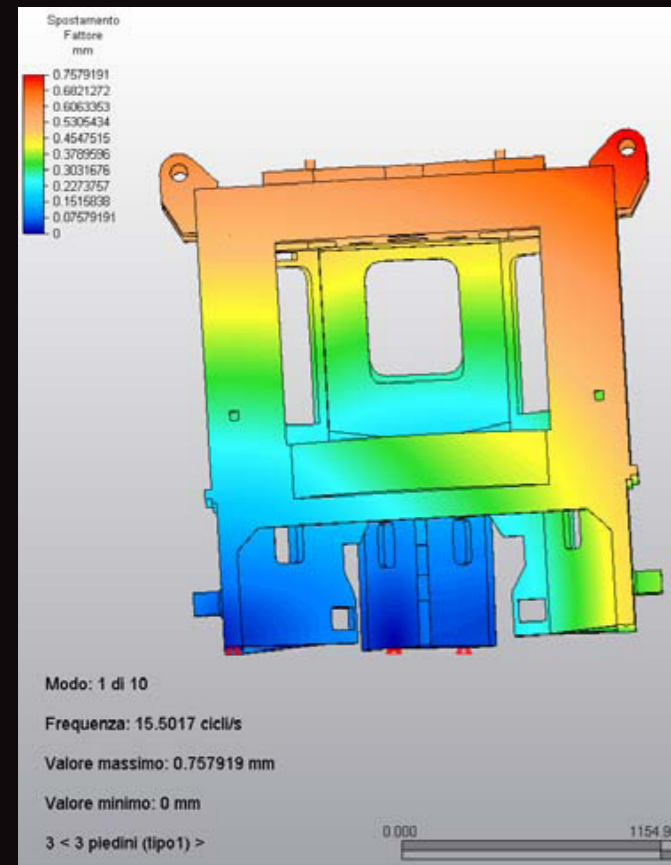
CUBE 500mm / 20" ISO 50



FRAME

Thanks to our acquired experience in the manufacture of machines since 1958, the PORTACENTER is identified by its stability.

Utilizing FEM/FEA with the cooperation of the Faculty of Mechanical Engineering at the University of Brescia, we analyzed the frame structure in order to guarantee absolute quality of the final product.



HIGH PRESSURE COOLANT PASSAGE THROUGH THE SPINDLES

Double self-cleaning rotary filter with metallic mesh (40 micron), dedicated pump for the cleaning of this filter, and automatic checking of max. and min. levels as well as device efficiency by flow meter.



