



HIGH PERFORMANCE CORE SHOP EQUIPMENT

ONE STOP SOLUTION FOR CORE SHOP

- Bowl type sand mixer with auto dosing
- Auto feed trolley
- Cold box core shooters
- Shell core shooters
- Core paint mixer
- Core center
- Core painting automation
- Tool manufacturing



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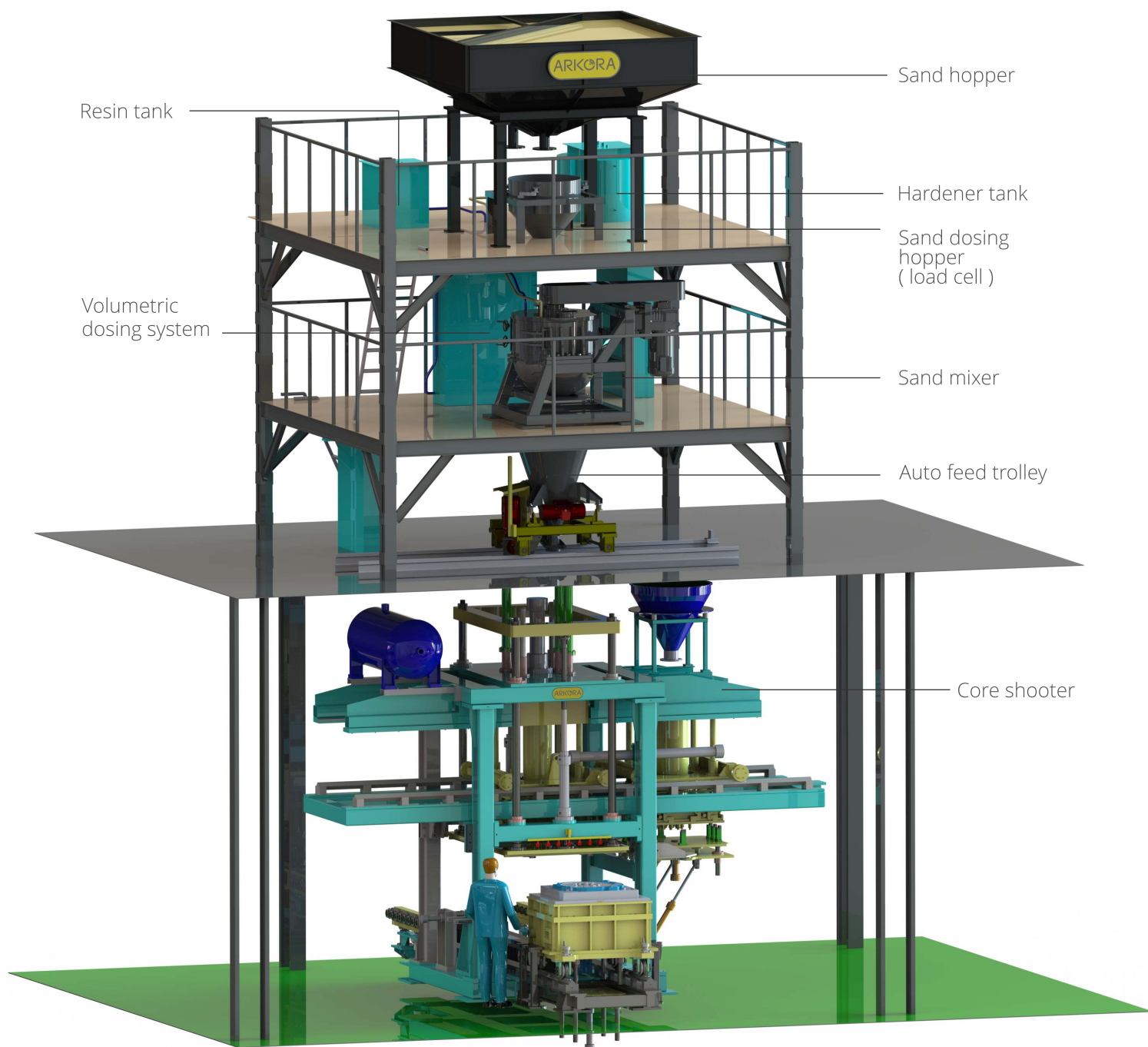
"Shooting futuristic advancements in foundry business".

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1. A COMPLETE SOLUTION FOR CORE MAKING

Cold Box Core Shooters with complete setup of all equipment which includes mixer, sand trolley, hoppers, gas generators, electric panels etc.



2. BOWL TYPE SAND MIXER & AUTO FEED TROLLEY

Bowl type core sand mixer (capacity 150 kg & 300 kg)



- Bowl type intensive mixer
- VFD/PLC control
- High intensive mixing
- Less cleaning of mixer
- Less mixing cycle time
- Special anti-wear coating
- Options for automatic volumetric dosing system for additives.
- Electronic sand weighing system for sand addition (load cell)
- 100% discharge of the mixed sand, no wastage of sand

