

PSC - ISO 26623 - Quick change tool holding





PSC Quick-change tool holding system

Key features and benefits

Reduced downtime

- **Quick tool change:** PSC interface enables extremely fast tool changes, significantly reducing machine downtime. This is crucial in high-production environments.
- **Modular system:** Tools can be switched and changed without manual resetting, reducing setup times and boosting machine uptime.

High precision and stability

- **Excellent repeatability:** PSC guarantees 2 microns of repeatability between tool changes, ensuring consistent and accurate machining processes.
- **Superior clamping force:** Polygonal design provides maximum stability and rigidity, minimizing vibration and ensuring high precision in demanding applications.

Flexibility and modularity

- **One system for all processes:** PSC is designed to be universal tool holding system that can be used seamlessly between both milling and turning machines.
- **Short adapters:** Turning applications where gauge length is critical can utilize short adapters for manual tool change.

Increased productivity

- **One holder - many tools:** Allows the use of the same toolholders across multiple operations, increasing number of tool positions and improving production flow.
- **Enhanced cutting performance:** PSC is designed for higher cutting speeds and feeds, allowing for quicker cycle times and higher material removal rates.

Cost efficiency

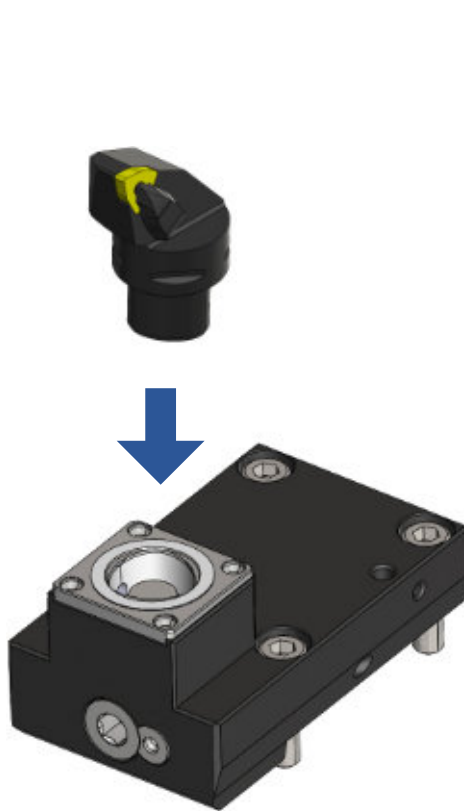
- **Reduced inventory:** Flexibility of modular system reduces the need for large tool inventories, cutting costs for replacement tools and minimizing overhead.
- **Extended tool life:** With superior stability and optimal clamping, tool life is extended, decreasing the frequency of tool replacements and reducing overall tool costs.

Integration with automation

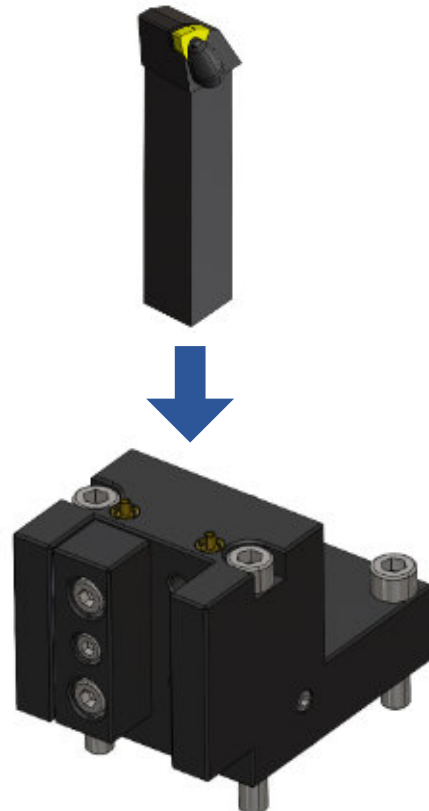
- **Robust automation compatibility:** Quick change design makes the system ideal for automated machining cells and robotic tool handling, enhancing efficiency in high-volume production.



