

# ICON 6:250

A New, Unique Productivity Center



**ICON** TECHNOLOGIES  
ADVANCED MACHINING SOLUTIONS  
A Division of Hydromat Inc

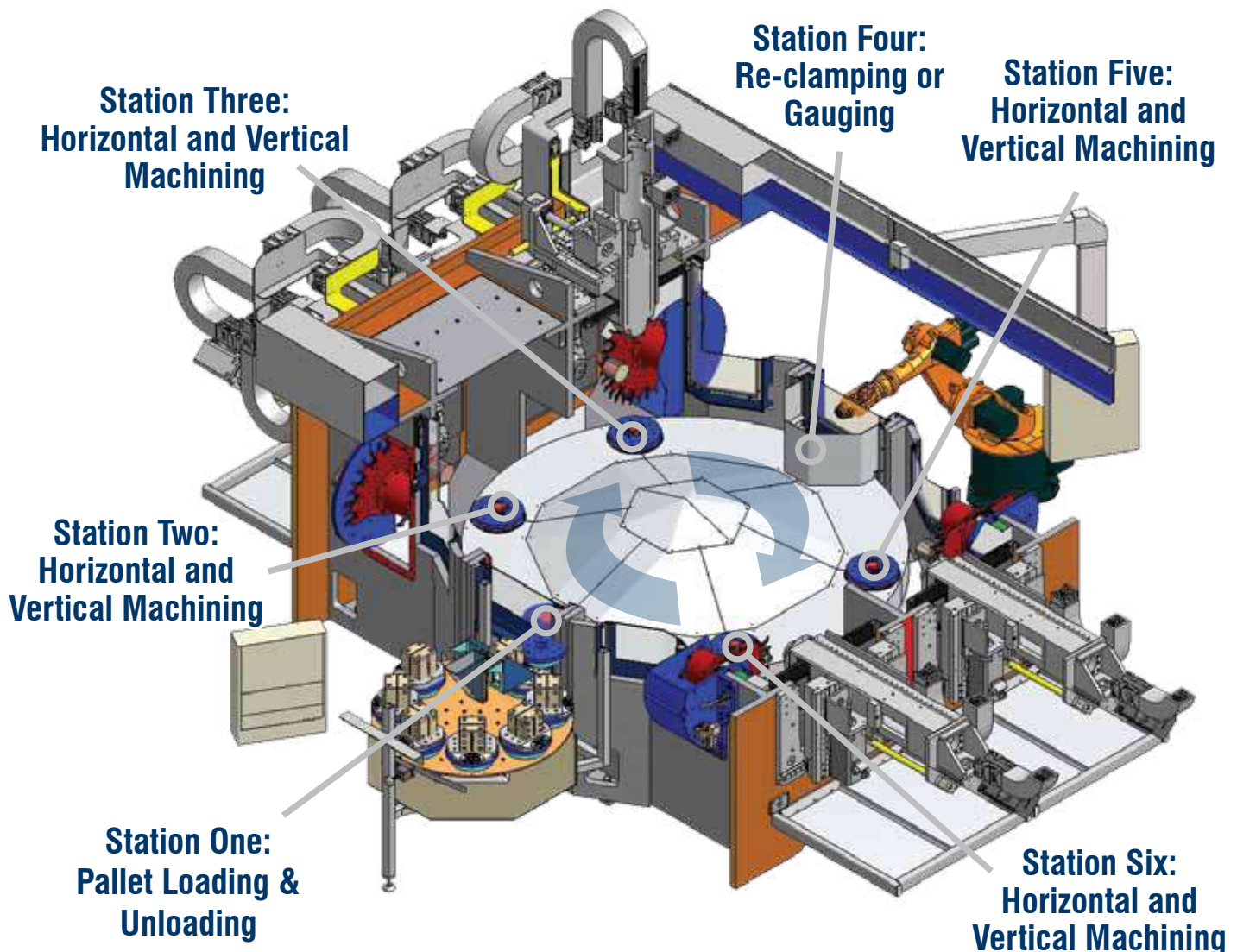


## What Makes the ICON 6-250 A Unique Productivity Center?

The unique design of the ICON 6-250 is new to the precision machining industry and incorporates engineering excellence with the finest materials and components. The results; a machining center of robust construction and extreme accuracy.

