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# ILJIN A-TECH

## ILJIN Advanced Technologies...

Textile machinery. Industrial machinery & Precision manufacturing machinery

Our equipment is best choice for your benefit.

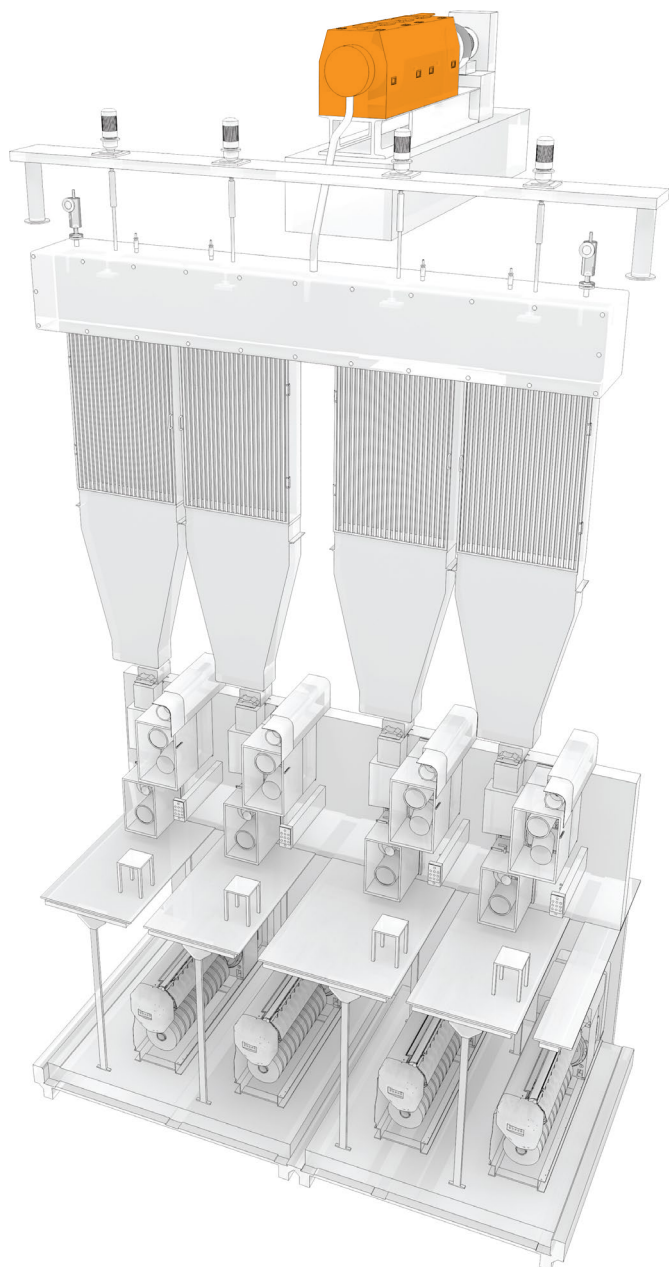
Manufacturing by large-scale, heavy-duty machining tools.



## Spinning Extruder

With decades of experiences and expertise, ILJIN has delved into the meticulous precision of extruders. Extruding facility built by ILJIN Series is expressly and precisely designed for producing synthetic yarns with PET/PA6 or PET/PP Chips mixed. Our relentless efforts and experience over the decades lays the foundation of realizing high profile technology and machining schemes.

# Spinning Extruder



## Application

Melt spinning of PET/PA6/PA66 & PP chips.

## The characterizes of our extruder

### High Melting Performance

The applicability of screw designs has been delicately managed, so that our offerings work fit, conveying high melting performances.

### Energy Efficiency

Our extruder optimizes its energy uses by high-profile components. The major parts, including insulations, thermostats, and inverter motor, are harmoniously interlocking each other, eliminating wasted energy as much as 20 ~ 30%

### High Durability

Our decades of experiences and know-how guarantee the major machines' durability. High precision in machining prevents being worn-out and strong rigidity from Bimetal alloy stands against unfriendly working conditions.

### Easy Operation

Our operation system is very user-friendly and efficient. Centralized basement system(DCS system) of our choice has its users comfort and ease and every component from global conglomerates ensures its high proficiency and optimization of this system.

### Electric control system for Extruder

We simplify the system's interfaces by adapting the direct interfaces and with the support of efficient design comes accuracy and safety to its users. The components of our choice are always from highly regarded corporations in order to certify the system's high particularity, safety, and constant performance. This system can be added with extra functions like ethernet control and so on, to customers' request.