Reduced downtime



Setup time = seconds



Setup time = minutes

- Quick tool change:

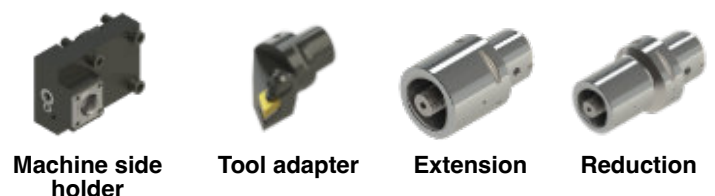
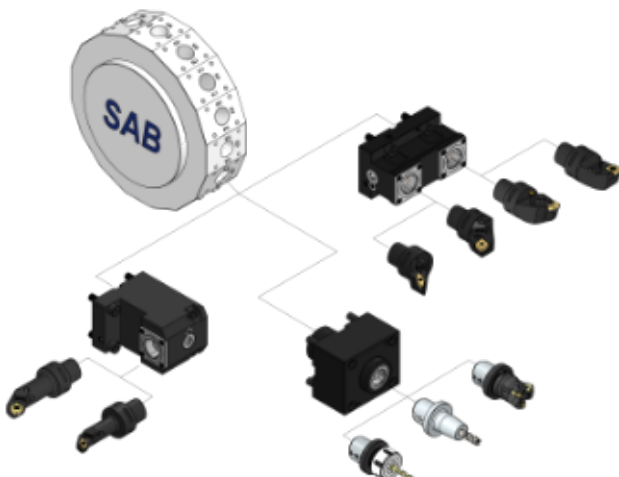
Polygonal interface enables changing of tools in matter of seconds compared to traditional shank tool holders which can take couple of minutes.

With PSC, you tighten only one segment and you are done. Depending on the complexity and number of tools on the machine, quick tool change can save a lot of setup time on high-cost-per-hour machines.

- Modular system:

Modularity of PSC tool holders enables high number of possible tooling combinations.

Different machine side options, extensions, reductions and tool adapters create new solutions for wide range of machining applications.



Machine side holder

Tool adapter

Extension

Reduction

High precision and stability

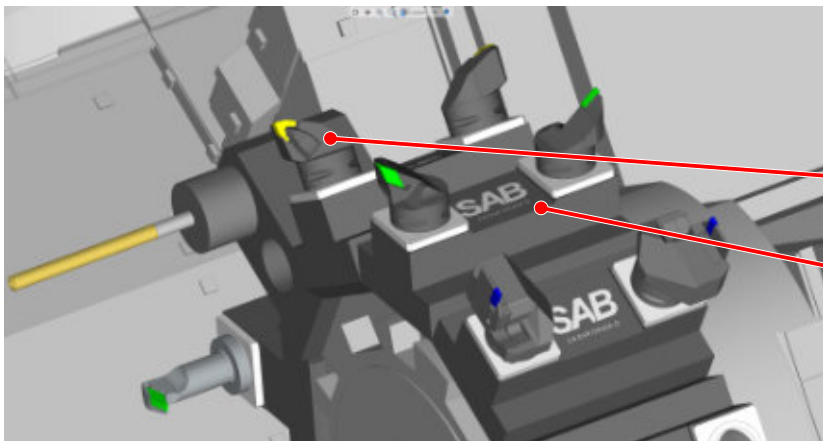
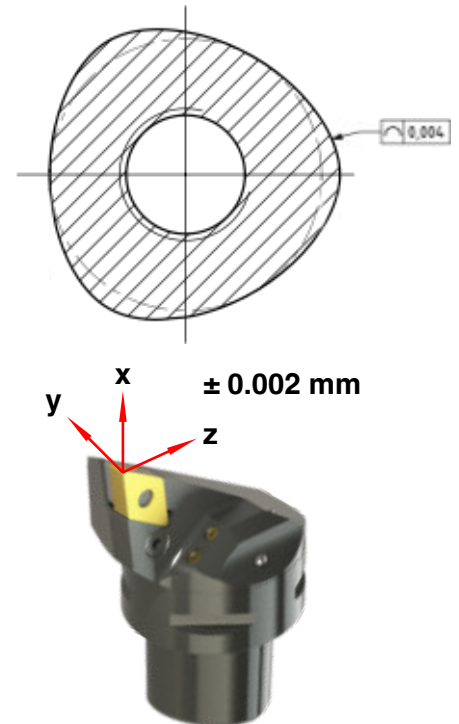
- Excellent repeatability:

ISO 26623 standard requires polygon profile to be made exactly to ± 0.002 mm and with additional face contact. This ensures self-centering and repeatability in X,Y,Z axes of less than ± 2 microns with the same adapter and machine side holder.