The ICON part sizes range from a 2" cube to a 10" cube and features up to 8 machining modules – four horizontal and four vertical – each with a 12-tool "Direct Connection" changer fully equipped for your specific applications. Four cutting stations, each with integrated index drives, produce 5 sided machining.

## Flexible, Horizontal and Vertical Machining Concept - Cutaway View





# EIGHT SPINDLES

## Up To Eight Tools In The Cut At Once.

The ICON 6-250 is equipped with water-cooled integrated spindle motors nestled within square quills of considerable girth. Driven by heavy-duty motors and massive pre-tensioned ball screws, these spindles pump out 71 “hogging-off” horsepower. In less than one second they rev to 12,000 rpm as up to eight - tools plunge into the material at all four machining positions simultaneously. The standard spindle motors produce 72 foot-pounds of torque at 3,500 RPM, and 21 foot-pounds at 12,000 RPM. Optional 8,000 and 24,000 RPM spindles are available depending on the needs of your application.

With four horizontal and up to four vertical 3-axis machining modules, the ICON methodology introduces up to eight tools in the cut, five-sided machining with full fourth axis interpolation on four separate workpieces... all at once. Truly innovative.

## 3-Axis Machining Modules



# EXTREME ACCURACY

**Massive Pre-Tensioned Ball Screws**



### Pallets Carry The Load...

Exceptionally beefy pallets measure 300mm across and feature a universal bolt pattern for standardized workholding. Part clamping can be hydraulically or manually actuated. Each pallet accepts a load of up to 200 pounds.

### The Table Carries The Pallets

The heavy-duty integrated electromechanical pallet changing system lifts, rotates, and places all six pallets and workpieces to the next station in just 4.5 seconds.

### Rapid Tool Changes At All Stations

Each machining module is equipped with its own 12 position tool changer, on a fully equipped ICON that's up to 96 tools available at a moment's notice. Chip to chip time is a rapid 3.5 seconds.

### Index Accuracy & Speed

The ICON 6-250 is equipped with four index drives, one for each machining position. With an indexing accuracy of +/- 4 sec. and an index speed of 1.8 seconds for a 180° turn, this impressive system is 'Best in Class'. An integrated control pivot includes three hydraulic clamp circuits, one hydraulic return and one air burst for chip expulsion.





# PALLETS & TOOLS

## Superior Workholding & Pallet System

### Modular Pallet System

Standard or custom workholding bolt to the pallets. Once the work pieces are secured to the pallets they are loaded into the ICON at station one and transferred to five other stations for cutting or auxiliary operations. With these processes spread over four cutting stations the cycle times are greatly reduced, yielding higher productivity in a smaller footprint over other machining cell options.



### Base Pallet

A universal bolt pattern is utilized on the ICON's 300mm pallets.



### Pallet & Fixture

The pallet and workholding combine to create a unit ready for the workpiece.



### Pallet Receiver

Once located on the Indexer the pallet is locked securely in place.

## ROBUST CONSTRUCTION



### Pallet Loading

Pallets can be loaded three ways, Manual, Semi-Automatic (above), or with a Robot.

# “Direct Connection” Advanced Tool Changing System



## Tool Holders

The ICON tool changers feature the superb HSK A63 tool holding system as standard, with a maximum tool weight of 15 lbs and maximum tool length and diameter of 250mm (10”) and 125mm (5”), respectively.



## “Direct Connection” Tool Change

Rapid tool changes are aided by the use of a direct pick-off method rather than the use of a tool arm. A versatile system for increased productivity.