WASHING GUN

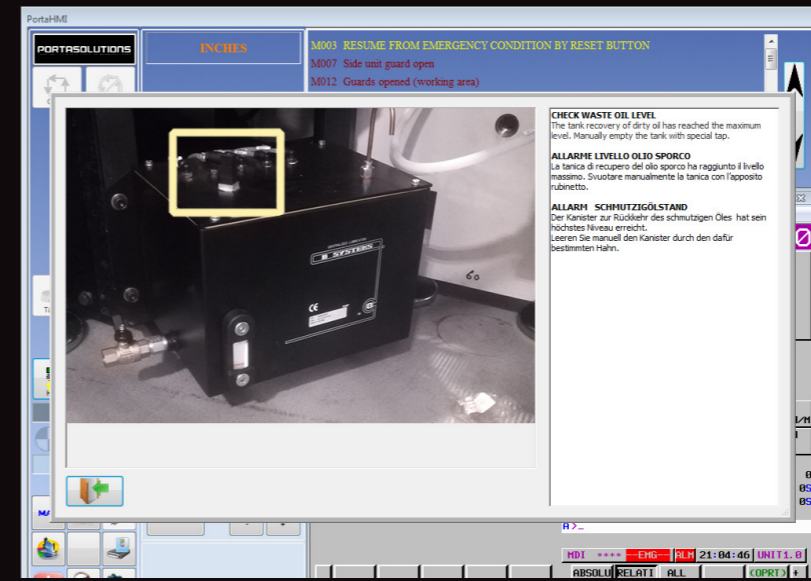
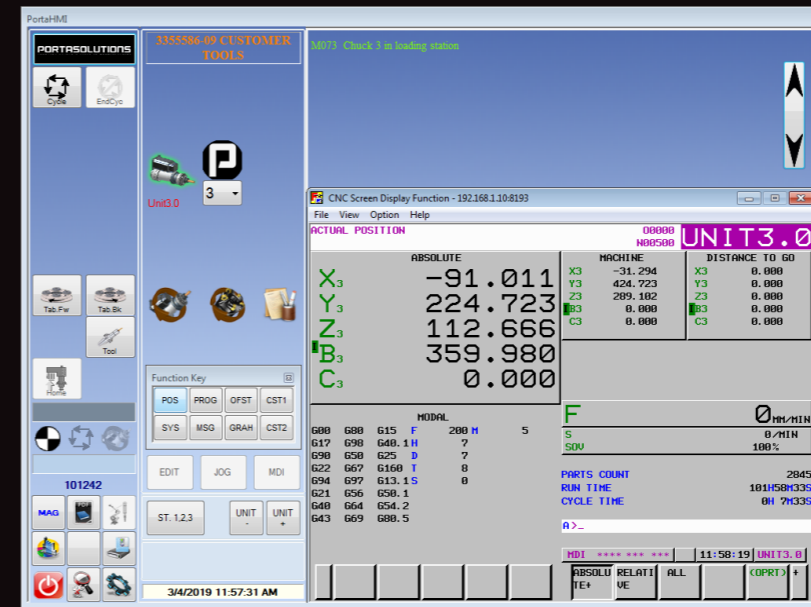
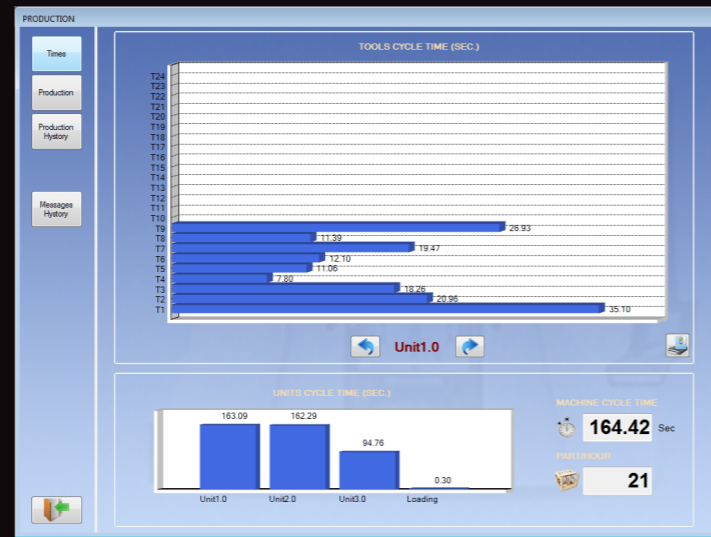
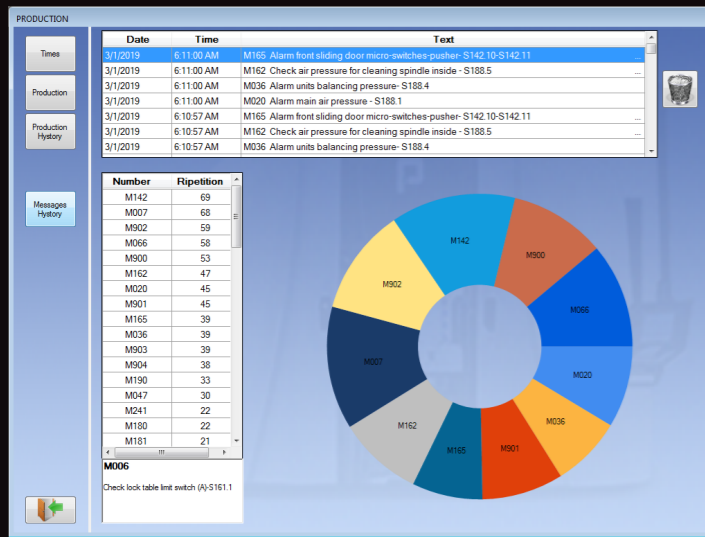
Kit complete with independent pump and software that can be activated by the operator interface.

POWERFUL OPERATOR/MACHINE INTERFACE

CNC composed of axes motors, spindle motors, feeds, drives, and adjustment cards for axes and spindles.

Operator panel complete with axes managing controls and software HMI.

