SXKYYC®

Isostatic Press | Design · Manufacture · Service |



Since 1988

Concentration and persistence for 40 years,
Manufacture for you dedicated to manufacturing.

CIP PRODUCT PRESENTATION

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Our Story

1988

Technical origin

Mr. Dong Zhongtian serving as Chief Engineer of Shanxi Automobile Manufacturer established Technology Development Department to research and produce the first CIP used to produce magnet materials.

1996

Setup of company

Mr. Dong Zhongtian set up SXKYYC, with the registered capital of RMB 1 million.

2000

Exploration and improvement

Improve company system and determine product direction.

2004

Continuous development

Improve production conditions and processing equipments.

2011

Lean production

Sign the contract with a leading manufacture management consulting organization in China and begin “lean production” mode.

2012

Increase in capital and share

Increase the registered capital to RMB 15.01 million.

2015

Start the research and development of dry-bag isostatic press

Pioneering steel strip winding dry bag isostatic press, laying the foundation for manufacturing large diameter dry bag isostatic press.

2021

Capacity increase

The production area rose to 6000m2, and the number of isostatic presses exceeded 1000 sets.

In the future, we will still stick to our original intention, keep improving, and manufacture for you dedicated to manufacturing.

Who are we?

SXKYYC was founded in 1996, whose predecessor is Shanxi Kaiyuan Permanent Magnet Company which researched and produced the first magnetic field pressing machine especially for sintering NdFeB, and the first isostatic press especially for NdFeB. Later, we were dedicated to design, manufacture and service for isostatic pressing powder forming equipment.

Today, SXKYYC has become an important provider for isostatic pressing powder forming solution in China. As a high-tech enterprise in Shanxi Province, SXKYYC has a provincial-level technology center and has gained dozens of national invention patents and utility model patents. Meanwhile, it has core technologies in superhigh pressure booster, sealing and lean control, etc. Meanwhile, we also have established thorough production management information system, internal training and external training systems for company employees, with machining, material testing and so on required by production of isostatic press.

To meet all kinds of production and experiment needs for powder isostatic formation, SXKYYC has designed and manufactured multiple series of isostatic press which have been widely applied in industries such as advanced ceramics, powder metallurgy, NdFeB magnetic materials and hard alloy. With the rapid development of new material industry, we will continue to make efforts to provide more intelligent, reliable and safer isostatic press and automatic production lines.

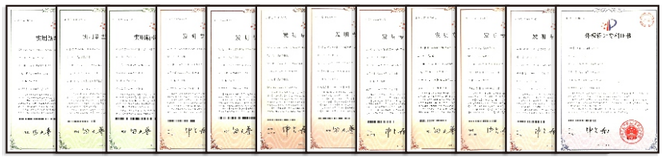












- High-tech enterprise
- Provincial-level small and medium enterprise technology center
- High-integrity enterprise in Shanxi Province
- 9000 quality management system certification
- Multiple invention patents and utility model patents
- The products have been exported to multiple countries and regions and experienced rigorous EU CE certification

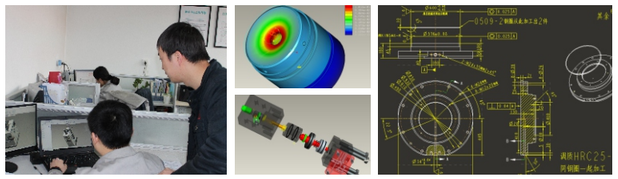
Innovation and win-win

We are devoted to scientific and technological innovation for products, and providing professional services and consultations for users, in the hope of making deeper exploration of isostatic power formation field and completing pioneering work together with users. Hence, we have established enterprise technology center and owned independent laboratory area and experimental equipments. Besides, we design and optimize forming moulds and keep continuing isostatic pressing technology. Clients from different industries come and go. Professional partners also seek cooperation for special themes.

Design & Manufacturing

Design and drawing

The key pressure-containing member is verified with finite element analysis. 3D modeling, automatic generation of plane drawing and associated BOM have been overall applied for product structure design, so high customization design efficiency can be achieved.



Blanking and parts machining

SXKYYC owns all equipments required by production of isostatic presses, such as metal cutting, metal surface finishing and steel-strip winding. The workshop production field conforms to 5S standards, and all pieces of equipment reach national safety and environmental requirements. Shot blasting process is adopted for metal surface to enhance surface quality of products.