# NINETY-SIX TOOLS



## Massive Coolant & Chip Excavation System

### Keep It Clean, Keep It Cool

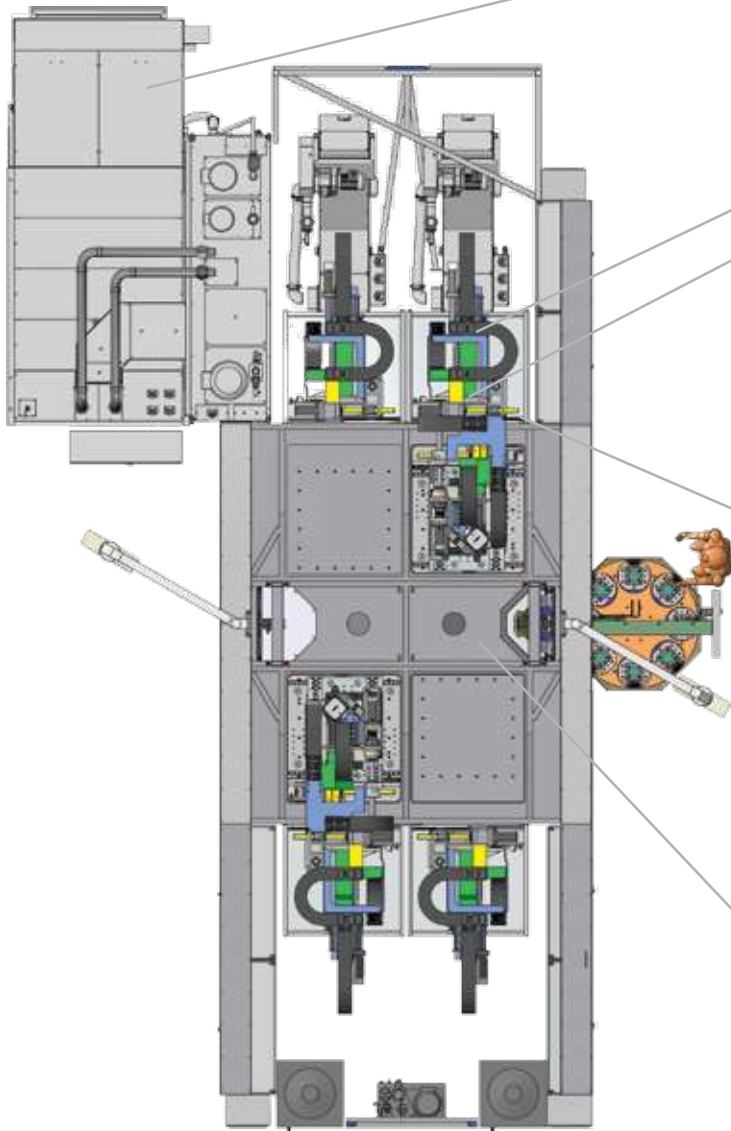
The ICON 6-250 was designed with production runs in mind, that's why it's equipped with a massive 1200 gallon coolant system that supplies the ICON with plenty of fluid to keep each machining area free of chips, as well as keeping temperatures regulated, keeping coolant troubles at bay. A self-cleaning filtration system with vacuum is standard, as well as dual scraper type chip conveyors.

The vacuum filtration drum provides clean water soluble for medium pressure at the spindle for through-the-tooling coolant. A high-pressure coolant supply for deep drilling operations can be connected upon demand.