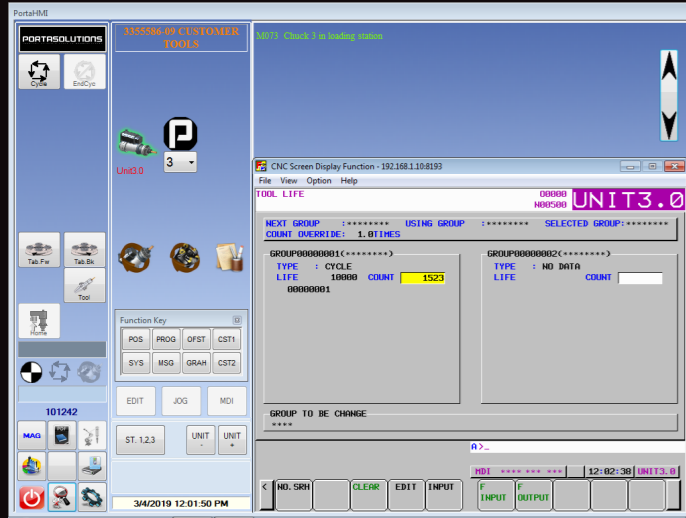
Portable teach pendant.



- > 15" touch screen video
- > USB port
- > Porta HMI proprietary platform, on Windows PC
- > Graphic lay-out of the machine
- > Graphic display of unit positions
- > Display of feed rate
- > Display of spindle r.p.m.
- > Software package for easy control and reporting of the machine production
- > Graphic display of the cycle time of each unit
- > Display of the cycle time of each single working module
- > Display of load station time
- > Machine status area with clear alarm codes showing diagnostic procedures including pictures of relevant machine areas, manuals, and steps for resolution (interactive fault diagnostics system)
- > Display of all PLC input/output status
- > Hub for Internet/Ethernet connection

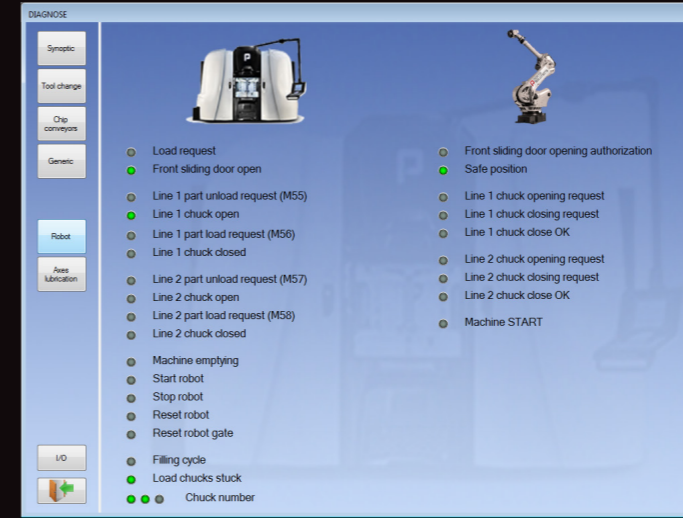


TOOL LIFE COUNTER



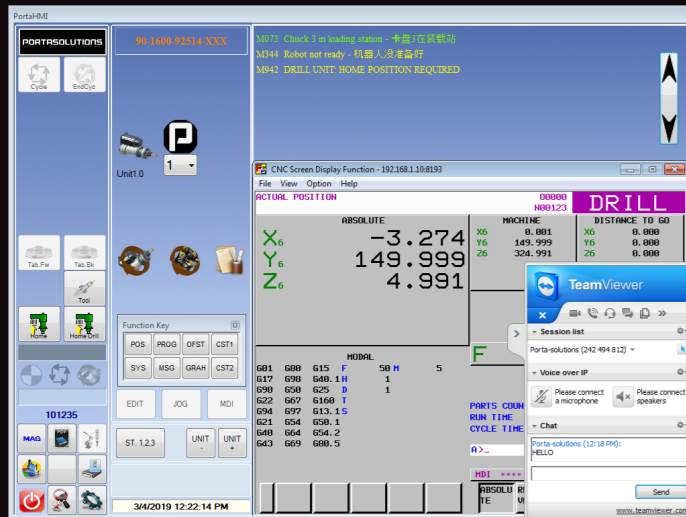
In the CNC, for each working module, there are software counters allowing automatic tool change in the working cycle when the tool has reached its previously pre-set programmed limit (loading a new preset redundant tool from the magazine).

ROBOT INTERFACE



Robot interface with Profibus Master technology.