Parts preparation and detection

Complete inspection is required for all purchased parts. Self-made parts which circulate in the plant are checked by inspection personnel. Besides, there are inspection records and feedback mechanism. There are instruments and apparatus such as metal hardness measurement, ultrasonic flaw detection and metal pipe pry.



Assembling and debugging

After equipment parts machining is completed, each machine type is assembled by special assembly group, and the electric group is responsible for wiring and debugging until the performance of the whole machine can reach the acceptance standards.



Dust-free paint spraying and packaging

After the equipment passes performance acceptance inspection, painting is finished in the dust-free spraying workshop which meets environmental protection requirements. After drying, appearance and integrity detection will be done. Finally, packaging and delivery are conducted.



Service

Pre-sale service

Since isostatic press belongs to customization equipment, the main work of our pre-sale service is to assist clients in knowing whether the product is suitable for isostatic pressing process and to choose the equipment model matched with clients' products. Our team can provide the following services for you:

- There is special isostatic pressing experiment zone which can help clients complete initial isostatic powder formability test;
- Provide technology consultation on isostatic pressing technology;
- Assist clients in completing isostatic mould design and scheme verification;
- Capacity accounting and planning for isostatic pressing process ;

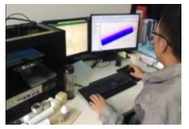
We have invested special technical force to study formation, simulate the change process of moulds and product under pressure on nonlinear finite element analysis software, analyze stress, optimize mould design and control the compaction shape.













After-sale service

We own a professional after-sale service team with exquisite technology and rich experience. Each member has explicit work. Our team will provide the following services:

- Technical consulting service for equipment fault;
- Door-to-door product installation and debugging, equipment moving guidance;
- Personnel training for client unit;
- Door-to-door repair and irregular return visit;
- Long-term supply of various parts;
- Long-term preservation of equipment data, drawings, user repair records and other information for users, free from field surveying and mapping.

Cold Isostatic Press

Technical principle of isostatic pressing

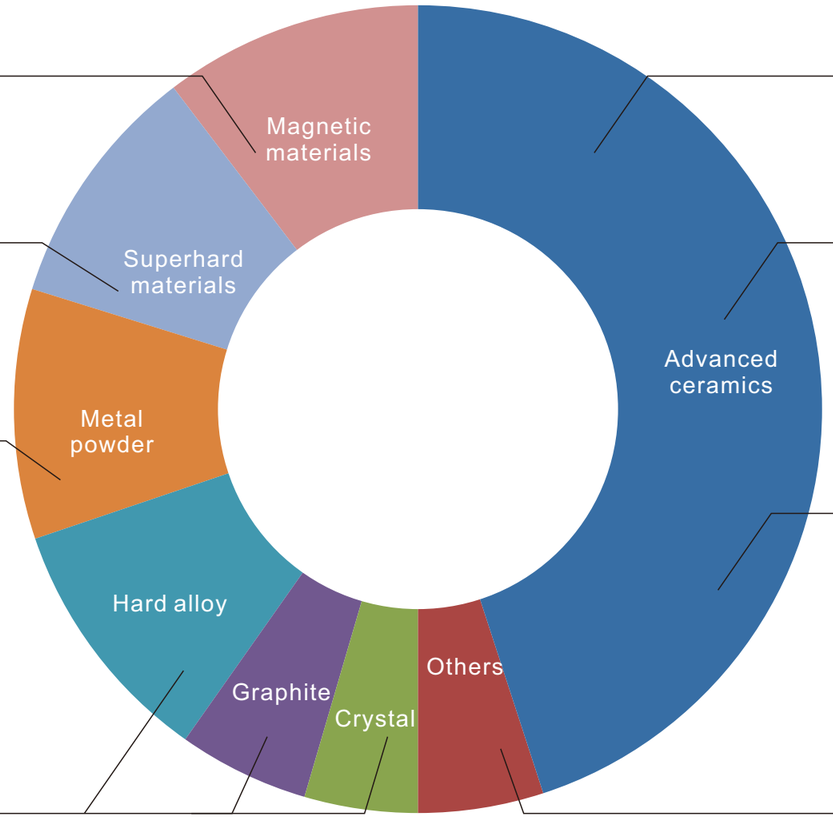
The isostatic pressing machine places products in the closed container full of liquid and utilizes the principle that liquid transfers equal pressure (Pascal's principle) to make the product form and densify in the high-pressure liquid environment.