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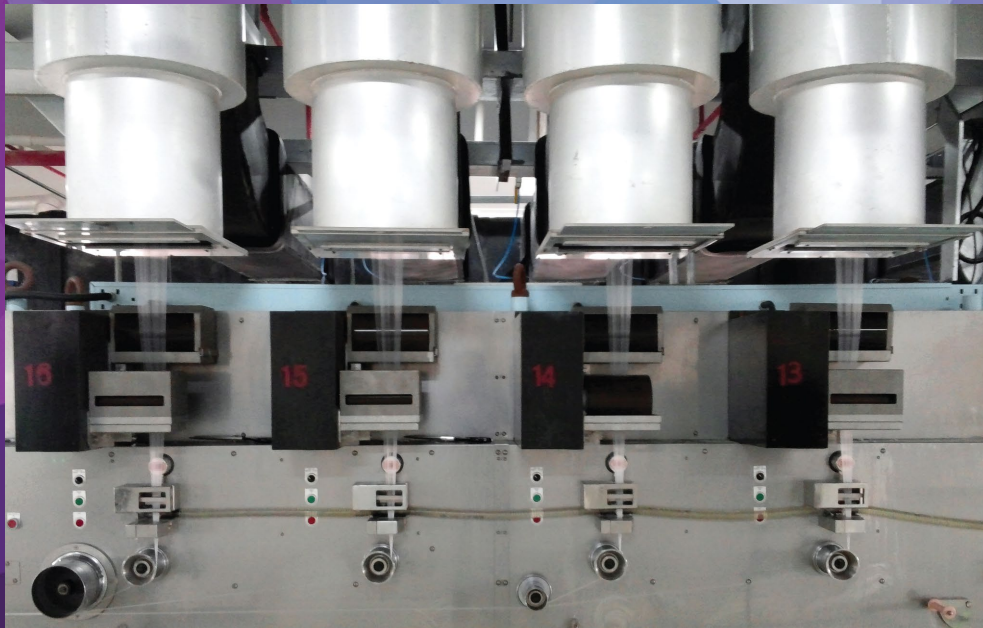
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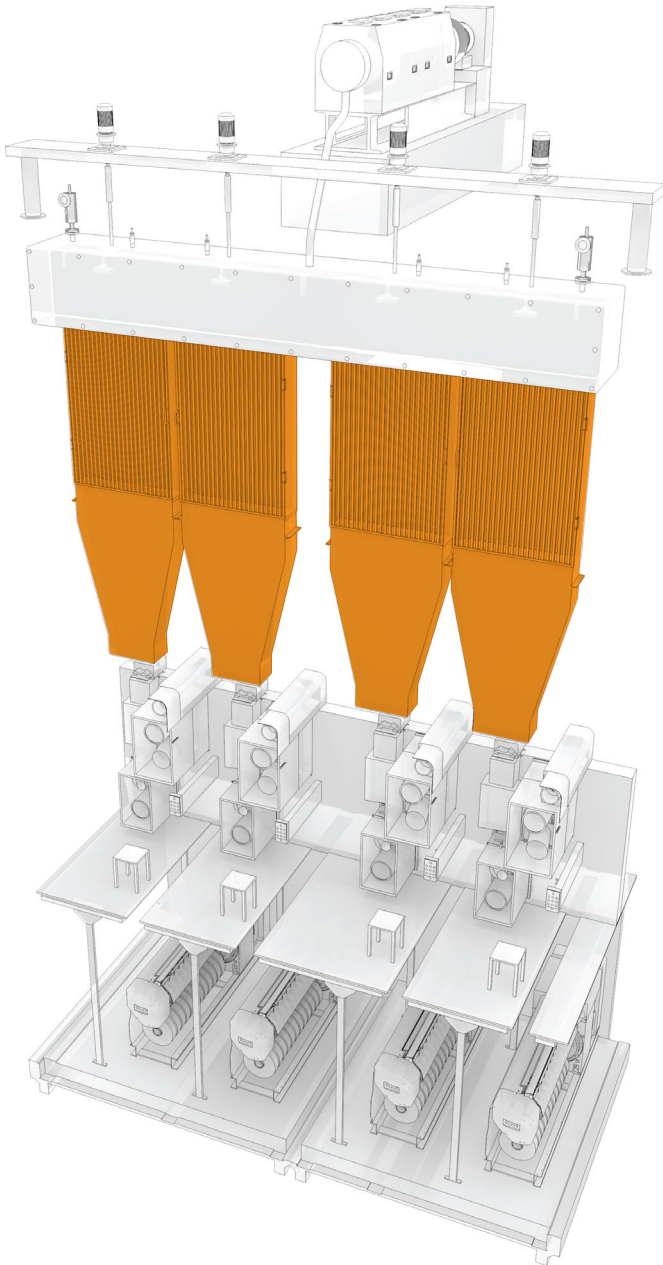


## Quenching system

During the quenching process, filament is cooled down at a melting temperature below glass transition temperature. Its features and system designs are determined by the type of material due to the different glass transition temperature. Therefore, we contemplating over various features (ie. the size and shape of spinneret, number of filament output, size of denier, and structure of spin beam) decide to set the specifications of quenching system. Over the years of researches, development, and accumulated expertise, we have provided precise and optimized quenching system whose application includes PET, PA6, PA66 and PP for the type and specifications of fiber.



# Quenching system



## Application

PET/PA6/PA66 & PP

## The type of Quenching



### Open Flow(Cross Flow) Quenching

It is the most commonly used quenching system, equipped with honeycomb or sintered mesh as a rectifier.



### Out Flow Quenching

This low pressured Out Flow System is categorized in open window type, a cooling method that carries filament from inside to outside to cool down.

It has the maximum air pressure at 2500pa, is used as a rectifier, low in air speed reduction and easy to be cleaned up.



### In Flow(Circular) Quenching

In-flow system has its quenching tube tightly sealed with spinning beam by means of the controlling valve. Fujibon filter or mesh filter is used as a rectifier and like Out-flow Quenching low in air speed reduction and easy to be cleaned up.



