



SCREWS | BARRELS | TIE BARS PROFESSIONAL MANUFACTURER

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About JINYI Screw





With over 25 years development, Ningbo Jinyi Precision Machinery Co.,Ltd. is now one of the larger companies specialized in manufacturing Screws, Barrels & Tie Bars. With our 300 employees and 5 factories based in Ningbo & Zhoushan, JINYI commits to designing and supplying precision parts for the plastics, rubber, food and medical industries.

Focusing on Precise Machining, JINYI has an extremely large database of prints, drawings, and factory OEM specifications. While paying attention to skilled personnel training, we also imported series of advanced equipment, such as CNC Machining Center, CNC Turning Machine, Inner Hole Grinding Machine, 13 Meters Deep Hole Boring Machine, NC drilling machine, Nitriding Furnace Computer Control System, Centrifugal Casting Furnace, PTA Bimetallic Spraying Equipment, gear milling machine and so on .

At the same time, JINYI continues to improve Quality Control System through precise inspection during every step of the production. With our excellent quality, we have already established long term cooperation with many well-known companies both in China and overseas. We are one of the first companies to implement the ISO9001 & SGS Certification in our industry.

Our Capabilities



Centrifugal Casting Equipment

Imported centrifugal casting equipment, can produce various Fe-based, Ni-based&Co-based bimetallic barrels as per requirement.



PTA Bimetallic Spray Equipment

Replacing traditional manual spray, PTA can significantly improve production efficiency & bimetallic precision.



CNC Machine Center



Nitriding Oven



CNC Polishing Machine



CNC Grinding Machine



Rockwell Hardness Tester



Coordinate Measuring Machining



Bruker Spectrometer



Metallographic Microscope

Our Advantage



Fast Turnaround

Based in the dynamic port city of Ningbo, we complete and ship your orders quickly. You can count on us to deliver high quality products on time.



Full Year Warranty

We are confident with providing a one-year warranty on materials and workmanship on all our products.



Cost Effective

We strive to exceed client expectations with our products and services. Comprehensive preplanning insures all work is done in cost-effective manner.



Measurement Devices

JINYI offers a complete line of highly accurate bore gauges and wear measurement devices.



Bimetallic Alloy



For Barrels

JINYI invested in metallurgical research and this allowed us to offer an exclusive range of bimetallic alloys that solve wear problems. The bimetallic alloys are produced in modern sophisticated centrifugal casting facilities.

The advantage of our bimetallic alloys is the high and homogeneous hardness throughout the whole layer thickness which ranges from 1.5 to 2 mm thickness. The lifetime increase of the bimetallic cylinder against a nitrided cylinder may exceed 12 times or more. The price-quality-lifetime ratio is therefore very beneficial for the bimetallic cylinder. We have three different alloy solutions listed in the table below. We qualified the quality of the different alloys according abrasion and or corrosion resistance to enable a quick selection.



JYK series bimetallic alloys for barrels.

_	Composition (Weight %)									
Туре	Cr	С	Fe	В	Si	W *	Mn	Ni	Others	
JYK-1, C	8	1.2	Bal	4.3	4	/	0.65	10.8	< 1.0	
JYK-2, B	8	1.4	5	4	3.3	16.5	0.5	Bal	< 1.0	
JYK-3, A	8	1.4	5	4	3.3	40.0	0.5	Bal	< 1.0	

* Highest composition of tungsten carbide can go up to 45%, which enables the barrels have 5 times wear-resistance capability than normal bimetallic barrels and up to 60% glass fibre filling in general & engineering plastics materials.

Туре	Alloy Components	Hardness (HRC)	Abrasive Resistance	Corrosion Resistance	Applications
JYK-1, C	Fe, Cr, Ni	56 - 60	*	*	Recycling & engineering plastics, reinforced additives less than 20%.
JYK-2, B	Ni, W, Cr	58 - 62	**	**	Moderate corrosive, reinforced additives less than 35%.
JYK-3, A	Ni, W, Cr	60 - 64	***	**	High abrasive and moderate corrosive plastics.

* Suitability: (\star good) to ($\star \star \star$ excellent).