The advantages of isostatic pressing formation?



- Isostatic press is used to make the base. The density of the base is high and even. The sintering shrinkage is small, ad it is not easy to deform.
- The products of different size could be formed in a single cylinder of isostatic pressing machine, so the range of application is wide;
- Long and thin rodlike or tube-shaped bases which are difficult to be made with conventional molding process.

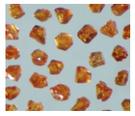
Conventional application distribution of cold isostatic




Sintered NdFeB


Samarium cobalt


Artificial diamond


Cubic Boron Nitride


Electrical alloy

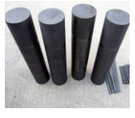

Tungsten molybdenum products

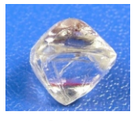

Metal filter


Target materials


Target Tungsten alloymaterials


Graphite

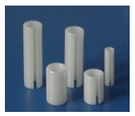

Graphite


Crystal

Zirconia ceramics products


Backboard of mobile phone


Dental Zirconium block


Ferrule


Oxygen content sensor

Aluminum oxide ceramics


Textile ceramics


Structural component


Ceramic shaft

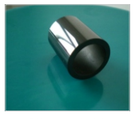

Vacuum arc-extinguishing chamber

Other ceramic products


NTC thermistor


Pressureless sintered silicon carbide


Silicon nitride ceramic balls


Silicon nitride structural component

Other new materials


Teflon


Water pressure test/ Seawater pressure simulation

U series//

Type features:

The equipment covers a small area, with high integration level, and the pressing process can be controlled accurately.
Suitable for the enterprises and scientific research institutions with high requirements for pressure control precision and production field.

Model information:

Useful diameter of pressure vessel: 100/150mm
Useful depth of pressure vessel: 300mm
Maximum working pressure: 250/300/350/400MPa
Heating: can be heated to 85~120 degrees Celsius according to customer needs
Design structure: integrated
Pressure boosting mode: one-strike pressure boosting
Equipment installation form: ground installation
Control mode: full control scheme/ servo control scheme
Human-computer interface: touch screen
Technological parameters and curve: can be recorded, stored and exported to PC
Working medium: water + rust-proofing agent/special oil for isostatic press / seawater
Hydraulic medium: antiwear hydraulic oil



Model information:

Useful diameter of pressure vessel: 300mm
Useful depth of pressure vessel: 400mm
Maximum working pressure: 200/250/300MPa
Heating: can be heated to 85-120 degrees Celsius according to customer needs
Design structure: integrated
Pressure boosting mode: One-strike pressure boosting
Equipment installation form: ground installation
Control mode: servo control scheme
Human-computer interface: touch screen
Technological parameters and curve: can be recorded, stored and exported to PC
Working medium: water + rust-proofing agent/special oil for isostatic press
Hydraulic medium: antiwear hydraulic oil



S series //

Type features:

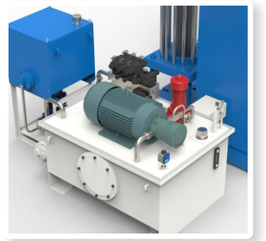
The equipment has a compact structure, with low mechanical failure rate. A fastest working cycle can be finished within 3min, with high production efficiency.

Model information:

Useful diameter of pressure vessel: 150/200/250/300mm
Useful depth of pressure vessel: 300/350/400mm
Maximum working pressure: 200/250/300/350/400MPa
Design structure: fixed
Pressure boosting mode: One-strike pressure boosting
Equipment installation form: ground installation
Control mode: basic control scheme/full control scheme
Human-computer interface: text screen/touch screen
Technological parameters and curve: can be recorded and stored; can be exported to PC (for touch screen)
Working medium: water + rust-proofing agent/special oil for isostatic press
Hydraulic medium: antiwear hydraulic oil









C series //

Type features:

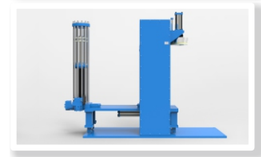
Concise structure, mature technical solution, easy to maintain.