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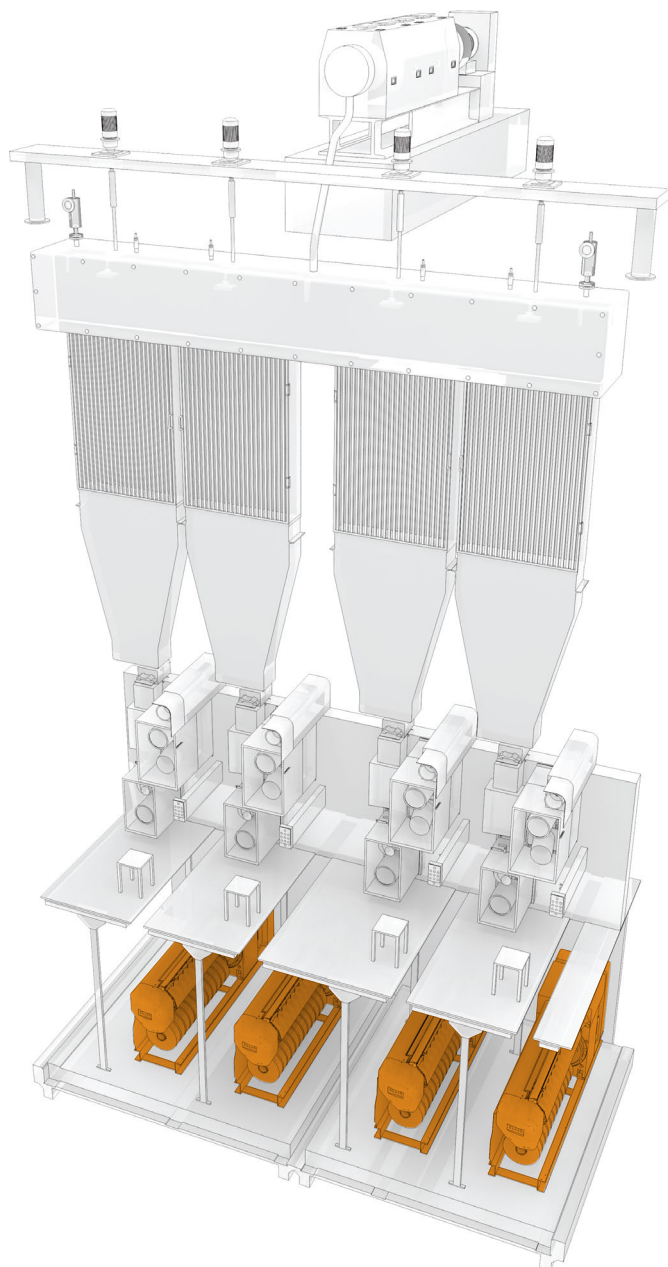


## Winder

Winder is a machine that forms the final shape of yarns and winds it up.

We, ILJIN A-TECH, produce facilities churning out synthetic fibers such as Spandex, PET, PA, and similar sorts.

# Winder



## Superior Adaptability

Our offerings can be manufactured with its specification up to the customer's appetite and its manufacturing lines varied.

All environmental factors given by customers are applied to our drawings, a complete adjustment.

## Whole Package of profitable features

In addition, the high profile technology has been implemented in Winder designed by ILJIN. Our research on Winder machines allows its outstanding performance; winding at a high-paced speed, improved productivity, compact design, and high energy efficiency.

The trials and experimentations on Winder are aggressively ongoing, in order to guarantee the flawless and high-end packages particularly when outputs are unwoven for post-processes.

### Spandex

|                 | ISW-516       | ISW-516D       | ISW-212L      |
|-----------------|---------------|----------------|---------------|
| YARN(DENIER)    | 20~300        | 20~40          | 500~1,300     |
| SPEED(m/min)    | 500~1,200     | 500~1,200      | 200~750       |
| B/H LENGTH      | 920mm         | 920mm          | 690mm         |
| NUM. OF PACKAGE | 16            | 16x2           | 6             |
| PACAGE DIAMETER | Ø200          | Ø180           | Ø320          |
| TRAVERSE WIDTH  | 44            | 44             | 92            |
| BOBBIN DIAMETER | Ø73.5xØ83     | Ø73.5xØ83      | Ø73.5xØ83     |
| BOBBIN LENGTH   | 57.5mm        | 57.5mm         | 115mm         |
| DRIVE SYSTEM    | FRICITION     | FRICITION      | FRICITION     |
| TRAVERSE SYSTEM | CAM           | CAM            | CAM           |
| CONTROL SYSTEM  | INDIVIDUAL    | INDIVIDUAL     | INDIVIDUAL    |
|                 | INVERTER      | INVERTER       | INVERTER      |
|                 | CONTROL       | CONTROL        | CONTROL       |
| DIMENSIONS      | 1,810x433x806 | 1,900x566x1345 | 1,502x538x993 |

### PET, PA

|                        | IJAT-508C      | IJAT-1612      | IJAT-1624      |
|------------------------|----------------|----------------|----------------|
| SPEED(m/min)           | 3,000~4,500    | 3,000~5,500    | 2,500~5,500    |
| TRAVERSE SYSTEM        | CAM            | ROTARY         | ROTARY         |
| CHUCK LENGTH           | 1,200mm        | 1,380mm        | 1,380mm x 2    |
| PAPER TUBE             | Ø110xØ124      | Ø110xØ124      | Ø110xØ124      |
| PACKAGE OUTER DIAMETER | Ø400           | Ø440           | Ø430           |
| DIMENSION              | 2,892x675x1324 | 2,776x749x1267 | 2809x1126x1190 |



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## FDY Spinning Solution (PET, PA-6)

Fully-drawn yarns (FDY) are used to manufacture textile fabrics without the need for further finishing.