TELESERVICE



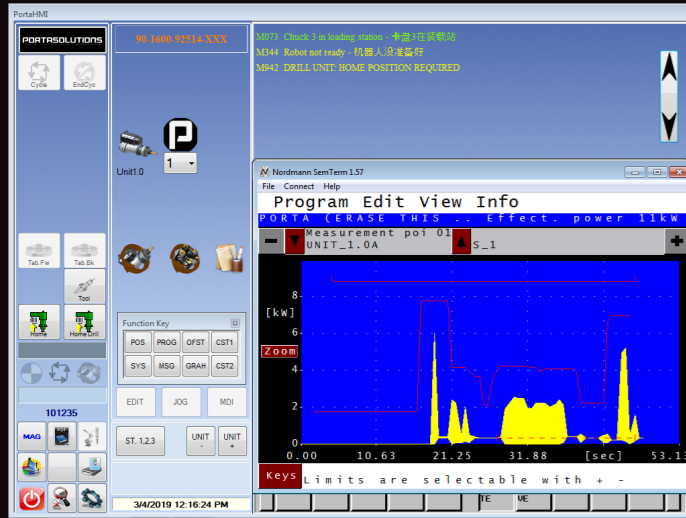
Online remote connection with the machine from the services department to support, view machine status, and make machine software modifications when appropriate.

REAR TOUCHSCREEN VIDEO POSITIONED BETWEEN STATION 1 AND 2



Rear touch screen video positioned between station 1 and 2 in order to facilitate programming and setup on the rear side of the machine.

TOOL MONITOR



This wear/breaking tool control system consists of individual power monitoring modules for each independent unit.

Displayed on the CNC screen is a diagram showing the relative spindle power absorption in two sections:

- > One shows the tool power threshold (upper and lower absorption levels);
- > The other stops the unit in case the tool power threshold exceeds the upper or lower levels.

When the system reports a tool out of threshold the unit stops the machine at cycle end, avoiding the breakage of the tools needed for the next machining operation, or it moves to a previously redundant tool in the magazine.

SMED MAGAZINE



This option allows the operator to reduce the set-up times thanks to the improved organization of Nr. 18 tool holders for each module, for a total of Nr. 54 tools.