Model information:

Useful diameter of pressure vessel: 200mm~600mm (customization size)
Useful depth of pressure vessel: 400mm~1500mm (customization size)
Maximum working pressure: 150/200/250/300/350MPa
Design structure of main machine: high pressure vessel is mobile type
Design structure of the whole machine: split type
Pressure boosting mode: batch-type multiple-strike pressure boosting/ reciprocating continuous pressure boosting
Equipment installation form: ground installation/pit installation
Control mode: basic control scheme
Human-computer interface: text screen/touch screen
Technological parameters and curve: can be recorded and stored; can be exported to PC (for touch screen)
Working medium: water + rust-proofing agent/ special oil for isostatic press
Hydraulic medium: antiwear hydraulic oil







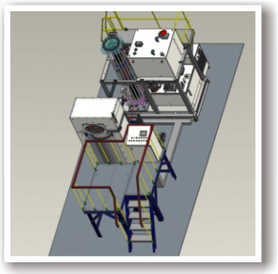
M series//

Type features

Medium and large isostatic presses with sound functions, stable operation, elegant appearance.

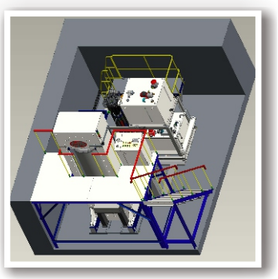
Model information:

Useful diameter of pressure vessel: 300mm~900mm (customization size)
Useful depth of pressure vessel: 500mm~3000mm(customization size)
Maximum working pressure: 150/200/250/300/350MPa
Design structure of main machine: yoke frame is mobile type
Design structure of booster station: integrated type
Pressure boosting mode: reciprocating continuous pressure boosting
Equipment installation form: ground installation/pit installation
Control mode: basic control scheme/ servo control scheme
Human-computer interface: touch screen
Technological parameters and curve: can be recorded, stored and exported to PC
Working medium: water + rust-proofing agent/special oil for isostatic press
Hydraulic medium: antiwear hydraulic oil



Ground installation

Easy installation; maintenance space is not limited; original plant structure is not changed; suitable for the equipment with the total height less than 4m.



Pit installation

The operation surface is parallel and level to the ground; convenient and fast operation; plant height is not occupied; pit construction should be done in advance.



What is Dry-bag isostatic press?

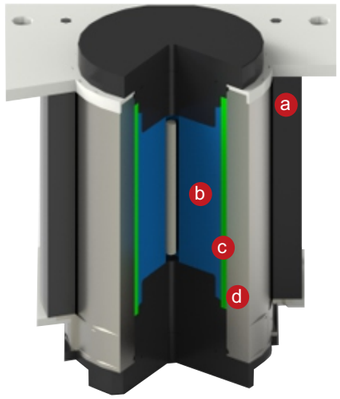
Dry-bag isostatic press is a type of isostatic press that seals the liquid working medium between the flexible dry bag and the inner wall of the high-pressure vessel. The forming mold is placed in the dry bag, and the liquid working medium is pressurized around the mold through the dry bag. After the powder is formed, the equipment automatically removes the mold or the pressed blank, eliminating the need for manual removal of the mold from the high-pressure vessel.

❶ Can easily press slender rods or pipes with a length to diameter ratio greater than 10 without bending. Compared to wet bag static presses, the surface smoothness is higher and the material loss is smaller;

❷ The working liquid in the high-pressure vessel is always in a closed state throughout the entire working cycle, completely eliminating the possibility of powder mixing into the working medium in the high-pressure vessel and improving the overall reliability of the equipment. At the same time, there is no need to worry about the poor sealing of the mold, which may contaminate the product with the working liquid, effectively improving the yield and reducing production costs;

❸ The high-pressure vessel comes with a powder compaction function, and the pressed products can be equipped with an automatic demolding device, which improves the automation level of the equipment and reduces the labor intensity and ability requirements of manual labor; This series of equipment can also be linked by multiple machines to form an automated molding production line;

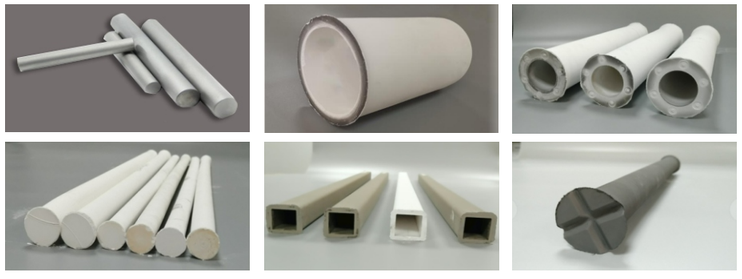
❹ The whole machine adopts a servo hydraulic system, which makes the working process ultra quiet and optimizes the working environment.