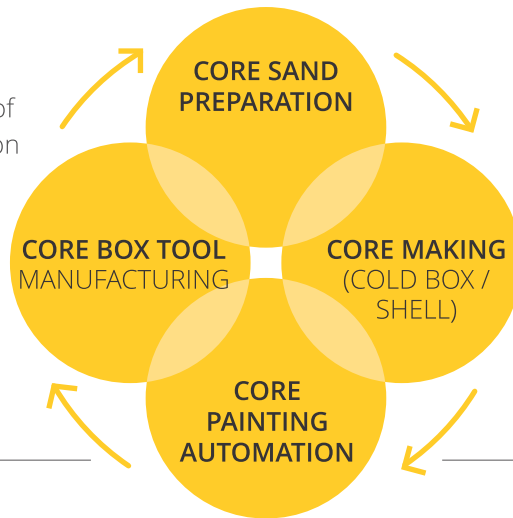
Core sand auto feed trolley



- 150 kg & 300 kg capacity of auto feed trolley
- Special non-sticky coating for easy sand flow
- Sand distribution to core shooter machines in stipulated time
- Robust design & high consistency
- Consistency and accuracy achieved by PLC

3. CORE SHOOTERS

ARKORA has been developed to provide extremely high productivity combined with flexibility to produce variety of cores from core shooting machine. The operating function of the ARKORA series machine is designed to provide long term flexibility and consistent high quality cores in conjunction with ease of operation incorporating simple tooling changes. High clamping forces achievable with the hydraulic system ensure dimensionally accurate cores.



FEATURES

- Indigenously developed technology to achieve high density cores comparable to any European capital equipment manufacturer
- Our manufacturing capability is to produce core shooters as per customer requirements
- Machines are designed robustly considering optimum factor of safety
- Diagnostic monitoring system for machine operations with malfunction visible on screen
- Touch screen HMI console to set parameters
- The entire machine is designed with hydraulic system for improved consistency and repeatability
- Electronic sand level sensors are used as per core weight
- The scratch hardness of the core is Min.70 to 90 - this ensures that core is produced with high compact-ability. It improves finishing quality of casting internally with reduced fettling activity
- TRI - Ethyl amine is high flammable therefore, this device is manufactured strictly as per the safety norms laid down by the government approved Chartered Engineer
- The pneumatic proportional control valve used in gas generator ensures gradual increase of pressure from 0.5 to 6 Kg / cm²
- Complete insulation from gas generator pipe to machine
- The bowl type mixer is added along with the machine ensures 100% sand discharge and homogeneous mixing of sand from mixer
- Equipped with tilting & top mandrel facility to produce hollow cores and to avoid shoot heads on core surface
- The life of machine is approx. 20+ Years
- Low cost maintenance

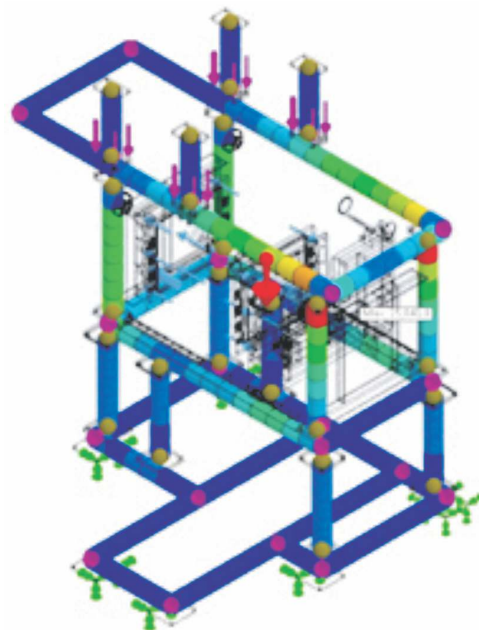
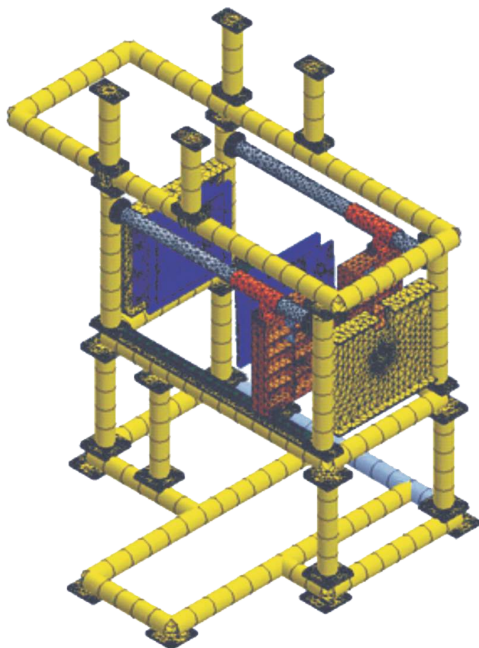
OUR PRODUCT SPECIALIZATION

- Robust and rigid in structure
- High consistency and accuracy
- Longer life with consistent performance
- Special coating for sand mixer & auto feed trolley
- Use of advanced technology
- User friendly and ease of maintenance

4. DESIGN CAPABILITIES

Structural analysis for design verification

The machine is designed robustly with a rectangular seamless pipe giving it better bending moment. Structural analysis is done at 2.5 times the rated capacity for static and dynamic loading.

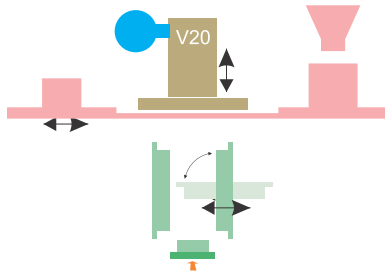


FEA analysis

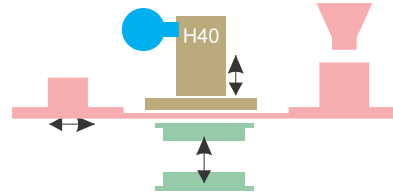
5. COLD BOX CORE SHOOTER

Cold box core shooter (range - 6 ltr. to 250 ltr.)