Wherever textiles are to hang smoothly or glide fully-drawn yarns are used.

Our core competence is the sophisticated design for energy efficiency and system for high quality standard yarns.

Varying its size and specifications, our products give privileged advantages to customers' success.

The high-end production of filament and energy saving structure – these are a few of numerous reasons to be ILJIN as a chosen one.

# FDY Spinning Solution (PET, PA-6)



## Competence

### Up to 30% Energy saving

With ILJIN Systems, you can save 20~30% energy efficiency by special designed spinning beam solution.

### High Quality Yarns.

The quality of the yarns can now be exactly adapted to your requirements.

with ILJIN systems, you don't have to concern about yarn quality.

you can spin raw material with stable temperature distribution and a high efficiency mixer.

also our quenching system helps you can have uniform quality yarns by Iljin's innovated air flow technology.

### Spinning costs saving

With ILJIN systems, you can save spinning cost by precise temperature control system.

also you can save maintenance costs by special designed spinning pack for easy assembling.

### Better Quality and better performance

With Iljin system, you can look forward to a outstanding product quality even in harsh working condition by strong durability Barrel made of bimetal.

and also finely designed monomer suction and steam stray, precise air distribution, improved GR3 specification and so on – features of our products - clearly demonstrate us surpassing our rival companies' performance especially for micro filament produce.

#### PET-FDY Spinning Technical Specification

|                   |                                       |
|-------------------|---------------------------------------|
| Spinning type     | Chip Spinning<br>or director Spinning |
| Denier/Fila       | 33~330/12~144F                        |
| End/Position      | 8,10,12,20,24                         |
| Winding Speed     | 3500~6000m/min                        |
| Godet roll        | HotΦ220x490/Φ250x500                  |
| Separator roll    | ColdΦ110x490/Φ125x500                 |
| Pack type         | Round or Double housing               |
| Spinneret         | Φ50~Φ110                              |
| Quenching Chamber | Closs Q.C                             |
| Finish Oil        | Oil roll or JET Spray                 |
| Winder            | Auto Winder                           |

#### PA6-FDY Spinning Technical Specification

|                   |                         |
|-------------------|-------------------------|
| Spinning type     | Chip Spinning           |
| Denier/Fila       | 20~330/12~144F          |
| End/Position      | 8,10,12,20,24           |
| Winding Speed     | 4000~5000m/min          |
| Godet roll        | HotΦ220x450             |
| Separator roll    | ColdΦ110x450            |
| Pack type         | Round or Double housing |
| Spinneret         | Φ50~Φ110                |
| Quenching Chamber | Closs Q.C               |
| Finish Oil        | Oil roll or JET Spray   |
| Winder            | Auto Winder             |



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## POY Spinning Solution (PET, PA-6)

Our system is designed for outstanding yarns quality (whether PET or PA-6) as extruder or direct spinning.

Our core competence is the sophisticated design for energy efficiency and system for high quality standard yarns.

Varying its size and specifications, our products give privileged advantages to customers' success.

The high-end production of filament and energy saving structure – these are a few of numerous reasons to be ILJIN as a chosen one.

# POY Spinning Solution (PET, PA-6)



## Competence

### Up to 30% Energy saving

With ILJIN Systems, you can save 20~30% energy efficiency by special designed spinning beam solution.

### High Quality Yarns.

The quality of the yarns can now be exactly adapted to your requirements.

with ILJIN systems, you don't have to concern about yarn quality.

you can spin raw material with stable temperature distribution and a high efficiency mixer.

also our quenching system helps you can have uniform quality yarns by Iljin's innovated air flow technology.

### Spinning costs saving

With ILJIN systems, you can save spinning cost by precise temperature control system.

also you can save maintenance costs by special designed spinning pack for easy assembling.

### Better Quality and better performance

With Iljin system, you can look forward to a outstanding product quality even in harsh working condition by strong durability Barrel made of bimetal.

and also finely designed monomer suction and steam stray, precise air distribution and so on – features

of our products - clearly demonstrate us surpassing our rival companies' performance especially for micro filament produce.