For Screws

For Base Materials JINYIt offers a full range of single and twin screws. Based on our extensive experience we offer different materials types and treatments to fight wear. The materials range from nitriding steels, stainless steels, tool steels up to steels produced by powder technology (PM).

* Suitability: (\star good) to ($\star \star \star$ excellent).

JYS series bimetallic alloys for screws.

Туре	Alloy Components	Hardness (HRC)	Abrasive Resistance	Corrosion Resistance	Applications
JYS-1, B	Ni, Cr, Si	52- 56	*	*	Recycling & engineering plastics.
JYS-2, A	Ni, Cr, W	54- 58	**	*	Engineering plastics, reinforced additives less than 20%.
JYS-3, D	Co, Cr, W	44 - 48	*	**	Reinforced additives and corrosive plastics less than 15%.

Comparison of three different coating technologies.

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Coating Method	Coating Type	Coating Thickness (mm)	Hardness (HV)	Max. Length (mm)	Applications
Chrome plating	Chromium	0.02 - 0.08	650 – 720	6000	Transparent products & corrosive plastics processing.
PVD	TiN, CrN, AITiN	0.002 - 0.003	2000 - 2200	1900	Optical products & abrasive plastics processing.
HVOF	Tungsten carbide	1.0 - 1.5	1100 - 1400	2300	High abrasive plastics processing.

Here is a list of our regular base materials.

JINYI	China	China Japan		Germany	Hardpoos	Applications
CODE	GB	JIS	AISI/SAE	DIN	- Haruness	Applications
JYN1	38CrMoAl	SACM645	6470E	41CrAIMo7	HV 950-1000	Common plastic
JYN2	40Cr	SCr440	5140	1.7035	HRC 42-55	Bimetallic base
JYN3	42CrMo	SCM440	4140	1.7223	HRC 48-52	Tiebar
JYN4	45#	S45C	1045	1.1191	HRC 42-46	Accessories
JYH5	Cr12MoV	~SKD11	D5	1.2601	HRC 56-58	Engineering plastic
JYH6	4Cr5MoSiV1	SKD61	H13	1.2344	HRC 50-52	Engineering plastic
JYH7	9Cr18MoV	SUS440B	440B	1.4112	HRC 56-58	Corrosive plastic
JYG1					HRC 54-60	<30% Glass fibre
JYG2	_				HRC 60-65	<50% Glass fibre
JYG3	_				HRC 58-62	<40% Glass fibre
JYG4	- Confidenti				HRC 62-65	>50% Glass fibre
JYG5		di			HRC 62-65	>50% Glass fibre
JYG6					HRC62-65	>50% Glass fibre
JYG7					HRC 50-56	Optical products
JYG8					HRC 56-58	>300°C temperature

* Remark: The material listed above are for our regular use, and are subject to change without notice. The hardness and application depend on the specific requirements. The information in the table is for your reference only.



Industry Applications

Plastics Processing

JINYI manufactures bimetallic and nitrided screw barrel sets for all applications and major makers of plastic processing equipment.



Food Processing And Extrusion

Single and twin screw extrusion is used to process a varity of foods for human and pet consumption. Common extruded foods include sausages, processed meats, dough, pasta, cereals, snack foods, candy and animal feeds. JINYI manufactures monolithic Stainless steel screw barrel sets for ultra pure applications.

Melt Blown Non-Woven Fabric Extrusion

Various screw barrel sets with customerised design for melt blown non-woven fabric extrusion machines are available from JINYI.

Silicone Processing

Alloys for the full range of LSR, HTV and elastomer process environments.
Wear solutions from complex to general-purpose applications.
High performance alloys to sustain wear life and peak production.
Custom design or manufactured to print.

Bakelite And Thermoset Injection Molding, Extrusion

JINYI manufactures bimetallic barrels and liners for all makes and types of bakelite & thermoset injection molding machinery. Our products are found worldwide operating in mild to severe abrasion and corrosion wear environments.

Rubber Processing

JINYI manufactures bimetallic masticating barrels and liners for all types of rubber injection molding, cold and hot feed rubber twin and single screw extrusion machinery. Our products are found worldwide operating in mild to severe abrasion and corrosion wear environments.

