

# Marshall's Smart7 @ IMTEX 2017



## Roboturn VERSA

Most Versatile automated twin spindle turning center in the world.

### Integrated with Cleaning Station

**SmartCorrect<sup>®</sup>**  
Gauging Station



&

**Laser Marking**  
for job traceability



'Smart Technologies to **TRANSFORM** your Machine Shop'



## 'Smart' Single Spindle Machines



### Fastest single spindle machine with 'Smart' features;

- 6000 RPM & 36 m/min. rapids
- Monoblock structure with 'Thermastable' technology
- High Pressure Coolant (HPC) (70 Bar) for chip breaking, long insert life & 20% extra cutting speed
- Closed Loop **SmartCorrect**® Gauging Station (Patent Applied)
- Motorized Tool Pre-setter with 'Smart Change' cycle for insert change
- **SmartInsert**® tool insert optimization technology (Patent Applied)

### More than 30% extra productivity in Turning of Shafts

#### IMPORTANT SPECIFICATIONS

Spindle Nose	A2-5
Max. Spindle Rpm	5500
Bar capacity	42
Max. Turning dia.	250
Max. Turning length	400
Rapids X/Z (m/min.)	30/36
Spindle power (Kw)	7.5/11
Turrets & stations	Servo (Baruffaldi Italy) 8 Station



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## 'Smart' Single Spindle Machines



### Fortius

**Most RIGID** single spindle machine with 'Smart' features;

- **TMAC** World # 1 tool monitoring & adaptive control
- Servo turret with hydraulic clamping & 70 Bar HPC option
- Monoblock structure with 'Thermastable' technology
- Motorized Tool Pre-setter with 'Smart Change' cycle for insert change

### 50% extra productivity in Turning of Forgings & Castings

#### IMPORTANT SPECIFICATIONS

Spindle Nose	A2-6
Max. Spindle RPM	4000
Bar capacity	52
Max. Turning dia.	300
Max. Turning length	500
Rapids X/Z (m/min.)	30/30
Spindle power (Kw)	11/15



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# 'Smart' Single Spindle Machines



# Altius

**Super Precision  
Hard Turning**  
with Closed Loop  
to eliminate  
Grinding

### Most accurate single spindle machine with IoT

- Least count 0.1 micron
- Repeatability ± 0.7 microns
- Single piece Monoblock with Thermastable technology + vibration damping
- Motorized Tool Pre-setter with 'Smart Change' cycle for insert change + Touch Probe + **SmartCorrect**® for zero defect precision hard turning to replace grinding
- **SmartInsert**® tool insert optimization technology (Patent Applied)
- **SmartChek**® (Latent applied) automatic machine health check & accident detection technology.

### Hard Turning upto 6 times faster than Grinding

#### IMPORTANT SPECIFICATIONS

Spindle Nose	A2-5
Max. Spindle RPM	5000
Bar capacity	42
Max. Turning dia.	250
Max. Turning length	400
Rapids X/Z (m/min.)	30/36
Spindle power (Kw)	5.5/7.5



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# IoTQ<sup>®</sup> 'Internet of Things for Quality'



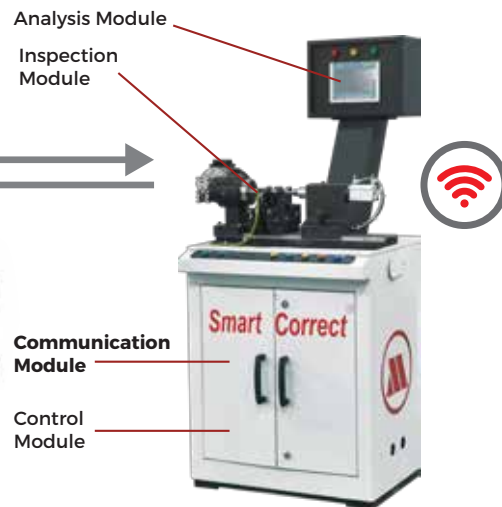
**Marshall's IoTQ (Internet of Things for Quality)** is the most powerful technology in the world today in the field of CNC Turning which acts like a 'PERFORMANCE MULTIPLIER' for each IoTQ enabled machine. The multiplication is because of quantum jumps in the following areas:

- **Zero defect quality** with **SmartCorrect<sup>®</sup>**
- **Much higher productivity** with
- **Longer machine life & OEE** with machine health monitoring & predictive maintenance with **SmartChek<sup>®</sup>**
- **Tool Insert life optimization** with **SmartInsert<sup>®</sup>**



## **SmartCorrect<sup>®</sup>** The heart of IoTQ<sup>®</sup> Facilitates 3 Vital Functions:

**#1 Auto-Correction** of Tool offsets to ensure Zero Diftect Production.



#2 **SmartInsert<sup>®</sup>** technology for Tool insert life optimization & activation of "Sister" tools.