#### PET-POY Spinning Technical Specification

|                   |                         |
|-------------------|-------------------------|
| Spinning type     | Chip Spinning           |
| Denier/Fila       | 20~330/12~144F          |
| End/Position      | 8,10,12,20,24           |
| Winding Speed     | 4000~5000m/min          |
| Godet roll        | ColdΦ180x180            |
| Pack type         | Round or Double housing |
| Spinneret         | Φ50~Φ110                |
| Quenching Chamber | Closs Q.C               |
| Finish Oil        | Oil roll or JET Spray   |
| Winder            | Auto Winder             |

#### PET+PA6-Composite Spinning Technical Specification

|                   |                       |
|-------------------|-----------------------|
| Spinning type     | Chip Spinning         |
| Denier/Fila       | 55~330/24~144F        |
| End/Position      | 6, 8                  |
| Winding Speed     | 2500~4000m/min        |
| Godet roll        | ColdΦ160x160          |
| Pack type         | Top Mounted Round     |
| Spinneret         | Φ115                  |
| Quenching Chamber | Closs Q.C             |
| Finish Oil        | Oil roll or JET Spray |
| Winder            | Auto Winder           |



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## Bi-Component Spinning Solution (PET+PA-6 POY Composite Filament Spinning)

Bi-component yarns are special POY material being manufactured by special process combine 2 different raw materials. Devide shapes are as orange-shape, sea-island, side by side and so on.



# BI-Component Spinning Solution

## (PET+PA-6 POY Composite Filament Spinning)



### Customer Satisfaction.

Combined with finely designed products and strong sense of customary focus, our products give privileged advantages to customers' success.

The high-end production of filament and high tolerant structure – these are a few of numerous reasons to be ILJIN as a chosen one.

### Better Quality and better performance

With Iljin system, you can look forward to a outstanding product quality even in harsh working condition

by strong durability Barrel made of bimetal.

and also finely designed monomer suction and steam stray, precise air distribution, improved GR3 specification and so on – features of our products - clearly demonstrate us surpassing our rival companies' performance.

### Specialized Design

You don't have to concern the risk of temperature difference.

our special designed spinning beam prevent temperature problem.

2 spinning zones as High melt polymer zone and low melt polymer zone are separated and this special design can give you high quality yarns.

Also, our pack is designed 2types as Top mounting or bottom mounting type.

### PET+PA6-Composite Spinning Technical Specification

|                   |                       |
|-------------------|-----------------------|
| Spinning type     | Chip Spinning         |
| Denier/Fila       | 55~330/24~144F        |
| End/Position      | 6, 8                  |
| Winding Speed     | 2500~4000m/min        |
| Godet roll        | ColdΦ160x160          |
| Pack type         | Top Mounted Round     |
| Spinneret         | Φ115                  |
| Quenching Chamber | Closs Q.C             |
| Finish Oil        | Oil roll or JET Spray |
| Winder            | Auto Winder           |



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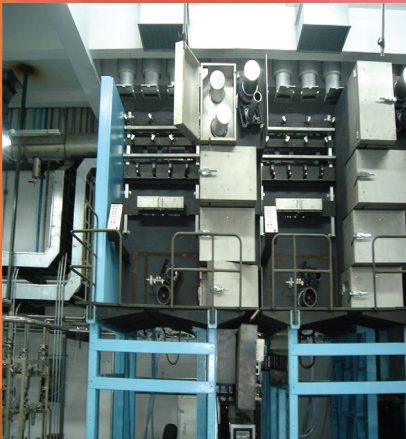
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## Industrial Yarn Spinning Solution

This type of facility is expressly designed for producing a various kind of yarns (PET, PA, PP and etc) from chips in high velocity. With the technology of multiple layers of elongation and heat settings, our recipe creates excellent performances in churning out industrial Polyamide Yarn in high intensity and low shrinkage.

# Industrial Yarn Spinning Solution

## (PET+PA-6 POY Composite Filament Spinning)



### High Durability

Superior designed Screw is installed inside of Extruder and it enhances melting performance with low calorific feature minimizing the velocity drop rates.

Spinneret assembled in Bottom Mounting Pack realizes withstanding the high pressures and gasket-less structures with self-sealing design. These two features allow extremely low failure rates, having the performance of this facility long and consistent. of numerous reasons to be ILJIN as a chosen one.

### Adaptability

Countless requirements and specifications from the numerous types of Industrial Polyamide Yarn are fulfilled by the means of multiple layers of elongation and different degrees of framed temperature in each section.

### Stability

The surface of Hot Godet Roller is heated by the induction heaters evenly and safely. The heating section is designed to be heated individually under the control base.

### PET-INDUSTRIAL YARN Spinning Technical Specification

#### High Tenacity & Low shrinkage

| Spinning type     | Chip spinning         |         |           |
|-------------------|-----------------------|---------|-----------|
| Denier            | 250~500               | 1500    | 2000~3000 |
| End/Position      | 4, 6, 8, 12           | 4, 6, 8 | 4, 8      |
| Winding Speed     | 3000~6500m/min        |         |           |
| Godet roll        | HotΦ250x400           |         |           |
| Pack type         | Round                 |         |           |
| Spinneret         | Φ220~Φ240             |         |           |
| Quenching Chamber | Circular Q.C          |         |           |
| Finish Oil        | Oil roll or JET Spray |         |           |
| Winder            | Auto Winder           |         |           |

#### High Speed Industrial

| Spinning type     | Chip spinning         |      |      |
|-------------------|-----------------------|------|------|
| Denier            | 1000                  | 1500 | 2000 |
| End/Position      | 3,4                   | 3,4  | 3,4  |
| Winding Speed     | 3000~6500m/min        |      |      |
| Godet roll        | HotΦ250x400           |      |      |
| Pack type         | Round                 |      |      |
| Spinneret         | Φ220~Φ240             |      |      |
| Quenching Chamber | Circular Q.C          |      |      |
| Finish Oil        | Oil roll or JET Spray |      |      |
| Winder            | Auto Winder           |      |      |