Metal Die Casting (Tiebars)

We are specialized in manufacturing nitrided tie bars and traditional chrome plated tie bars injection molding machine and die-casting machine, together with matching guide rods, piston rods and other plastic machinery accessories.



Sales Network



We dedicated to provide products and service in a fast-moving environment, With our excellent quality, we already established long term cooperation with many well-known customers in various industry sectors; On the local market, Jinyi Precision directly serve Haitian, Yizumi, Borch, HMD, Tederic and many other brands. Also, we have developed sales branches all around, including Guangzhou, Zhengzhou, Hangzhou, etc; Outside of China, we have over 100 clients and business partners in more than 30 countries (such as USA, Germany, Japan, Spain, Italy, UK, Korea, Canada, etc.).

Existing active overseas users mainly involve the following countries or regions:

Europo	France, Italy, Denmark, Russia, Spain, Hungary, Sorbia, Boland, etc.					
Luiope	Flance, italy, Denmark, Russia, Spain, Hungary, Serbia, Polanu, etc.					
Africa	Egypt, Morocco, Nigeria, Algeria, Kenya, South Africa, etc.					
Asia	Turkey, Iran, Israel, Saudi Arabia, Pakistan, India, Thailand, Vietnam, Malaysia, Singapore, Indonesia, Philippinest, South Korea, Taiwan.					
Oceania	Australia, New Zealand.					
America	Canada, United States, Mexico, Colombia, Chile, Brazil, Argentina.					

A list of some main clients we are cooperating (injection molding):





Product Introduction





Bimetallic Screw

X Application

General plastics & engineering plastics with below 15% glass fibre filling.



PTA (Plasma Transferred Arc) automatic alloy spaying is a newly applied technology, especially for precise requirement of screws. Comparing to traditional manual alloy spraying, PTA has better performance with the stability and outlook of screws.

By spraying high quality alloy powder on screw flight with layer thickness 1.5-2.0mm, screws can get higher performance in both wearing & corrosion resistant performance.

Technical Parameters

Product Name	Bimetallic Screw
Material	JYN1 + JYS Series Alloy
Suitable Machine	Injection / Extrusion / Blowing
Available Size	Φ14-400mm, Length <8,000mm
Process Method	PTA Spray
Surface Hardness	46-58 HRC
Surface Roughness	< Ra 0.8
Screw Straightness	< 0.02mm/m





JYS Series Alloy

At this stage, we have JYS-1, JYS-2 and JYS-3 alloy types and treatments for wear fighting.

Туре	Alloy Components	Hardness (HRC)	Abrasion Resistance	Corrosion Resistances	Applications
JYS-1, B	Ni. Cr, Si	52-56	*	*	Recycling & Engineering Plastics.
JYS-2, A	Ni, Cr, W	54-58	**	*	Engineering Plastics, Reinforced Additives Less Than 20%.
JYS-3, D	Co, Cr, W	44-48	*	**	Reinforced Additives And Corrosive Plastics Less Than 15%.

* Suitability: (\star good) to ($\star \star \star$ excellent).



Through Hardened Screw

We use imported or local made special steel materials for Through Hardened Screws, including JYG1, JYG2, JYG3 ... JYG8. After series of quench & annealing processes, to achieve high toughness & hardness, they are especially suitable for high wearing materials and production processing.

Technical Parameters

ProductName	JYG Series Through Hardened Screws
Material	JYG1, JYG2, JYG3 JYG8
Suitable Machine	Injection / Extrusion / Bakelite Machine
Available Size	Φ14 - 150mm, Length < 5,000mm
Treatment	Quenching &Annealing
Hardness	58 - 65 HRC
Surface finish	Ra≤0.2
Concentricity (R/D, O/D)	≤0.02mm



High toughness and hardness with high temperature resistance and corrosion resistance, which can greatly meet the high qualified rate of customers' final products.

🗱 Application

General plastics & engineering plastics with below 70% glass fibre filling.