# SPECIFICATIONS



## Coolant System

Coolant tank: 1200 gallons  
Filtration system with vacuum, self cleaning  
Low pressure coolant: 2 bar  
Medium pressure coolant: 30 bar  
High pressure coolant: 80 bar (Optional)  
High pressure coolant: 120 bar (Optional)

## 3-Axis Machining Module

### Integrated Spindle Motors (Standard):

Water Cooled  
Power @ 40%: 36 kW  
Torque @ 3,500 /12,000 RPM 98 / 29 Nm

### Spindle Performance:

Spindle RPM: 12,000 max  
Acceleration: 1.0 sec. to 12,000 RPM  
Spindle Bearing Size: 70mm

### Optional Spindle RPM:

8,000 RPM Max: 36 kW  
24,000 RPM Max: 48 kW

### Massive Pre-Tensioned Ball Screws:

X Axis: 40mm X 10mm Pitch Double Lead  
Y Axis: 50mm X 20mm Pitch  
Z Axis: 40mm X 10mm Pitch Double Lead

### Machining Stroke & Force:

X Axis: 300mm @ 22 Nm  
Y Axis - 300mm @ 30 Nm  
Z Axis - 375mm @ 22 Nm

### Size & Weight:

X Slide: 630mm X 840mm  
Y Slide: 570mm X 540mm  
Z Slide: 250mm X 250mm  
Weight: 1200 kg

## Pallet Changer

Integrated electromechanical system, torque motor  
Amount of pallets: 6  
Pallet changing time: 4.5 seconds  
Max. Pallet Load: 200 lbs each  
(Higher Pallet Loads Optional)

## Tool Changer

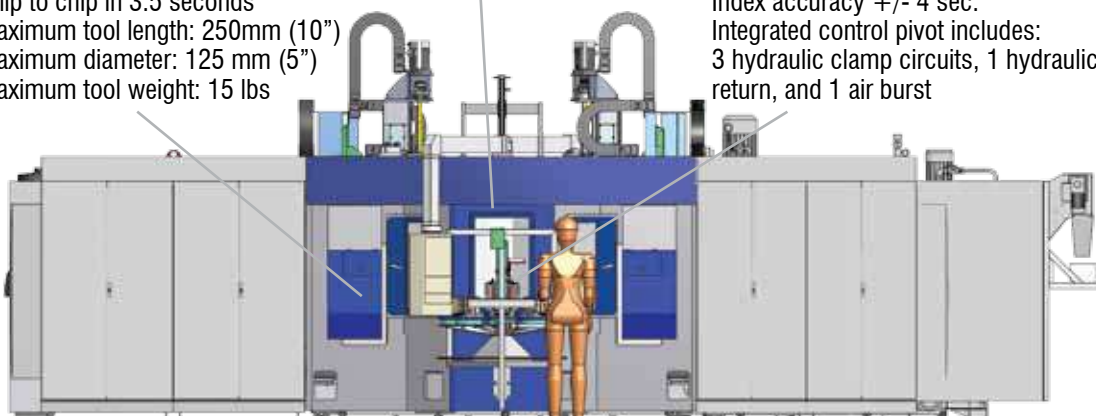
Tool head receiver: HSK A63  
12 tool positions per changer  
Chip to chip in 3.5 seconds  
Maximum tool length: 250mm (10")  
Maximum diameter: 125 mm (5")  
Maximum tool weight: 15 lbs

## Loading Station

Manual, Semi-Automatic  
or Robotic

## Index Drives

Amount of Index drives: 4 positions  
Index speed 1.8 seconds for 180°  
Index accuracy +/- 4 sec.  
Integrated control pivot includes:  
3 hydraulic clamp circuits, 1 hydraulic  
return, and 1 air burst



# ICON TECHNOLOGIES

ADVANCED MACHINING SOLUTIONS  
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## APPLICATIONS



AUTOMOTIVE  
CAST IRON  
CYCLE TIME: 168 SEC



AUTOMOTIVE  
DUCTILE IRON  
CYCLE TIME: 118 SEC



FLUID POWER  
ALUMINUM  
CYCLE TIME: 24 SEC



AUTOMOTIVE  
ALUMINUM  
CYCLE TIME: 80 SEC



AUTOMOTIVE  
DUCTILE IRON  
CYCLE TIME: 70 SEC



AUTOMOTIVE  
ALUMINUM  
CYCLE TIME: 22 SEC



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