#### Super Low shrinkage

| Spinning type     | Chip spinning         |         |
|-------------------|-----------------------|---------|
| Denier            | 500                   | 1500    |
| End/Position      | 4, 5, 6               | 4, 6, 8 |
| Winding Speed     | 2500~4000m/min        |         |
| Godet roll        | HotΦ220x500           |         |
| Pack type         | Round                 |         |
| Spinneret         | Φ150                  | Φ220    |
| Quenching Chamber | Circular Q.C          |         |
| Finish Oil        | Oil roll or JET Spray |         |
| Winder            | Auto Winder           |         |

### PA-INDUSTRIAL YARN Spinning Technical Specification

#### High Tenacity

| Spinning type     | Chip spinning             |         |           |
|-------------------|---------------------------|---------|-----------|
| Denier            | 420                       | 840     | 1260~1680 |
| End/Position      | 4, 6, 8                   | 4, 6, 8 | 3, 4      |
| Winding Speed     | 2500~4000m/min            |         |           |
| Godet roll        | HotΦ250x400               |         |           |
| Pack type         | Round                     |         |           |
| Spinneret         | Φ120~Φ220                 |         |           |
| Quenching Chamber | Closs Q.C or Circular Q.C |         |           |
| Finish Oil        | Oil roll or JET Spray     |         |           |
| Winder            | Auto Winder               |         |           |


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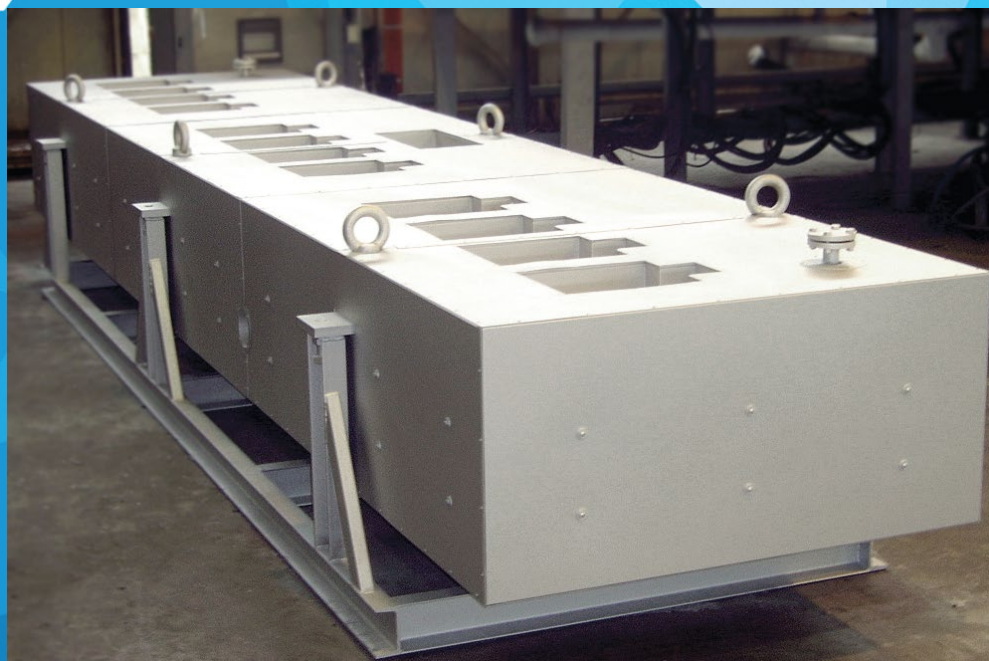
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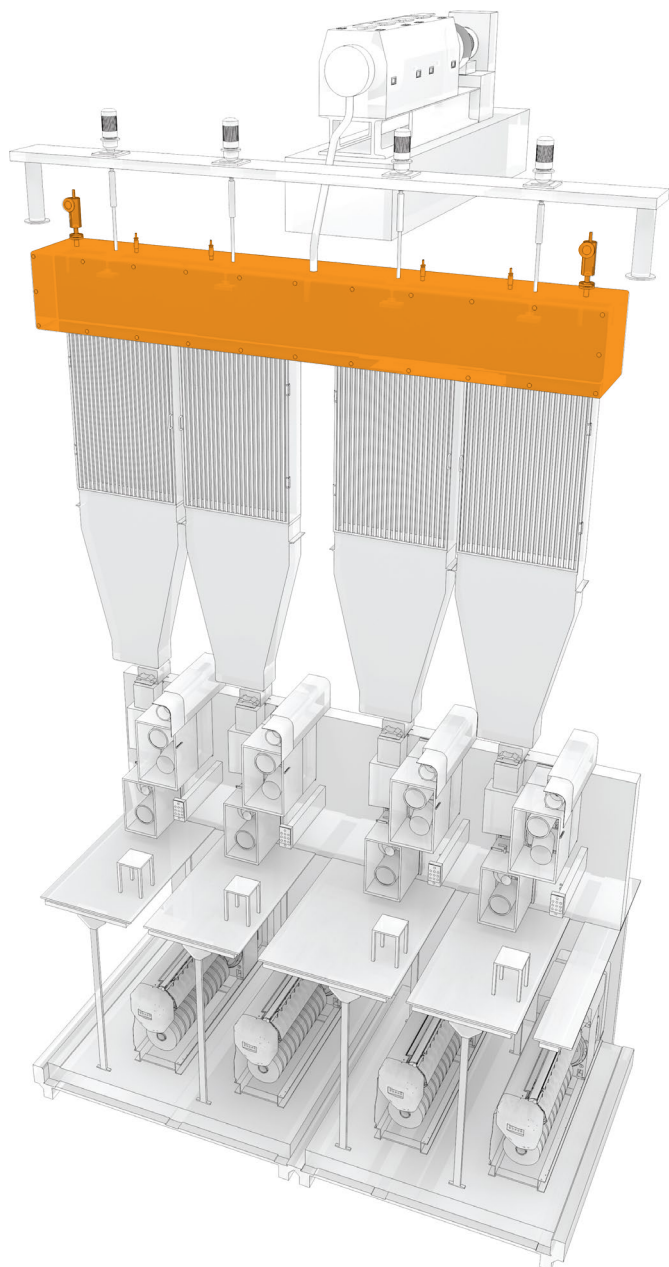
## SPIN BEAM