Practically speaking, this means that tool offsets can be measured outside of machine and directly input into the machine during setup. This eliminates offset measuring time in machine during setup.

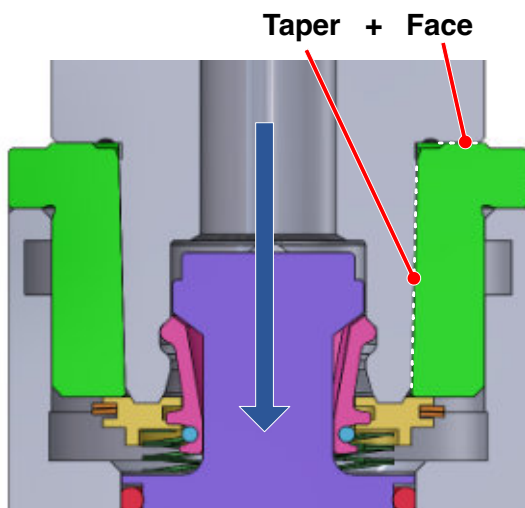
Another benefit of the system is accurate CAM simulation, since adapters can only be positioned and clamped one way, unlike traditional holders which can be clamped differently.

3D models for simulation are available on request.



Adapter 3D model

Machine side holder 3D model



- Superior clamping force:

Polygonal tapered shank provides greater surface contact between the holder and machine spindle as well as face contact.

This means increase in both radial and bending stiffness, as well as better torque transmission, allowing the tool to withstand greater cutting forces without deflection. This is particularly important during heavy or interrupted cutting operations where tool stability is critical for accuracy and performance.

PSC system therefore reduces vibration, improves surface finish and extends tool life.

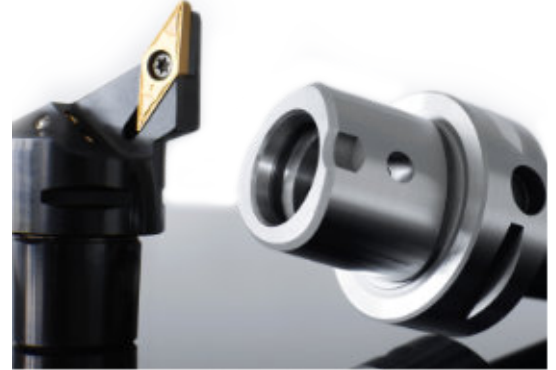
Flexibility and modularity

- One system for all processes:

PSC tool holders can be used for both turning and milling applications. Modular design allow using same tools across different machine types.

This allows reduced number of required tools and greater flexibility in operation.

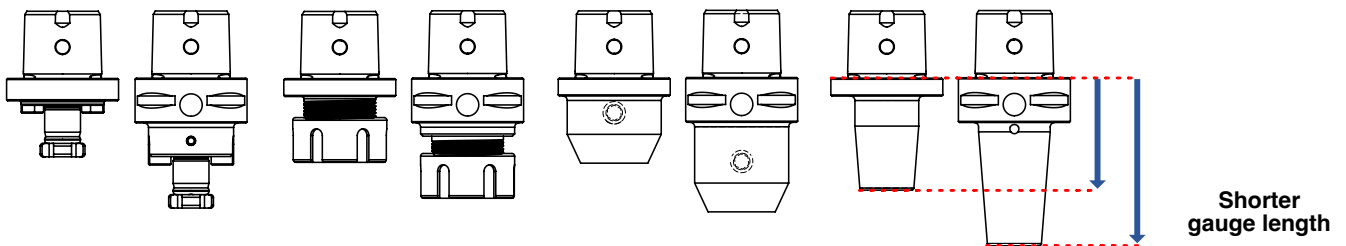
SAB offers ISO S, P and D insert clamping styles in PSC sizes from C4 to C8.



- Short adapters:

Short PSC adapters have exactly the same ISO 26223-1 taper as normal PSC adapters key with one difference - absence of gripper groove for automatic tool change.

As a result, tool overhang is reduced which helps you achieve stable process, higher quality parts, and more efficient machining.