JYG1 Through Hardened Screw

Material Name	JYG1
Main Components	C, Cr, V, Mo, Mn
Hardness Range	56-60HRC
Performance	Wear resistance
Applicable Plastics	General plastics, PA, LCP, PBT, POM with glass fiber less than 30% and transparent PC.

JYG3 Through Hardened Screw

Material Name	JYG3
Main Components	C, Cr, Mo, Mn, V
Hardness Range	58-62HRC
Performance	High wear resistance
Applicable Plastics	General plastics and engineering plastics, PA, LCP, PBT, POM, PPSU, PEI with glass fiber less than 40% and transparent PC.

JYG2 Through Hardened Screw

Material Name	JYG2
Main Components	C, W, Mo, Cr, V
Hardness Range	60-65HRC
Performance	Super wear resistance
Applicable Plastics	General plastics, PA, LCP, PBT, POM, PPSU, PEEK, PEI, etc. with glass fiber less than 50%.

JYG4 Through Hardened Screw

Material Name	JYG4	
Main Components	C, W, Mo, Cr, V	
Hardness Range	62-65HRC	
Performance	Super wear resistance, corrosion resistance	
Applicable Plastics Applicable Plastics and engineerin PA, LCP, PBT, POM, PPSU, PE with glass fiber less than 50% a special plastics.		

JYG6 Through Hardened Screw

Material Name	JYG6	
Main Components	C, W, Mo, Cr, V	
Hardness Range	62-65HRC	
Performance	Ultra high wear resistance and corrosion resistance	
Applicable Plastics	PEP, PEP, POP, etc. With less than 70% glass fiber.	

JYG7 Through Hardened Screw

Material Name	JYG7	
Main Components	C, Cr, Mn, V	
Hardness Range	50-56HRC	
Performance	Wear resistance, high corrosion resistance	
Applicable Plastics	Mainly applicable to optical products requiring high finish and strong corrosid resistance.	

JYG8 Through Hardened Screw

Material Name	JYG8	
Main Components	C, Ni, Co, Cr	
Hardness Range	56-58HRC	
Performance	wear resistance, corrosion resistance	
Applicable Plastics	Suitable for high-temperature plastics with molding temperature higher than 300°C .(not applicable to plastics with low molding temperature).	

Halogen Free Special Screw

Material Name	Halogen Free Screw	
Main Components	W, Cr, Ni	
Hardness Range	62-67HRC	
Performance	ultra-high wear resistance, ultra-high corrosion resistance	
Applicable Plastics	To special high glass fiber and ultra halogen-free plastics, such as PA46, PA4 PA9T, PSM, DSM and other high acid and strong corrosion engineering plastics.	



Coating Screw

In Ningbo JINYI, we have three different coating technologies, including Chrome Plating, PVD Coating (TiN, CrN, AlTiN. Etc..) and HVOF Coating (Tungsten Carbide).

Comparison of three different coating technologies

Coating Method	Coating Type	Coating Hickness(mm)	Hardness (HV)	Max. Length(mm)	Applications
Chrome Plating	Chromium	0.02 - 0.08	650 – 720	6000	Transparent Products & Corrosive Plastics Processing.
PVD	Tin, Crn, Altin	0.002 - 0.003	2000 – 2200	1900	Optical Products & Abrasive Plastics Processing.
HVOF	Tungsten Carbide	1.0 - 1.5	1100 - 1400	2300	High Abrasive Plastics Processing.

Chrome Plating Screw

Chrome plating is the technology of plating a thin layer of chromium on the surface of the screw. The chrome plating layer can improve the surface roughness, surface hardness and corrosion resistance.

() Technical Parameters

Product name	Chrome Plated Screw
Material	JYN1
Surface treatment	Chromium electroplating
Suitable Machine	Injection / Extrusion / Blowing
Chrome thickness	0.02 - 0.08mm
Available sizes	Ф14-600mm, L < 8,000mm
Surface Hardness	650 - 720HV





HVOF Coating Screw

HVOF (High Velocity Oxygen Fuel) coating process is a kind of thermal spraying technique that melted (or heated) materials are sprayed into the surface.

🗱 Application

Specially for Halogen-free material with below 65% glass fibre filling.