Our years of experiences and expertise realize the series of spin pack armed with technological advance and customary benefits.

Designing different types of spin pack, we could design this facility to our customer's needs; space-efficiency and improved quality and quantity of output.

In addition, our extensive capacity of production scope enables us to fulfill customer's requirement and conditions; the best solution for your business.

# SPIN BEAM



## Features

### 1. Identical outputs with low investment

With decades of experience and research, the spinneret of our spin beam has an improved output by 25%, maintaining its external dimensions. This means that our customers can have a same required output with smaller size of spin beam; low investment in the facility.

### 2. Implementation of Double-in-one system

DIO(Double-in-one) concept with two completely-independent spinnerets in one base, allows manufacturers to use approx.

30% less space vis-à-vis single packages while retaining the titer evenness.

The 24 and 32-fold Double-in-one (DIO) spinning plant concept has been able to considerably reduce the investment costs while maintaining yarn quality

### 3. Energy saving

The temperature on its surface will be added with 30°C and because of outstanding evenness in inside temperature, energy usage will be decreased by 20~30%.



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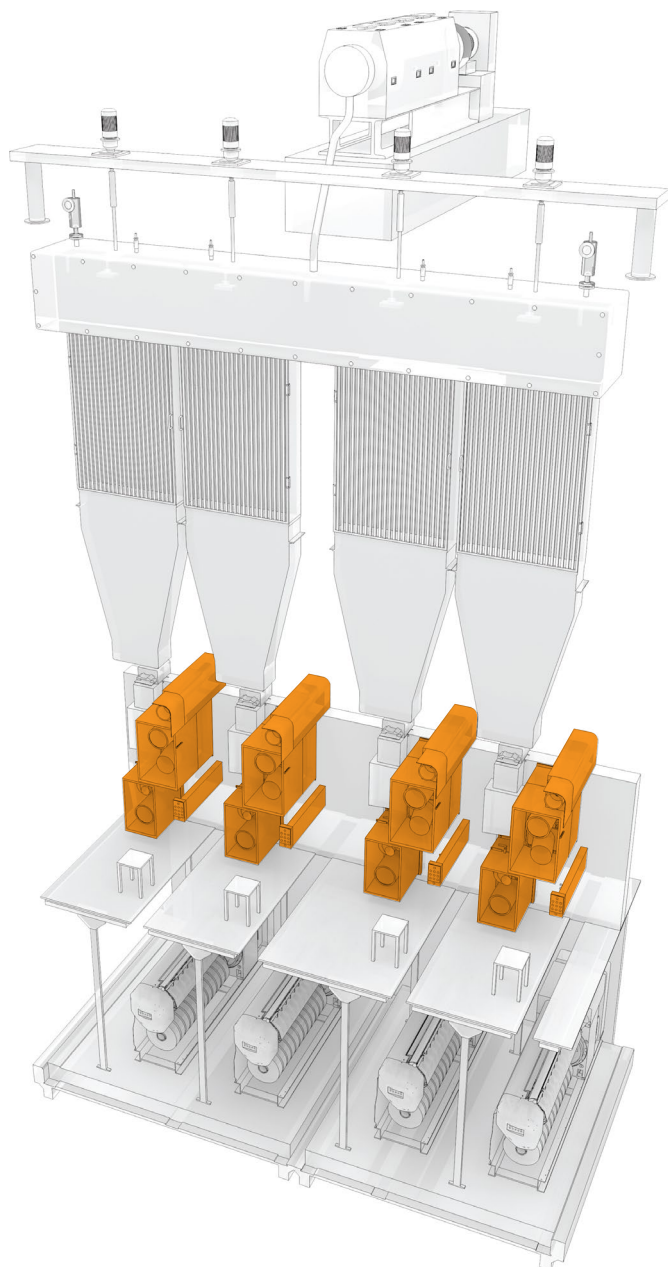
## Take up

Of the Korean manufacturers, we, ILJIN A-Tech, reach at the top producer providing global textile companys  
We concentrate on customer service and advanced specifications over the decades drives  
our TAKE-UP facility to the best of all.

The essential part of this facility, Godet Roller, is designed with tight allowance and condition.