ⓐ Prestressed steel strip layer
ⓑ Embedded mold
ⓒ Flexible dry bag
ⓓ Alloy steel forging layer

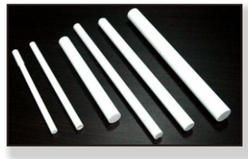
Application Area

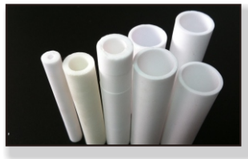
Various types of static pressure blanks such as round tubes, square tubes, round rods, crucibles, etc

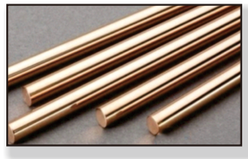


Common finished products


Hard alloy rods


Ceramic rods


Ceramic tubes


Metal rods

Steel strip winding structure

The main structure of the equipment inherits the stress design of the main part of the wet bag press, and all pressure bearing components are wrapped in a structure wrapped with prestressed steel strips, which is currently recognized as the safest and most reliable structural form worldwide. The high-pressure vessel of the isostatic press without steel strip winding, during the repeated process of pressure increase and decrease, once it approaches the fatigue limit of the material or there are defects inside the material, it is a safety hazard in the workshop, and the larger the cylinder diameter, the greater the power.





ⓐ Steel strip winding frame and high-pressure chamber vessel

Model Table of Dry-Bag Isostatic Press

Model		GE80	GE100	GE150	GE200	GE250	GE300	GE400
Inner dia. of dry bag		80mm	100mm	150mm	200mm	250mm	300mm	400mm
Depth	300mm					√	√	
	400mm	√	√		√	√	√	√
	500mm			√	√	√	√	√
	700mm			√	√	√	√	√
	X ≤ 1500mm				√	√	√	√
Pressure	100MPa				√	√	√	√
	150MPa	√	√	√	√	√	√	√
	200MPa	√	√	√	√	√	√	√
Rotary operation platform				Optional	√	√	√	√

G series// KJYge80/100

Type features:

The equipment has a small footprint, high integration, and a fast working cycle speed.
Suitable for pressing small products and narrow production spaces

Model information

Inner diameter of dry bag: 80/100mm
Dry bag loading depth: 400mm;
Maximum working pressure: 150/200MPa;
Single working cycle time: about 2-2.5 minutes;
Control method: servo control scheme;
Human machine interface: touch screen;
Process parameters and curves: can be recorded, stored,
and exported to a PC computer;
Hydraulic medium: anti-wear hydraulic oil;
Equipment installation form: ground installation;
Height: 2300mm;
Floor space:1600 * 1100mm;
Color: white with red decorative strip;



G series // KJYge100/150

Type features:

Suitable for pressing small-sized rod-shaped or tubular products, it can be combined with multiple machines to form an automated molding production line.

Model information

Inner diameter of dry bag: 150mm
Dry bag loading depth: 500/700mm;
Maximum working pressure: 150/200MPa;
Mold cavity form: single cylinder type;
Control method: servo control scheme;
Human machine interface: touch screen;
Process parameters and curves: can be recorded, stored, and exported to
a PC computer;
Hydraulic medium: anti-wear hydraulic oil;
Installation form: ground installation;
Height: 2650-3040mm;
Floor space: 2900 * 2300mm;
Color: white with red decorative strip;



G series// KJYge200/250/300/400

Type features:

Large inner diameter and lording depth dry bag

Inner diameter of dry bag： 200-400mm;
Dry bag loading depth: 300-1200mm ;
Maximum working pressure: 200MPa;
Single working cycle time: 3~15min;



Single machine



Single machine with roller conveyor line









Single machine equipped with four station rotating operation table

Single machine with multi station rotary operation platform +loading machine+Automatic demolding robot arm