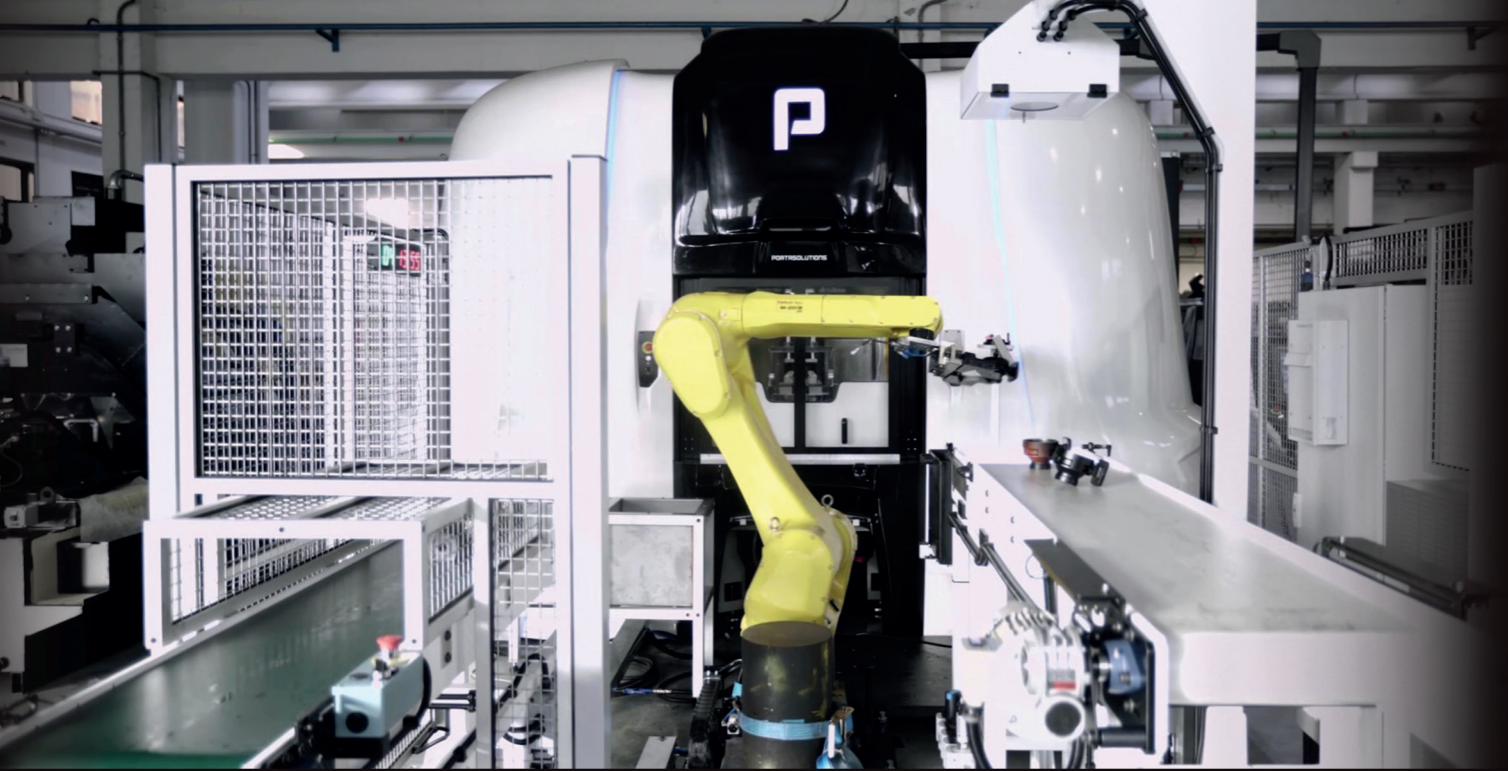
INDUSTRY 4.0

The PORTACENTER has the technical/scientific features to fall within the project called "Industry 4.0".

The machine is equipped with an Ethernet port and information can be exchanged via text files in shared folders or direct access via OPC/UA protocol for MES integration.

Management can network the machine for increased production awareness and organization or even text message the machine for current status update.