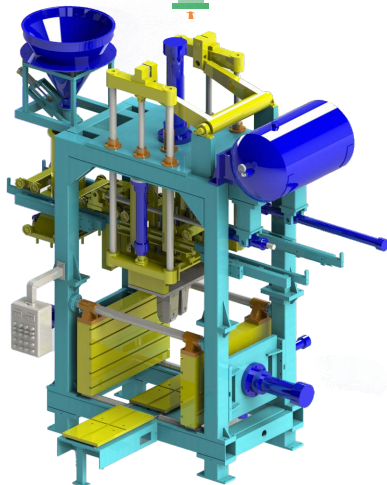
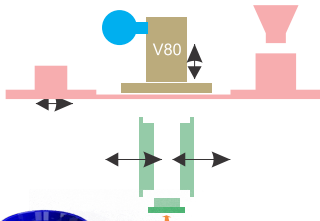
Machines are designed and manufactured as per customer requirement



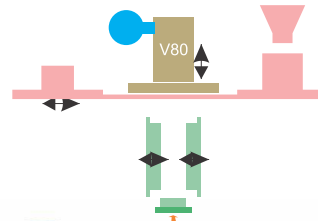
Cold Box VP 20L
(with tilting arrangement)



Cold Box HP 40L



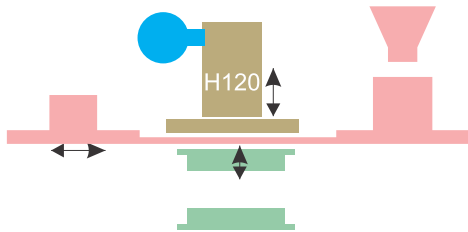
Cold Box VP 80L
(with top mandrel)



Cold Box VP 80L
(with both half moving)

COLD BOX CORE SHOOTER

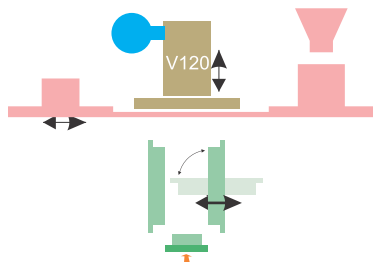
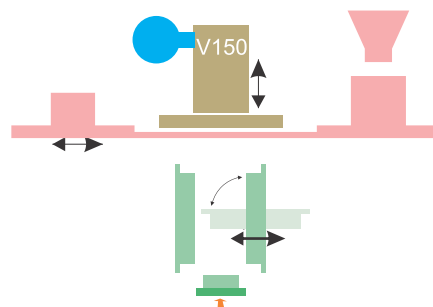
Machines are designed and manufactured as per customer requirements.



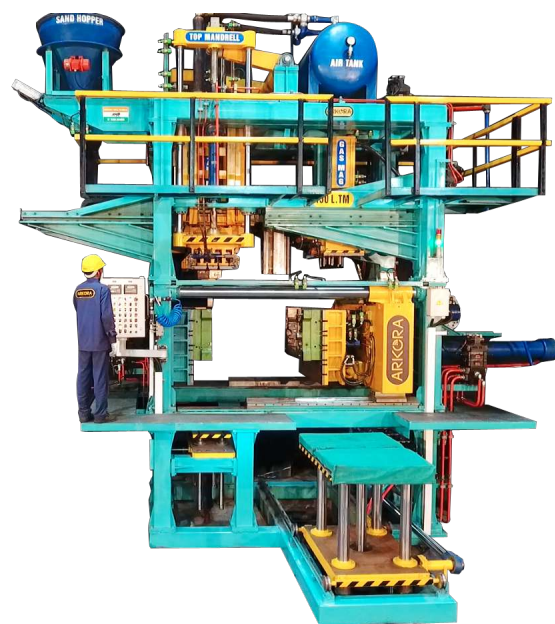
Cold Box HP 120L



Cold Box VP 20L
(with canopy)



Cold Box VP 120L



Cold Box VP 150L
(equipped with tilting & top mandrel)

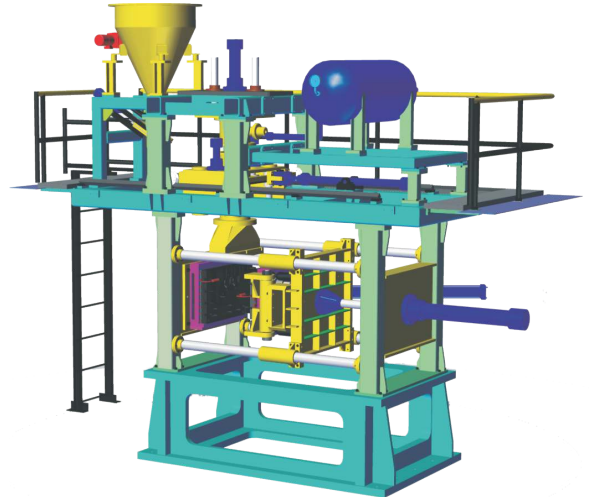
6. SHELL CORE SHOOTERS

Shell core shooter (range - 6 ltr. to 150 ltr.)