By HVOF technology, alloy powder spraying is under high pressure and high velocity. The adhesive force is over 10000PSI, and the powder density can be achieved up to 99.8%, which offers outstanding performance in wear & corrosion resistance.

PVD Coating Screw

🗱 Application

Suitable for optical products & abrasive plastics processing.

Several Main PVD Coatings:

Product Name	PVD CrN Coating
Coating elements	Cr, n
Hardness	1800 HV
Coating thickness	2-6 µ m
Friction coefficient	0.35
Applicable temperature	700 °C
Coating color	silver grey
Applications	Glass fibre, metals, halogen free flame retardant

Technical Parameters

Product Name	Full Coating WC Screw
Material	JYG3
Surface treatment	HVOF Tungsten Carbide Coating
Suitable Machine	Injection / Extrusion / Blowing
Available Size	Ф14-80mm, L < 2,300mm
Surface Hardness	1100-1400 HV



PVD Coating (Physical vapour deposition) is of high hardness and performance, which provide additional protection against abrasion & corrosion.

Technical Parameters

Product Name	PVD Coating Screw
Material	JYG3
Surface treatment	PVD TiN Coating, PVD CrN Coating, PVD AITiN Coating, etc.
Suitable Machine	Injection / Extrusion / Blowing
Available Size	Ф14-80mm, L < 1,800mm
Surface Hardness	2200-2500HV

Product Name	PVD TiN Coating
Coating elements	Ti, n
Hardness	2300 HV
Coating thickness	2-6 µ m
Friction coefficient	0.4
Applicable temperature	600 °C
Coating color	golden yellow
Applications	PC PMMA ultra thin light guide plate (LGP)

Product Name	PVD AITiN Coating
Coating elements	Al, Ti, n
Hardness	3300 HV
Coating thickness	2-6 µ m
Friction coefficient	0.4
Applicable temperature	900 °C
Coating color	purple black, purple red
Applications	Fluomated polymer (PTFE, PVDF), polyarylether (PEEK, PPS, PSU, PES, PPE, PPO)



Nitrided Screw

Automatic CNC lathe, milling machine equipment, deep hole boring machine, up to 10m depth nitriding and automatic heat treatment equipment; Professional operators to ensure the accuracy of each process; Various mixing heads design to meet the plasticizing requirements of different plastics.

X Application

General plastics & engineering plastics with below 10% glass fibre filling.

O Technical Parameters

Product Name	Nitrided Screw		
Material	JYN1		
Suitable Machine	Injection / Extrusion / Blowing		
Available Size	Ф14 - 500mm, L < 8000mm		
Process Method	Gas Nitriding		
Surface Hardness	950-1000HV		
Nitriding period	120 hours nitriding process		
Effective Nitriding Depth	0.3-0.5mm		
Max. Nitriding Depth	0.6-0.8mm		
Surface Roughness	< Ra 0.8		
Screw Straightness	< 0.02mm/m		





Customize Screws

Food processing screw PVC screw Rubber and silicone processing screw BMC screw Film blown screw Recycling screw Non woven fabric melt blown screw High injection speed screw

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Bimetallic Barrel

By casting and sintering high quality alloy powder on barrel inside surface with thickness1.5-2.0mm, screws can get higher performance in both wearing & corrosion resistant performance.

🗱 Application

General plastics & engineering plastics with below 70% glass fibre filling.



O Technical Parameters

Product Name	Bimetallic Barrel		
Material	JYN3 + JYK Series Alloy		
Suitable Machine	Injection / Extrusion / Blowing		
Available Size	Φ < 500mm, L < 8000mm		
Process Method	Centrifugal Casting		
Surface Hardness	52-62 HRC		
Surface Roughness	<ra 0.8<="" td=""></ra>		
Screw Straightness	<0.02mm/m		

We have JYK-1, JYK-2 and JYK-3 alloy types and wear treatment at present.