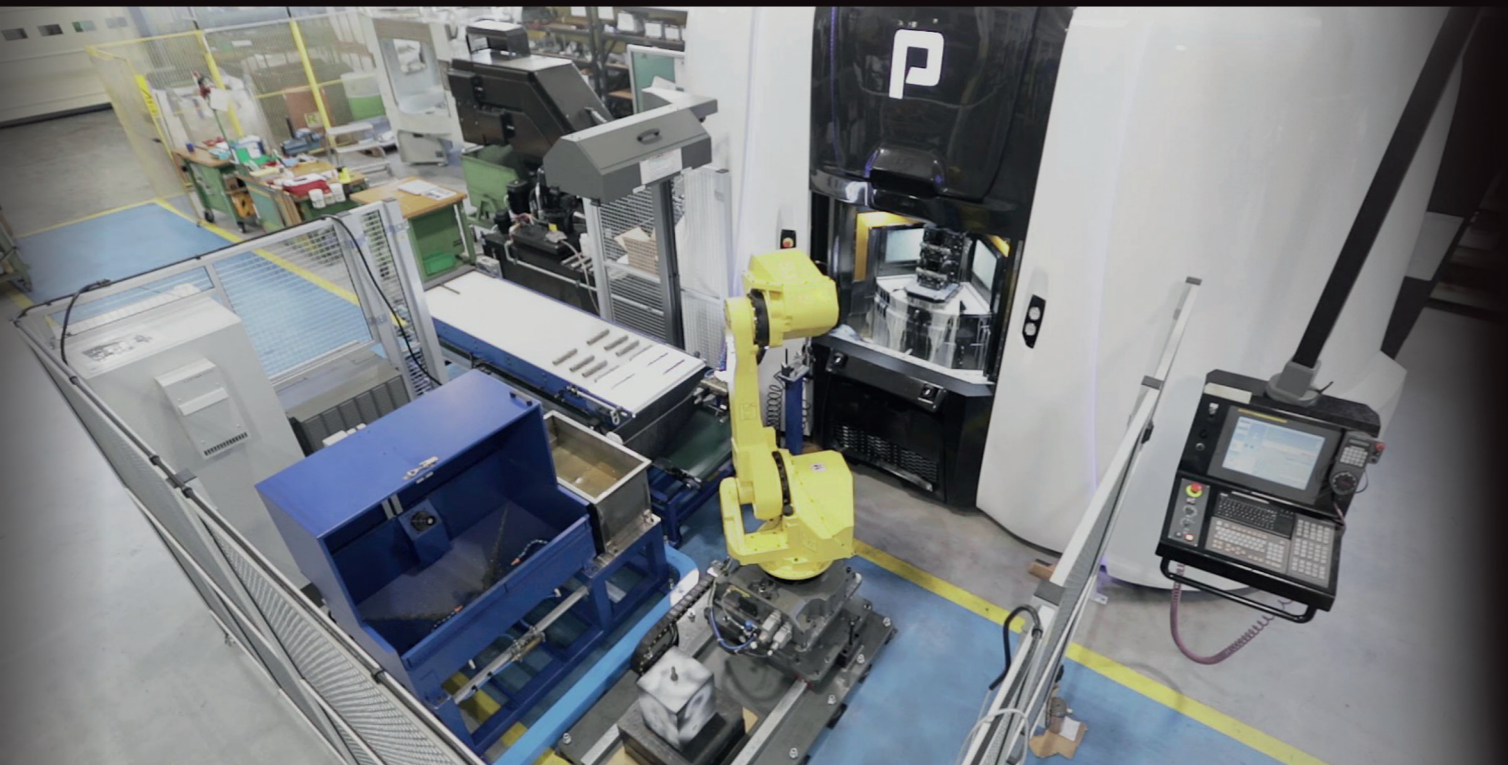


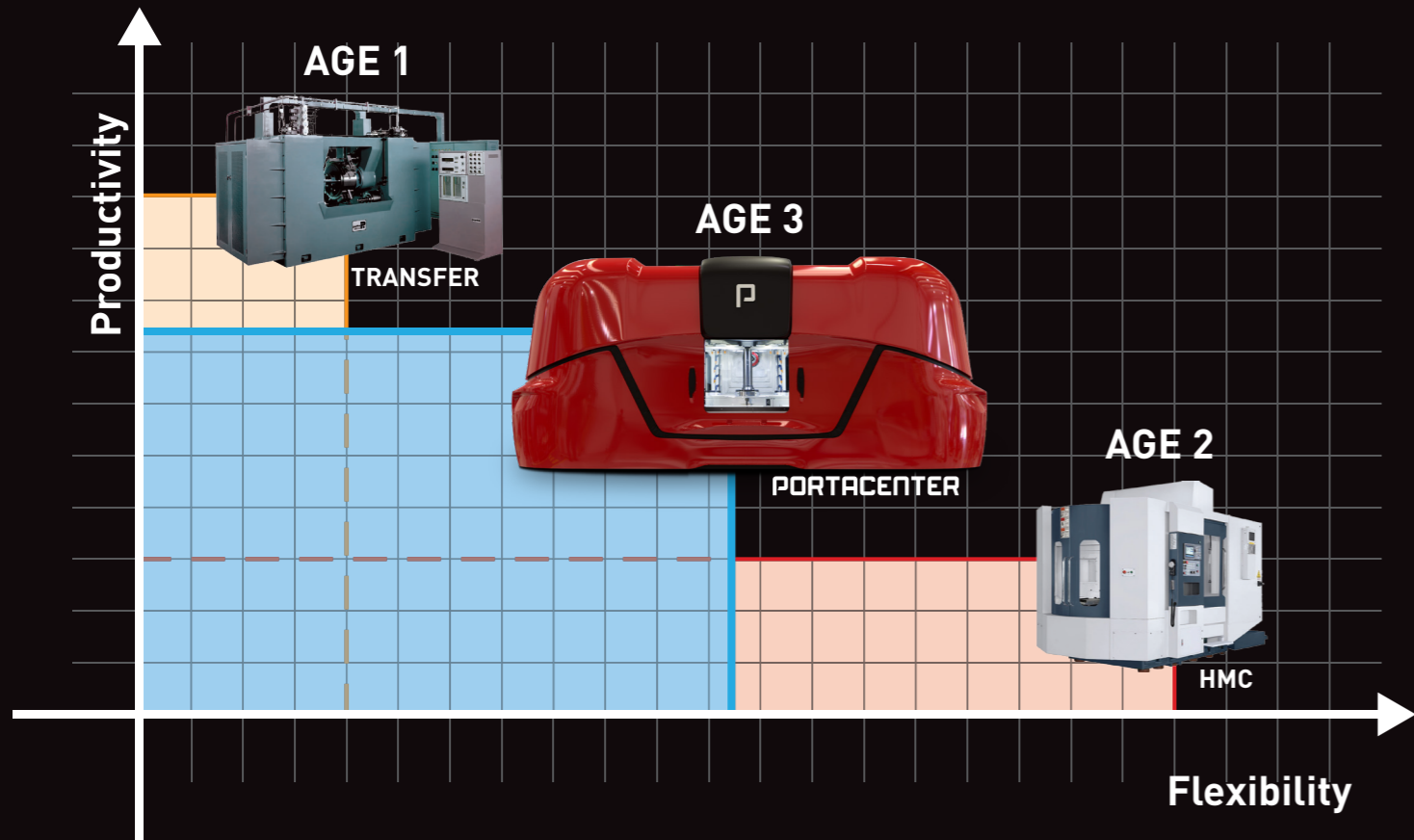
AUTOMATION

Upon customers request, there is the possibility of supplying not only the PORTACENTER, but a complete robotic cell for unattended operation.

With Porta Solutions building the full automated machining cell the customer only has one point of contact for service and support.

To learn more about this topic, contact one of our Technical Tutors.





THE 3 AGES OF MANUFACTURING

- > **AGE 1 - Mass production:**
Problem: how to produce big quantities at low cost per part