- ARKORA made Shell Core Shooters are designed and developed to provide high productivity and quality. Resin-coated sand is used for shell core production and equipped with auto temperature controller for core box heating
- The shell core shooters produce all types of shell cores for intricate and complicated castings such as cylinder blocks , cylinder heads, pump turbines, impellers, water jackets etc.
- The scratch hardness of the shell core achieved is above 90
- Machines are designed and manufactured as per customer requirements.



Shell Shooter VP 10L



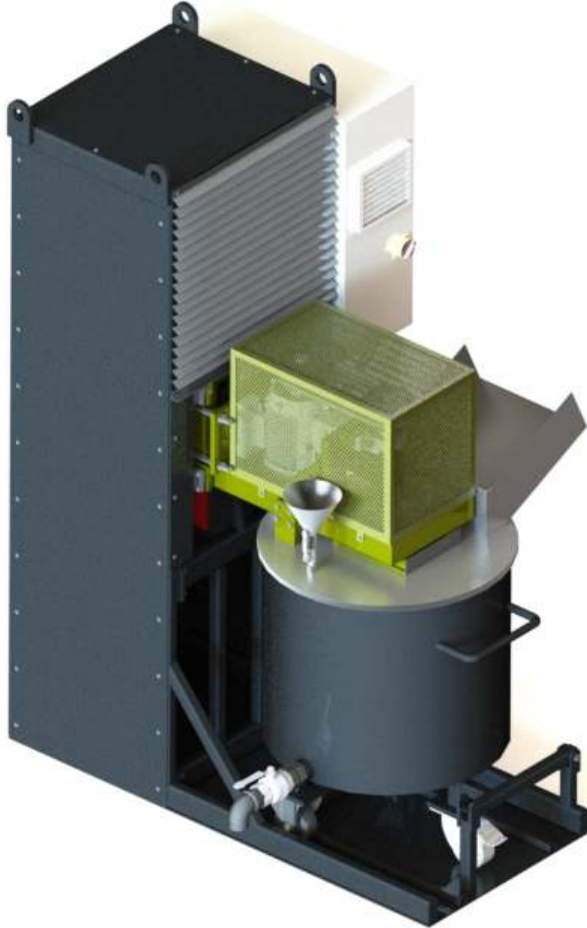
Shell Shooter VP 35L



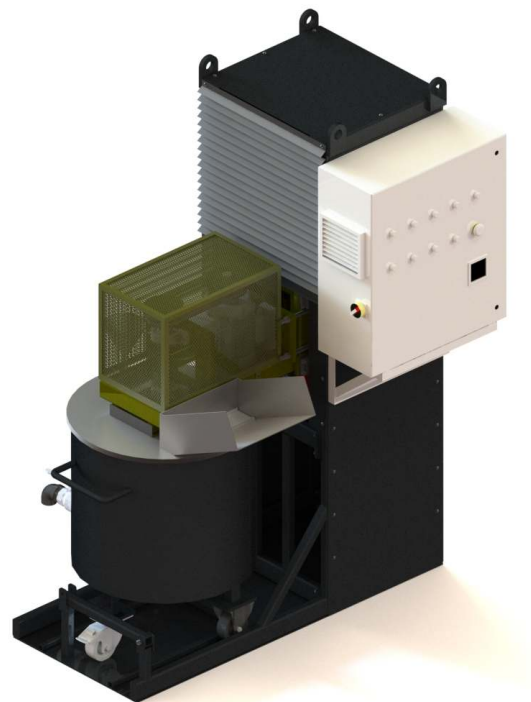
Shell Shooter HP 40L

7. CORE PAINT MIXER

Insta core paint mixer

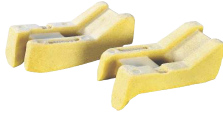


- Mixer capacity: 200 ltr.
- VFD / contact logic circuit
- Timer for adjusting mixing time
- RPM regulator / RPM display
- Interlocking between vessel top cover and top surface of closed chamber mixing
- Cut off limit switch for vessel cover
- Corrosion resistance stainless steel material used



8. MANUFACTURED CORES

Cold box cores



Weight - 1.0 Kg.
Size - 150x150x75 mm



Weight - 9.0 Kg.
Size - 425x135x240 mm



Weight - 60.0 Kg.
Size - 635x440x315 mm



Weight - 43.0 Kg
Size - 848x683x111mm.



Weight - 45.0 Kg.
Size - 555x400x330 mm



Weight - 10.0 Kg.
Size - 470x290x140 mm



Weight - 18.0 Kg.
Size - 440x315x185 mm



Weight - 65.0 Kg.
Size - 665x455x250 mm



Weight - 100.0 Kg.
Size - 1070x525x325 mm



Weight - 82.0 Kg.
Size - 835x435x465 mm



Weight - 139.0 Kg
Size - 1071 x 498 x 437mm.