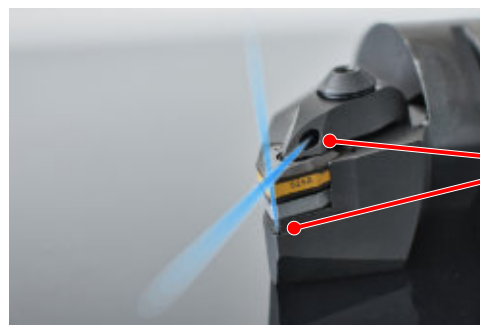
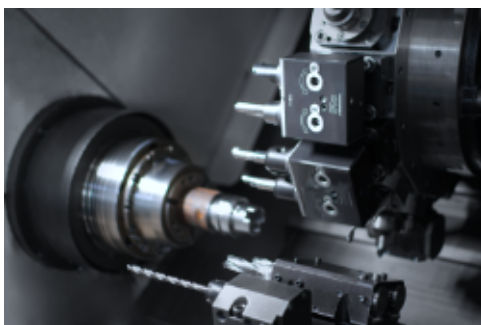


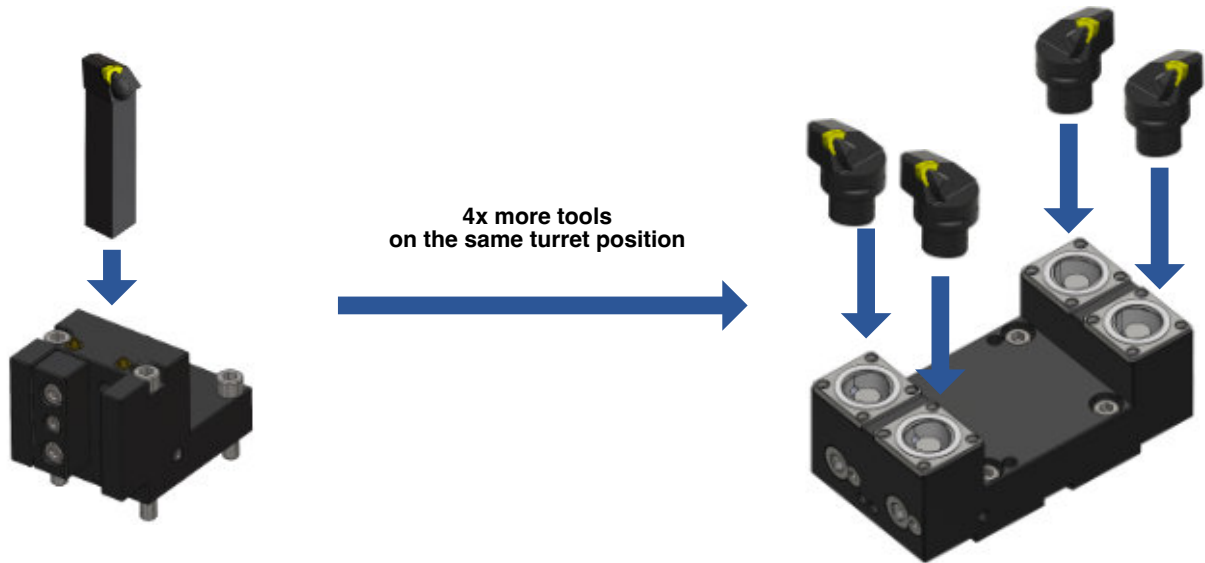
Increased productivity

- Enhanced cutting performance:

Higher speeds and feeds are possible due to increased stability of polygon interface. This reduces cycle times and improves productivity, as well as quality and surface finish of the parts. Tool life is also increased.

Coolant pipe setting is also not needed with PSC as adapters and holders feature direct coolant supply to the tool tip. Chip control is therefore increased.





- One holder - many tools:

Machine side holders on one turret position can have up to 4 adapter seats. This is due to compact design of segment clamping mechanism. This means that theoretically you can quadruple number of tools on the turret compared to traditional tool clamping.