Solution: high production special transfer machines

- > **AGE 2 - Customized production:**
Problem: how to produce small quantities
Solution: standard machining centers

- > **AGE 3 - Production on demand:**
Problem: how to produce only the sold quantities at low cost per part
Solution: PORTACENTER - 1 process, 3 times faster

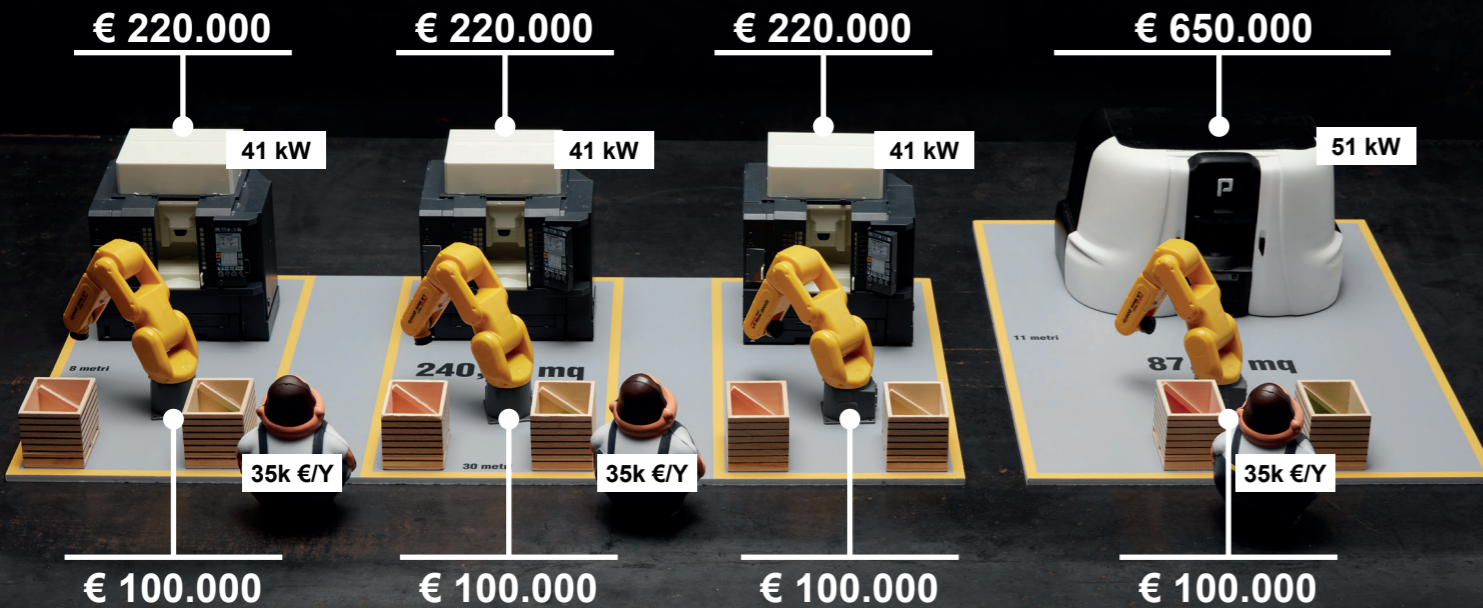
PART COST CALCULATION

This type of cost calculation considers the cycle time and adds the input of other costs such as labor, occupied area, fixture cost, tooling cost, energy cost, preventive maintenance.