Shell cores



Cylinder block water
jacket core
Wall thickness - 4.0 mm



Cylinder head core
Wall thickness - 12 mm



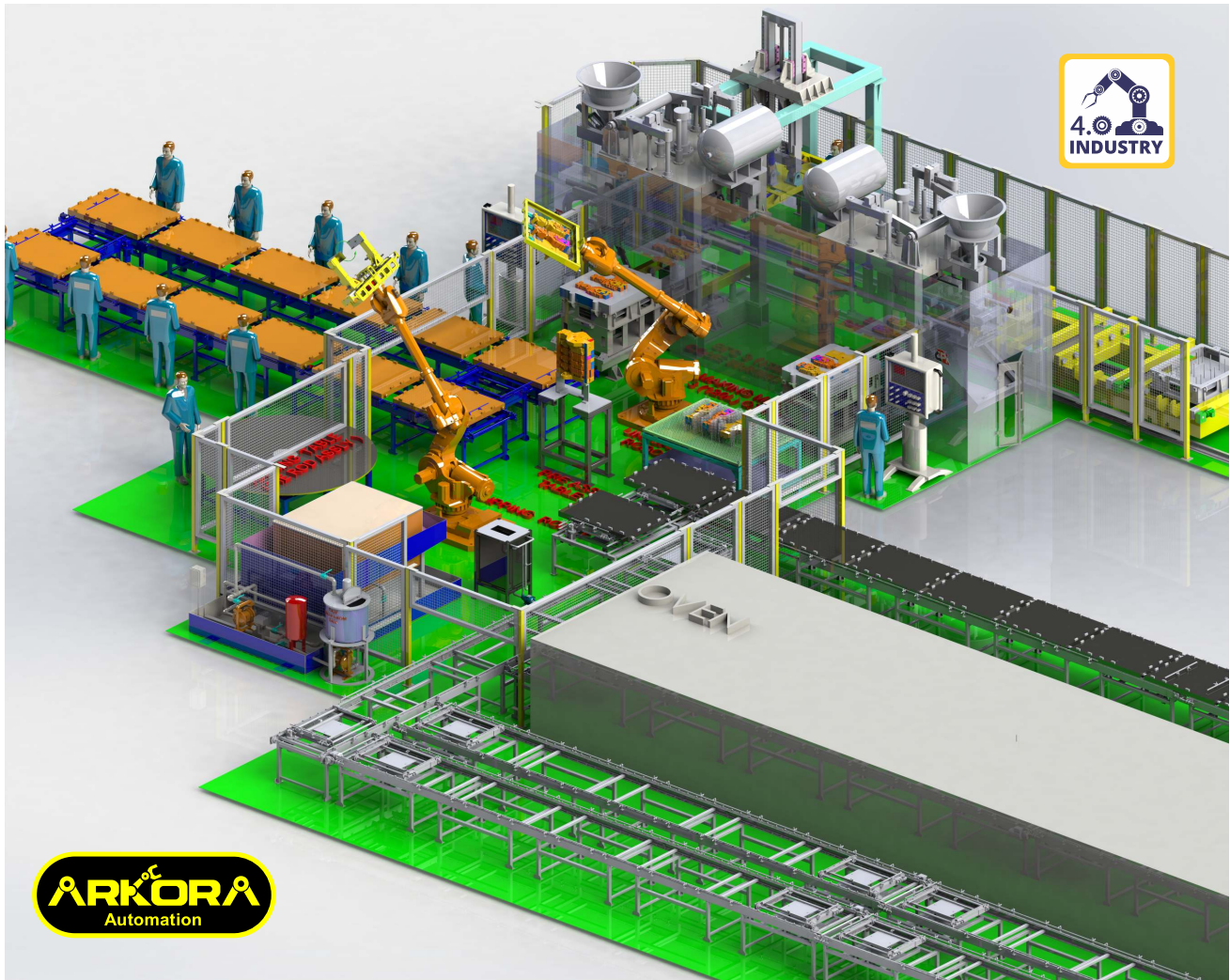
Core for impeller
thickness - 20 mm



Oil passage core
Diameter - 30 mm

9. CORE CENTER

ARKORA made Core Center is designed, integrated and manufactured as per customization for producing critical cores in one setup required for mass production.