There are many different options:

Double holder: used on machines with sub spindle



Y-axis holder: used on machines with Y axis turret



X-axis holder: internal turning only



Half turret index holder:



Double Y-axis holder: used on machines with both Y axis turret and sub spindle



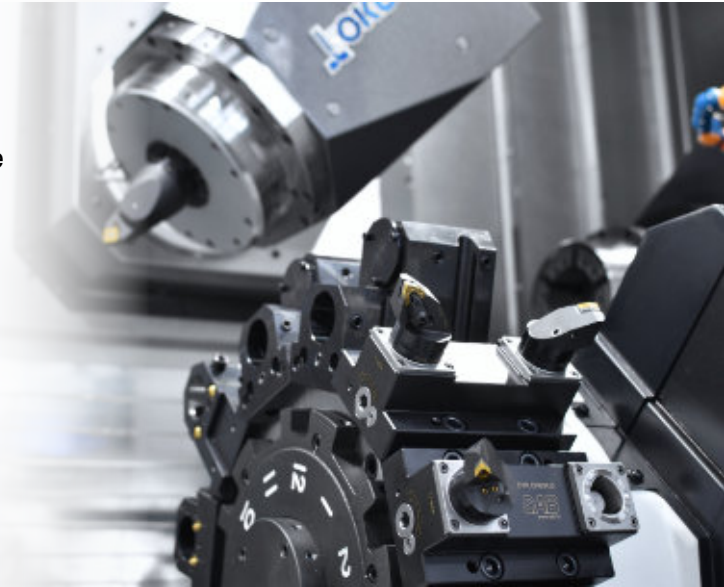
Cost efficiency

- Reduced inventory:

PSC tool holders can be used for both turning and milling applications. Modular design allow using same tools across different machine types.

This allows reduced number of required tools and greater flexibility in operation.

Additionally, PSC turning adapters are smaller in size and lighter than their traditional counterparts so storing them is much easier and requires less space and volume.

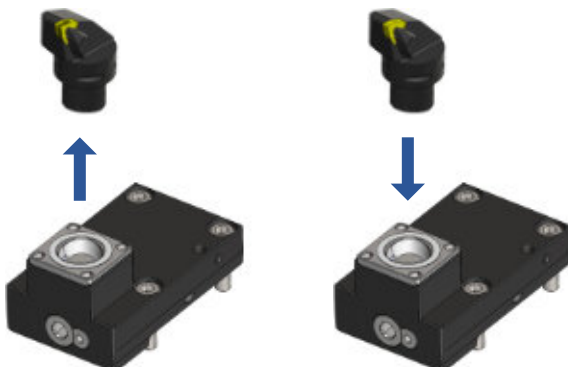


- Extended tool life:

With greater cutting stability that comes with PSC interface, tool life is significantly extended which reduces tooling costs and frequency of tool replacement.

When tool replacement needs to take place though, you don't need to replace insert, you can much quickly replace whole adapter that is ready with new insert and machine can go back to work, while old insert is replaced outside of machine.

Therefore it is highly recommended to always equip machine with pairs of adapter, so that any interruptions to the machining process can be kept at minimum.



First adapter with worn insert out

Second adapter with new insert in



Machine START - in seconds!



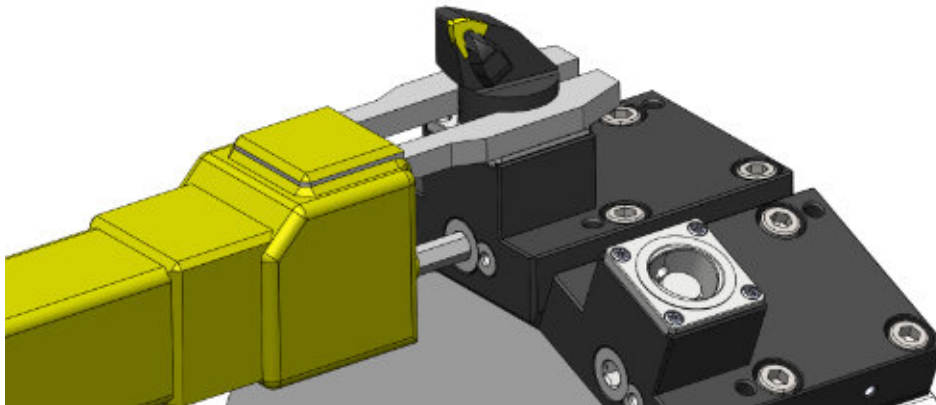
Outside machine - insert replacement

Integration with automation

- Robust automation compatibility:

Self-centering and repeatable PSC tapered shank makes it an ideal interface for automation applications in automated machining cells.

Robotic arm equipped with correct PSC gripper and correct size hex key can perform automatic tool change and setup on turning machine turrets. This enables further automation of machining process and lights-out machining.