# Take up



## Features

### 1. Multiple version of TAKE-UP

Our production scope is included with high-speed and low-speed roller, whose specifications are decided by customer's requirement.

In case of High speed roll, we once produced winder at the maximum of  $\varnothing 250 \times 560$ .  $\varnothing 600 \times 1200$  size of low speed roller is in our manufacturing scope.

Our GODET roller has a maximum speed of 6000m/min.

Rollers for filament has at a maximum of 2 to 3 layers and roller for industrial yarn 5 to 6 layers at maximum.

### 2. Tighter Allowance in specifications

About the vibration regulation of GODET roller surfaces, our quality assurance team checks out the products within the scope of 4m/s.

We abide by the standard of major global competitors (BARMAG, TMT).

In addition, the allowance of temperature scope is within  $2^{\circ}\text{C}$  at two edges of roll.

### 3. Use of prominent brand parts

Its crucial part, the ceramic guide; Interlace and Migration Nozzle, are all produced from HEBLINE.



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## Small Quantity Batch Production

(PA-6, PA-66, PET, PP, Bi-Component)

ILJIN A-TECH CO., LTD can produce large scale Plant, even for customers that require small quantity batch production. and we can satisfy customer needs with collective response system that it is Engineering Design System, installation, commissioning guidance.

# Small Quantity Batch Production

(PA-6, PA-66, PET, PP, Bi-Component)



ILJIN A-TECH CO., LTD was established in 1979, and For 36 years, Our company specializes in the production of synthetic fiber equipment is committed to producing competitive products based on years of experience and accumulated technology, We produce the best products that can satisfy the needs of our customers from large scale to small quantity batch production. We ask your continuous attention and encouragement.

## Applications

- Multi Filament Line (PA-6, PA-66, PET, PP, Bi-Component)
- Industrial Yarn
- Lyocell
- High Speed Spinning (POY, FDY, SDY)
- Textile Yarn
- Aramid Fiber
- Micro Fiber Spinning
- Sewing Yarn
- Acrylic Fiber
- Bi-Component Spinning
- Carbon Fiber
- Staple Fiber Line

## Technical Specification

### Textile Yarn

|                   | PET-FDY               | PA6-FDY               | PP-FDY         | Bi-Component        |
|-------------------|-----------------------|-----------------------|----------------|---------------------|
| Spinning type     | Chip Spinning         | Chip Spinning         | Chip Spinning  | Chip Spinning       |
| Denier/Fila       | 30~330/12~144F        | 10~400/12~144F        | 30~100/24~72F  | 30~150/24~72F       |
| End/Position      | 8, 10, 12, 24         | 8, 10, 12, 24         | 8, 10, 12      | 6, 8                |
| Winding Speed     | 3500~6000m/min        | 4000~5000m/min        | 2000~3500m/min | 2500~5000m/min      |
| Godet Roll        | HotΦ220x500/Φ250x500  | HotΦ220x500/Φ250x500  | HotΦ220x400    | HotΦ220x400         |
| Separator Roll    | ColdΦ110x500/Φ125x500 | ColdΦ110x500/Φ125x500 | ColdΦ110x400   | ColdΦ110x400        |
| Pack type         | Round                 | Round                 | Rectangular    | Round, Rectangular  |
| Spinneret         | Φ50~Φ110              | Φ50~Φ110              | Ø90            | Ø130                |
| Quenching Chamber | Cross, RIQ, ROQ       | Cross, RIQ, ROQ       | Cross          | Cross               |
| Finish Oil        | Oil Roll, Jet Spray   | Oil Roll, Jet Spray   | Oil Roll       | Oil Roll, Jet Spray |
| Winder            | Auto Winder           | Auto Winder           | Auto Winder    | Auto Winder         |

### Industrial Yarn

|                   | PET - Industrial           | PET - High Tenacity & Low Shrinkage | PET - Super Low Shrinkage | PA66 - High Tenacity     |
|-------------------|----------------------------|-------------------------------------|---------------------------|--------------------------|
| Spinning type     | Chip Spinning              | Chip Spinning                       | Chip Spinning             | Chip Spinning            |
| Denier            | 1000    1500    2000       | 250~500    1500    2000             | 500    1000, 1500         | 420    840    1260, 1680 |
| End/Position      | 3, 4, 8    3, 4, 8    3, 4 | 4, 6, 8, 12    4, 8    4            | 4, 8    4, 8              | 4, 8    4, 8    4        |
| Winding Speed     | 3000~6500m/min             | 3000~6500m/min                      | 2500~4000m/min            | 2500~4000m/min           |
| Godet Roll        | HotΦ250x400                | HotΦ250x400                         | HotΦ220x500               | HotΦ250x400              |
| Pack type         | Round                      | Round                               | Round                     | Round                    |
| Spinneret         | Φ220~Φ240                  | Φ220~Φ240                           | Φ150    Φ220              | Φ120~Φ220                |
| Quenching Chamber | Circular Q.C               | Circular Q.C                        | Circular Q.C              | Cross Q.C, Circular Q.C  |
| Finish Oil        | Oil Roll, Jet Spray        | Oil Roll                            | Oil Roll, Jet Spray       | Oil Roll                 |
| Winder            | Auto Winder                | Auto Winder                         | Auto Winder               | Auto Winder              |


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