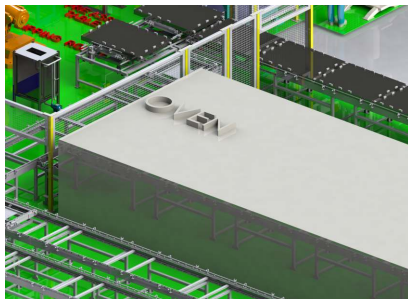
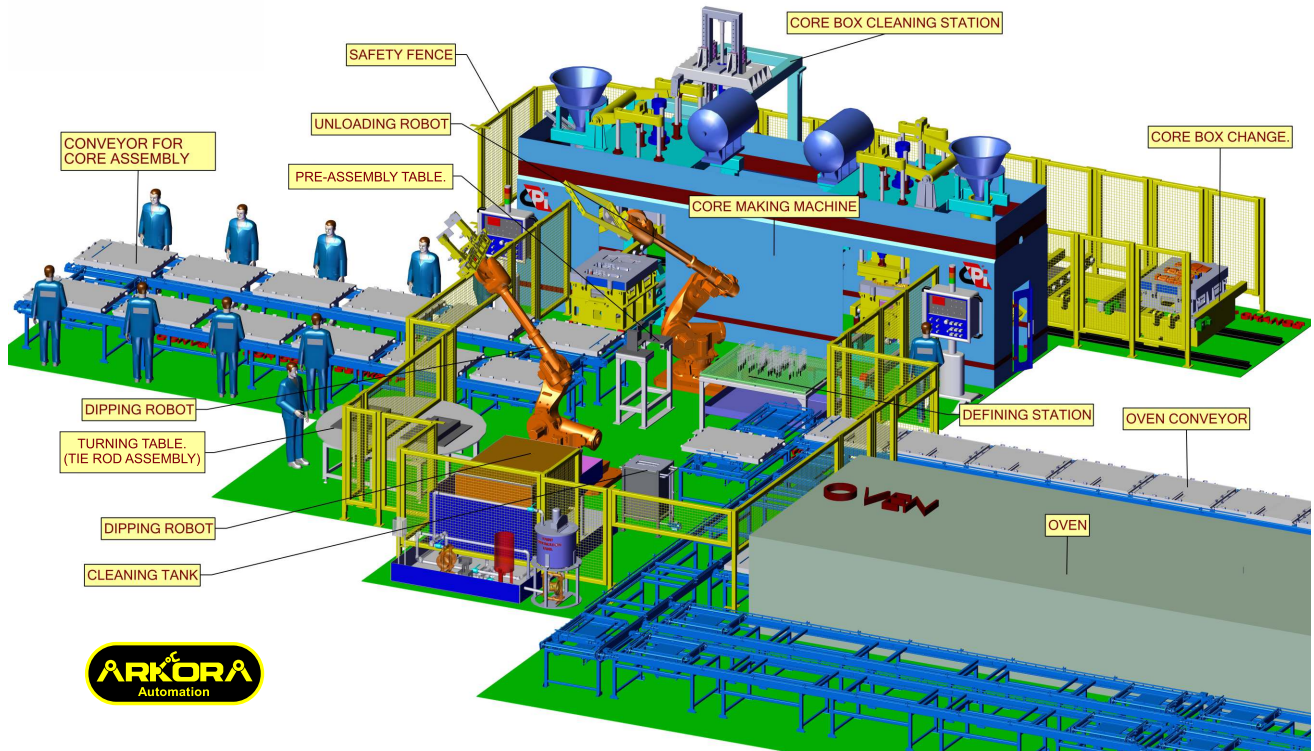


KEY FEATURES

- Machine capacity 120 ltr. HPL (Horizontal Parting Line) – 2 nos.
- Robot capacity 500 kg. – 2 nos.
- Robust, effective and reliable design
- Continuous clamping and no core box movement during the entire blow and cure cycle
- Quick tool change system with hydraulic operation
- Special coating in hopper, sand cartridge and blowing head, to avoid sand adhesion on the walls
- Advanced blow system with lower blow pressure to avoid wear & tear of core box tooling
- Automatic lubrication system
- Operator panel at the side of the machine
- Lower and upper core ejection system
- The machine is designed so that the core box remains stationary and solidly clamped under high pressure throughout the complete core making cycle

CORE CENTER

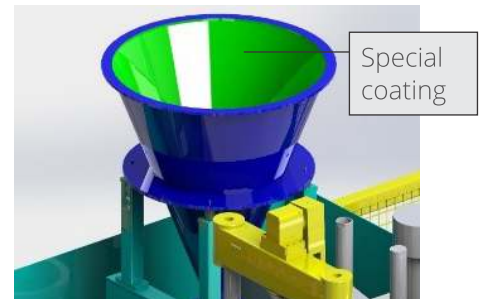
Details of core center



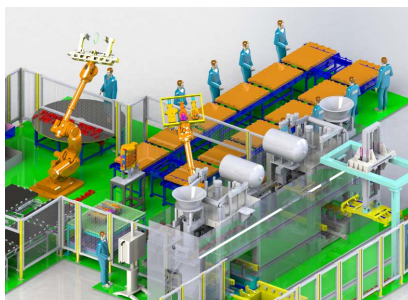
Pallet type core oven



Robotic core painting station



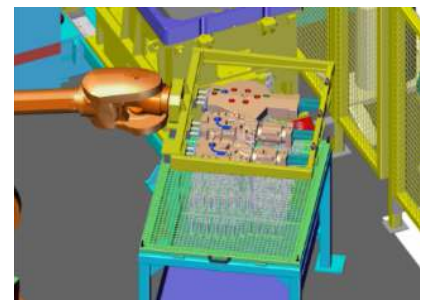
Special coating parts
1. Sand hopper
2. Upper sand bucket
3. Lower sand bucket
4. Shooting head