Basically, all the variables that go into determining the correct part cost.

This allows you to make specific assessments about the strategic business decisions to be made.

Be aware and know the costs in a scientific way means eliminating risks, getting a higher control on the strategic choices; for example, in the choice of machinery which are more suitable to reach the target.



Cost		One Machining Center	PORTACENTER 3 Spindles
Machine	Per unit	€ 220.000	€ 650.000
Loading / unloading automation	Robot	€ 100.000	€ 100.000
Clamping fixtures	8-position cube, 2 pallets	€ 50.000	€ 40.000
Tooling	10 tools	€ 10.000	€ 10.000
Maintenance	Annual fee	€ 4.000	€ 12.800
Energy	FEM @ 0,16 €/kWh	41	51
MdO @ 22,5€/h	Ratio operator/machine	0,67	1,00
Operator requirement	Head count	2	1
Room	[sqm/machine]	80	87

Total monthly production 72.000

Costs		3 Machining Centers	PORTACENTER 3 Spindles	Porta Production Method
FEM @ 0,16 €/kWh		€ 5.983	€ 2.521	
MdO @ 22,5€/h	setup execution	€ 14.400	€ 7.200	
	direct CPU	€ 0,28	€ 0,14	-52%
	Cpk cost 125 parts per each clamp	€ 1.699	€ 68	-96%
Investment cost		€ 1.152.125	€ 812.800	-29%
Occupied space	[total sqm]	240	87	-64%

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“ZERO RISK” TEST DRIVE

The main advantages of the Test Drive are:

1. Test the machine BEFORE signing the contract.
2. Test the FIXTURES.
3. Verify if the CYCLE TIME presented in the study is true.
4. Make changes and improvements to the process in real time, before you even purchase the machine.
5. Check the set-up time from one part to another, checking for ease of execution and verifying what the manufacturer promises.

All of this to reduce the risk of an incorrect investment to zero!



PORTA PRODUCTION SCHOOL

The school was created through a real **Foundation**, the **Fondazione Porta**, strongly supported by Maurizio Porta.

This Foundation's purpose is to spread, through courses, the best competitive production techniques, through the experience of the Technical Tutor who will train your operators to use your machines to optimize production.

A real training section with:

1. Lecture based classroom time to study the theory.
2. Fixtures and tools analysis and techniques for production.
3. A flexible PORTACENTER 3 spindles machine at the complete disposal of the class for direct practice.
4. A technical staff with over 30 years of experience that will guide you in the PORTA PRODUCTION METHOD to learn, make mistakes, improve, and train in a protected environment, giving each student the tools to excel when racing on the real world track and with an aim to win!



NEW PRODUCT DEVELOPMENT SERVICE

This service is reserved exclusively for customers who have the PORTACENTER.

It consists in entrusting us completely with the development of new products, with the advantage of leaving your PORTACENTER in production while we develop everything by using a duplicate machine present in PORTA SOLUTIONS.

Here are the phases of the service:

- > Product feasibility on the PORTACENTER.
- > Drawing up of the best working process.
- > Study of tooling.
- > Part clamping study.
- > Cycle time and relative balancing.
- > Setup of PORTACENTER demo machine.
- > Part set-up.
- > Part machining test.
- > Check of part tolerances by CMM or other appropriate methods.
- > Part shipment to customer for approval.
- > Sampling and relative CPK.
- > Shipping to customer of the kit (fixtures, tools, part program).



To get your copy of the book
visit:

www.machiningcentersbook.com

WE DO NOT SELL MACHINE TOOLS

- > We specialize on engineering machining processes. We do not concentrate to sell you a machine tool like everybody else, since every single project is an engineered process, a turnkey solution.
- > You buy from us the performance in terms of cycle time, fast changeover, energy consumption, floor space and all the other variables which determine your best cost per part.
- > The PORTACENTER embraces both of them, by creating a new philosophy which is well described in the book of Maurizio Porta.

www.porta-solutions.com

www.portaproduction.com



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