Туре	Composition (Weight %)								
	Cr	С	Fe	В	Si	W *	Mn	Ni	Others
JYK-1, C	8	1.2	Bal	4.3	4	1	0.65	10.8	< 1.0
JYK-2, B	8	1.4	5	4	3.3	16.5	0.5	Bal	< 1.0
JYK-3, A	8	1.4	5	4	3.3	40.0	0.5	Bal	< 1.0

* Highest composition of tungsten carbide can go up to 45%, which enables the barrels have 5 times wear-resistance capability than normal bimetallic barrels and up to 60% glass fibre filling in general & engineering plastics materials.

Туре	Alloy Components	Hardness (HRC)	Abrasive Resistance	Corrosion Resistance	Applications
JYK-1, C	Fe, Cr, Ni	56 - 60	*	*	Recycling & engineering plastics, reinforced additives less than 20%.
JYK-2, B	Ni, W, Cr	58 - 62	**	**	Moderate corrosive, reinforced additives less than 35%.
JYK-3, A	Ni, W, Cr	60 - 64	***	**	High abrasive and moderate corrosive plastics.

* Suitability: (★ good) to (★ ★ ★ excellent).







Nitrided Barrel

28 Application

General plastics & engineering plastics with below 10% glass fibre filling.



Twin Screw Barrels

Unique technical design with larger output; Advanced equipment with finest machining; Perfect match of tolerance.

ጰ Application

Suitable for RPVC, CPVC (both virgin & recycled material), PE pipe and granule.



Automatic CNC lathe, milling machine equipment, deep hole boring machine, up to 10m depth nitriding and automatic heat treatment equipment;

Professional operators to ensure the accuracy of each process;

Various mixing heads design to meet the plasticizing requirements of different plastics.

Technical Parameters

Product Name	Nitrided Barrel		
Material	JYN1		
Suitable Machine	Injection / Extrusion / Blowing		
Available Size	Φ < 500mm, L < 8000mm		
Process Method	Gas or Plasma Nitriding		
Control System	Computer Control		
Surface Hardness	950-1000HV		
Nitriding period	120 hours nitriding process		
Effective Nitriding Depth	0.3-0.5mm		
Max. Nitriding Depth	0.6-0.8mm		
Surface Roughness	<ra 0.8<="" td=""></ra>		
Screw Straightness	<0.02mm/m		

Parallel Twin Screw Barrel

Twin screw barrel is gradually adopted by many manufacturers because of its high efficiency. Compared with single screw barrel, twin screw barrel has higher requirements for machining clearance. Our company has a professional team to help users solve design problems, and can also process according to the samples or drawings provided by customers.

Conical Twin Screw Barrel

Suitable for PVC pipes, profiles, sheets and extrusion foaming products. Suitable for PE, PP corrugated pipe extrusion.

Technical Parameters

Product Name	Parallel /Conical Twin Screw Barre		
Base Material	JYN1		
Available Size	Ф35 - 188mm, L < 2500mm		
Process Method	Nitrided or bimetallic		

Accessories For Screw Barrel

End Cap/Injection Nozzle/Screw Tip/Force-feeding Unit

Utilizing the most advanced technology in both the design and manufacturing process, we manufacture a wide range of screw tips, injection nozzles, barrel end caps and forced feeding units, to meet the needs of today's injection molders.



Tie Bars & Accessories

🗱 Application

Injection molding machine, die casting machine and forging machine, etc.

Tie Bars

Our second factory, Ningbo Lichao Tiebar Precision Machinery Co., Ltd. Is specialized in manufacturing nitriding and chrome plated tie bars together with matching guide rods, piston rods, nuts and other accessories for injection molding machine, die casting machine and forging machine.

Pistons

Material : 45#, 40Cr, 42CrMo or casting Heat treatment: Blacking, galvanizing, salt bath nitriding, gas nitriding and others.

Nuts

We select material (such as 45#, 40Cr, 42CrMo and others) based on customer requirements and provide blacking, galvanizing, salt bath nitriding, gas nitriding and other heat treatment processes.

C Technical Parameters

Product Name	Tiebar or Tie Bar		
Material	JYN3		
Heat Treatment	Quench & Temper		
Surface Treatment	Nitrided or Chrome Plated		
Chrome Thickness	0.05mm		
Surface Hardness	>55 HRC		
Max. Diameter	600mm		
Max. Length	10000mm		









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