Core sub assembly station

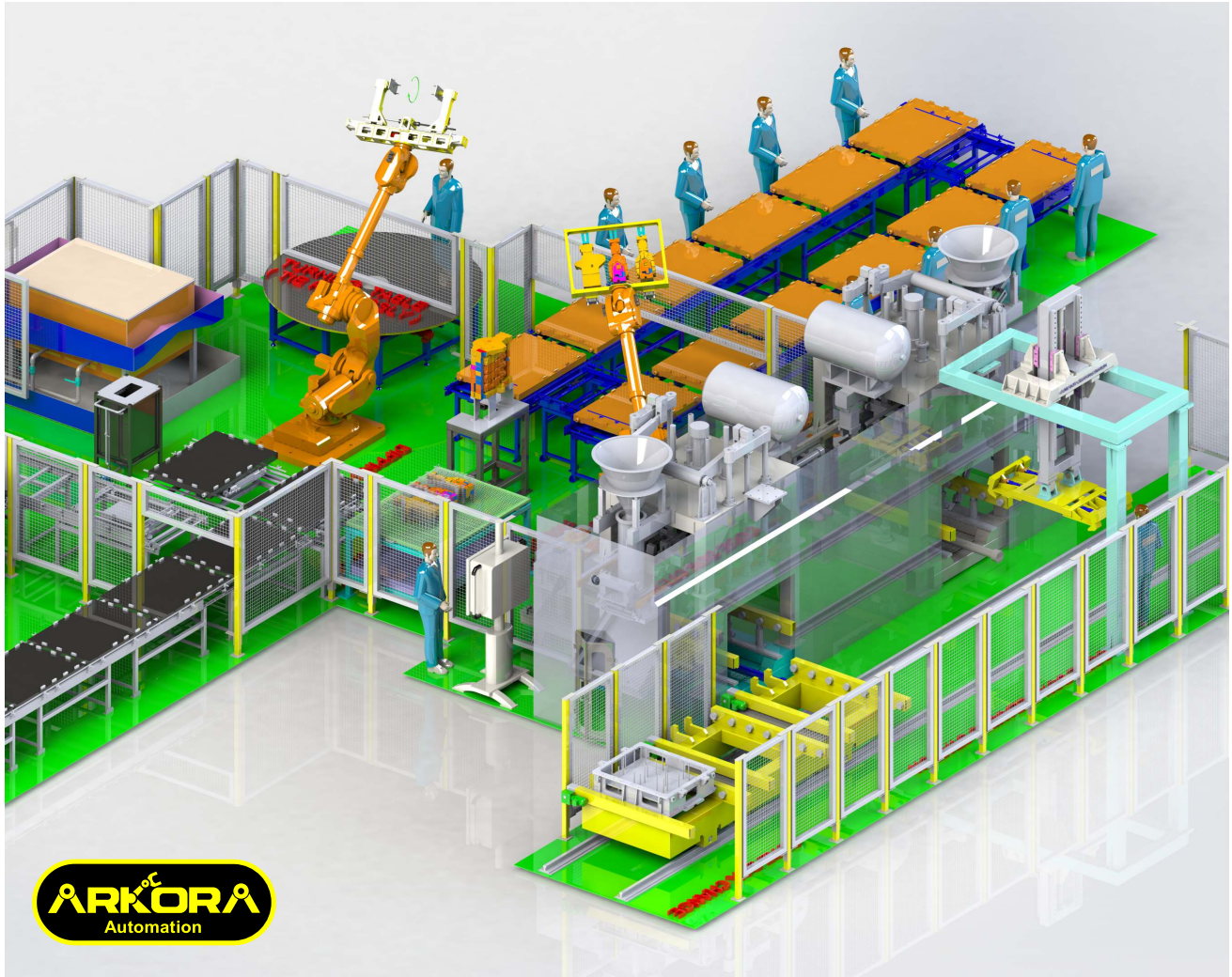


Core shooters
(with robotic core handling)




Robotic core dressing station

CORE CENTER



BENEFITS

- High productivity
- High quality core
- Less dependability on manual labor 
- Automation in core manufacturing and assembly process
- Core making machines are provided with common triple core box changing station
- Less tool change time
- Single line process flow to ensure consistent output

10. CORE PAINTING AUTOMATION

Robotic core painting

ARKORA Made Robotic core painting unit with core dipping in paint tank is manufactured wholly as per customer specific requirement.

Robotic core painting unit can be use for painting individual cores or for core assembly painting.



FEATURES

- Special type of robots suitable for foundry environment
- Robotic arm can be rotated in any direction with max. load carrying capacity of core wt. 150 kgs.
- Core can be tilted using gripper and fingers to avoid core paint accumulation in pockets
- Quick change system for gripper tool
- Auto inline viscosity control system

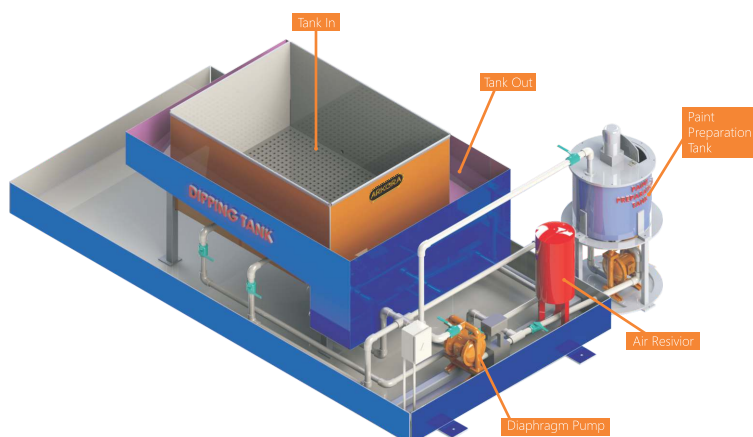
BENEFITS

- Uniform core painting
- Automation in core painting with improved process control
- Reduced manual dependency in painting process
- Increased fettling output since internal surface finish of casting is improved considerably
- Reduced casting defect due to core painting

Core paint preparation unit

Tank in Tank design of core paint tank.