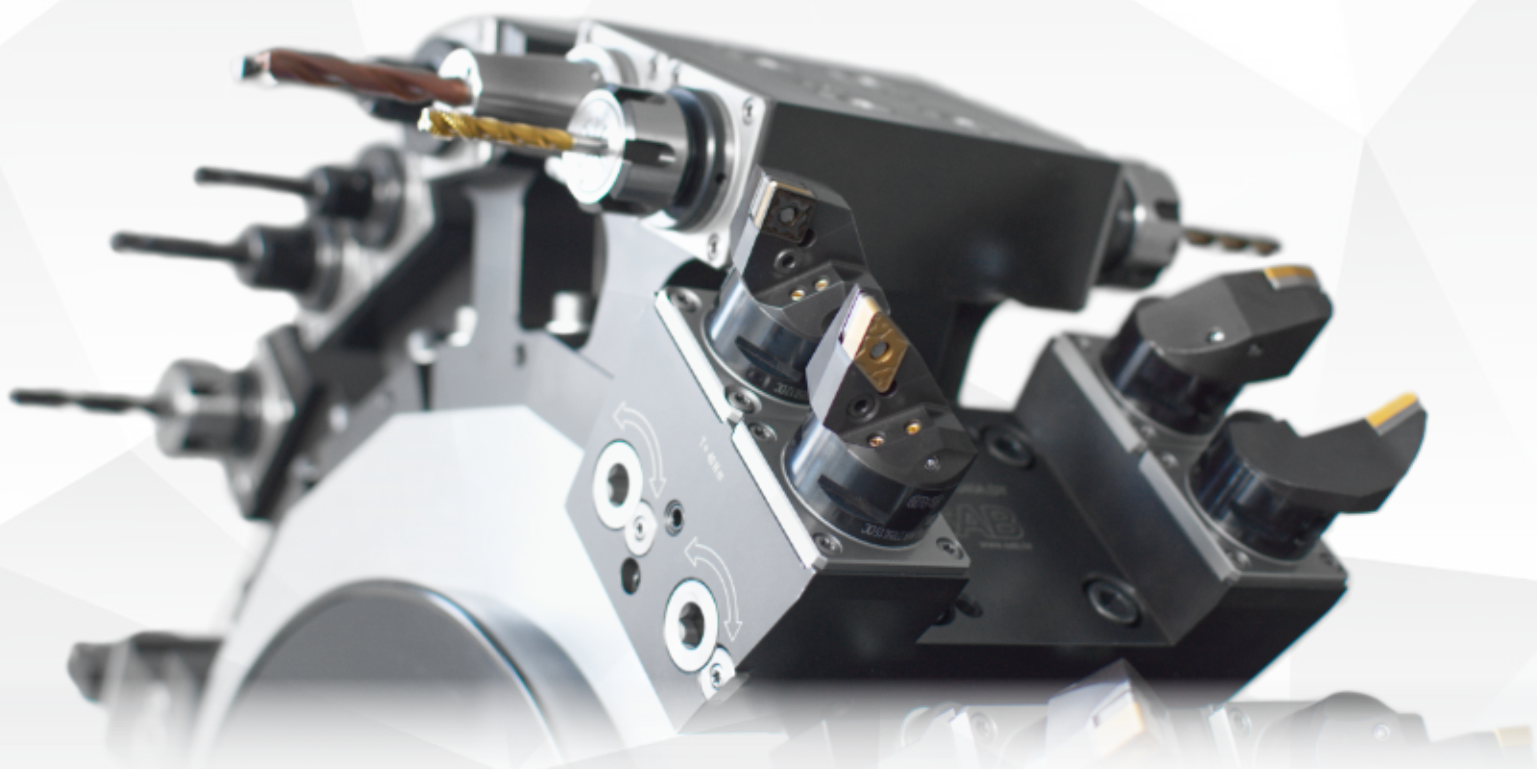


High precision as standard

In order to ensure highest levels of quality, precision, and compatibility, SAB manufactures ISO 26623 tool holders using the same special inspection and manufacturing equipment and procedures as other major suppliers in the industry.

- Laboratory quality certified inspection equipment
- Inspection protocols equal to those of major industry competitors
- State-of-the-art manufacturing equipment
- ISO 9001 certified company
- AUKOM certified quality inspectors
- ISO 26623 compliant





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Find additional information
and product catalogues

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