**RESULTS:**

- Upto 30% extra tool life
- Much Higher OEE

#3 **SmartChek<sup>®</sup>** technology for regular automatic machine health checks & accident detection.

**RESULTS:**

- Predictive Maintenance ensures much longer life.
- Immediate remote detection of Accidents & Corrective action initiation
- Automatic transmission of required information to concered person.



*'Smart Technologies to **TRANSFORM** your Machine Shop'*



## Multi Spindles for Mass Production

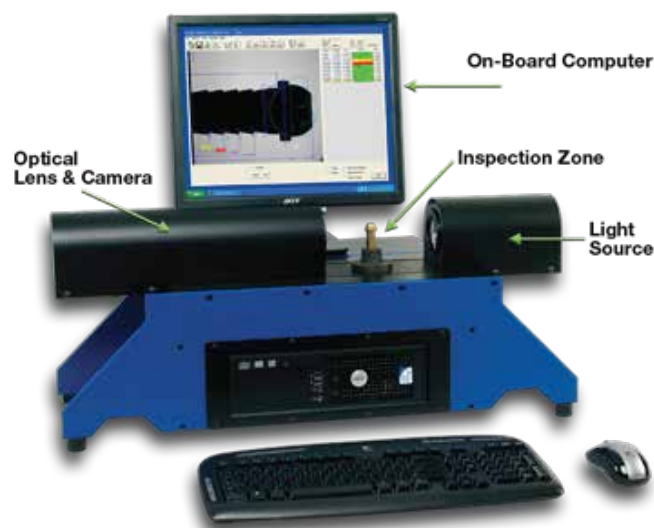


### **RAPIDTURN DS 450**

Most productive manually operated CNC lathe for small mass produced components with **Smart** features;

- Double Spindle Machine (Patented)
- **8 Tools per spindle (max. in the world)**
- Internal through coolant in all blocks (without pipes)
- World # 1 OASIS measurement system for inspecting upto 99 parameter in per sec.
- Upto 6 machines connected to OASIS

### **OASIS Optical Measuring System (World's # 1)**



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# Roboturn *FLEXI*CELL



## Robot changes Grippers in 2 seconds to perform flexible tasks



Robot wrist attached to one set of 'Quick change' gripper for shaft handling.



Robot ready to load from Rear



Robot enters from Rear to load/unload job.



Robot loading crankshaft on **SmartCorrect**® gauging station



Robot drops Shaft Gripper set on its stand & goes to pick gear blank gripper set



Robot wrist attached to new set of 'Quick change' gripper set for Gear Blank handling.



Robot ready to loading/unloading Gear blanks with New gripper set



Robot wrist attaching to vision sensor.



Robot using vision sensor for Inspection.

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# Multi Spindles for Mass Production



## Roboturn QUATTRO 4S

World's most productive automated CNC chucker with **Smart** features;

- Four Spindle Machine
- Upto 6 tools per spindle
- Through coolant in all blocks without pipes
- **SmartCorrect**® Gauging Station
- One Robot for 4 spindles cheapest automation in the world

### Mass Produced Jobs Suitable for Marshall Multi Spindle CNC Lathes



Bearing Ring

Door Roller

Hard Turned (Bored) Gear

Bevel Pinion

Shocker Bolt

Threaded Ring (LCV)

Gear Blank

LPG Valve

Fan Cover



#### Head Office & Works

C 86, Phase-V, Focal Point, Ludhiana 141 010  
Phone: +91 161 5012406, 5012407, 5019648

#### National Sales, Services & Technology Center

75-B, Sector 5, IMT Manesar, Distt. Gurgaon  
Phone: +91-0124-4241813-15 | Cell: +91-96502 93942

#### Automated Solutions Division (Unit II)

D-116A, Ph.-V, Focal Point, Ludhiana-141010

headoffice@marshallcnc.com | cncsales@marshallcnc.com  
marshallcnc.com | marshallcnc.in | marshallautomation.in



#### Smart CNC Automation & Gauging Solutions

#### Regd. Office

415, Lakehill Court, Johns Creek, GEORGIA 30022 (USA)  
Phone: 404-394-6678

gaurav@marshallautomationamerica.com  
marshallautomationamerica.com