Paint mixing unit is made of stainless steel material



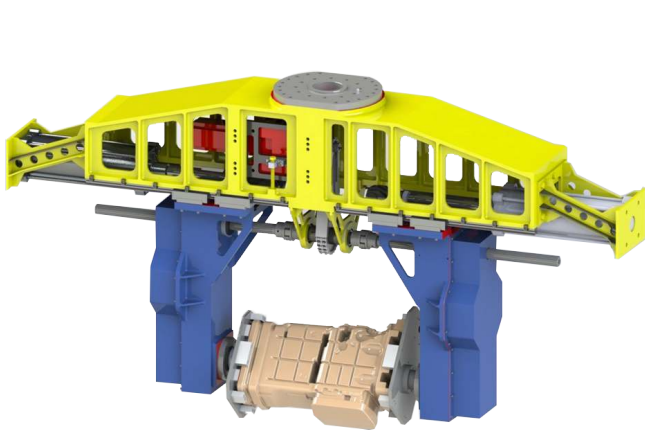
Inline auto viscosity controller

- Viscosity measurement every 30 sec.
- Auto addition of paint

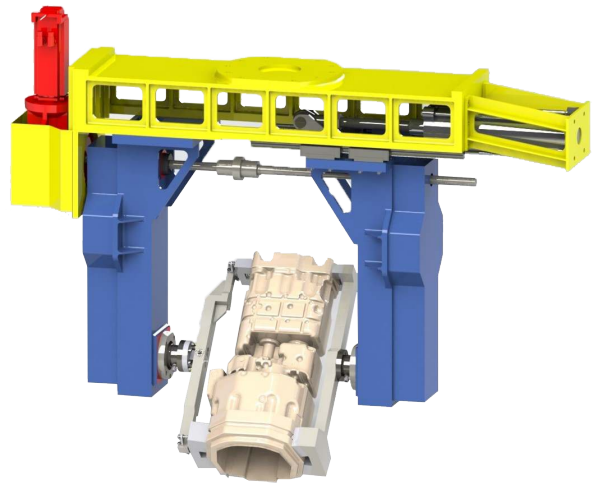
11. ROBOTIC GRIPPERS

Grippers for robots

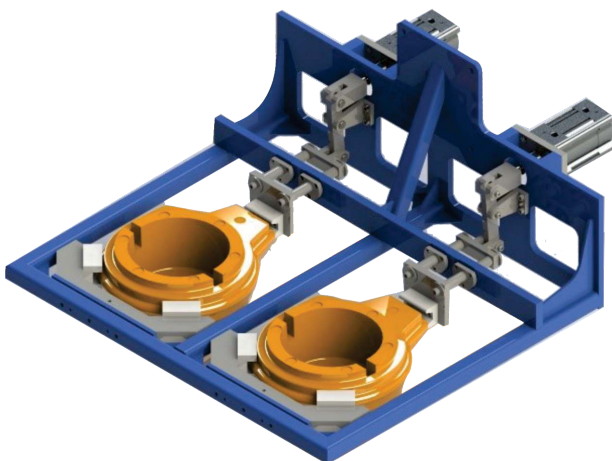
- Robotic gripper for core painting and dipping in paint tank are manufactured as per customer requirements
- Core grippers can be manufactured having capacity - 5 kg. to 250kg.
- Quick change system for grippers
- Special type of fingers will be provided suitable for required application
- Fingers are designed for easy and quick change



Gripper for holding horizontal core
capacity -200kgs.



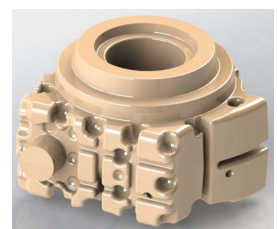
Gripper for holding vertical core
capacity -200kgs.



Special type gripper



Expanding gripper



12. TOOL MANUFACTURING

Core box tool manufacturing

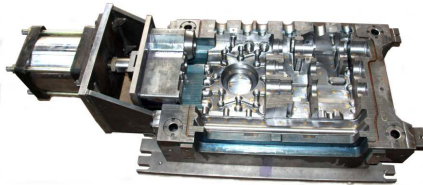
Inhouse capability of designing and manufacturing complete tooling solutions.



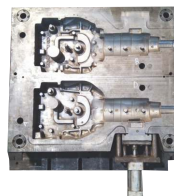
Inhouse tool inspection facility – CMM & 3D Scanning



- Core boxes for cold box and shell shooter machines required to produce castings such as housing , transmission, support, cylinder block & cylinder heads etc.
- Core boxes are manufactured in **Cast iron / Spheroidal graphite iron / P20 Material / Aluminum.**



Core Box (Cold Box)



Core Box (Shell)

3D printing technology

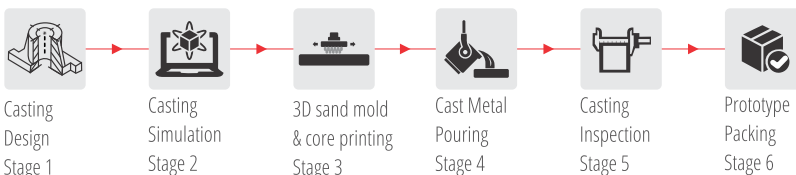
India's second largest sand 3D printing machine

Rapid production of core box tool using advanced 3D sand printing machine

Specification - Print space LxWxH - 4000 x 2000 x 1000mm

Benefits -

- Reduction in lead time (1-2) weeks
- Improved quality casting
- Casting weight reduction
- Improved casting surface finish
- Dimensional accuracy







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