

**POTOP<sup>®</sup>**

**Plastics and Rubber  
Processing Equipment**

*From R&D (grams) to Pilot Production (100's kg)*

*Combining Made-In-China Price & Short Lead*

*Time with Made-In-Germany Quality*

**Guangzhou POTOP Experimental Analysis Instrument Co., Ltd**

**Partners**

Hong Kong Cosmos Machinery Co., Ltd  
National Engineering Research Center of Novel Equipment for  
Polymer Processing of South China University of Technology

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**POTOP® is establishing a global sales & technical service network to bring the best polymer processing machineries to our customers around the world.**



Corporate Headquarter



Jinping Qu, Academician of Chinese Academy of Engineering (first on the right ) guiding machine design



Cosmos general manager Tianlai Li (first on the left) at CHINAPLAS

## Brief Overview

POTOP® is specialized in plastics and rubber processing machines for research and development. It was originally founded in 19XX in the Southern China University of Technology (Guangzhou, China) to commercialize the polymer processing machines developed in the National Engineering Research Center of Novel Equipment for Polymer Processing. In 2009, it is spin off as an independent business unit. During the past 20 years, POTOP® has built an interdisciplinary engineering team of polymer rheologists, mechanical engineers, and electrical engineers and it has sold over 500 advanced machines to customers around the world, mainly universities and the research units of global chemical companies.

Collaborating with its customers to meet their unique specifications, POTOP® has produced various processing machines in the following five categories:

- Functional film processing machines: single layer, multi-layer, lamination, casting, blowing, machine direction orientation, biaxial orientation, etc.
- Innovative multi screw compounding machines with 1.5, 2, 2.5, and 3 screws with significantly improved mixing for polymer blends and composites.
- Rubber forming machines: extruder, roll calender, mill, press vulvanizer, etc.
- Polymer Rheo-station for characterization the rheology of various polymer materials, including modular version and standalone version, torque rheometer or capillary rheometer.
- Other processing machines and auxiliaries, including pelletizer, MFI tester, 3D filament extrusion machine, pipe and wire extrusion, etc.

Among its unique machines, POTOP® offers extruders with a glass window on the barrel so the operators can directly examine the mixing and melting process with their eyes.

POTOP® is now striving to further grow its global market by combining made-in-china price & short lead time with made-in-Germany quality. POTOP® always uses the best quality components in its products. For example, the motors, variable speed controls, PLC, temperature controllers are usually produced by internationally well-known manufacturers such as ABB®, Siemens®, Schneider®, etc. The world-leading manufacturing network and supply chain in the southern China Pearl River Delta, where POTOP® is located, ensures POTOP® to deliver the high quality processing machines in a very short lead time.

As always, POTOP® discusses with potential customers in detail to fully understand their unique specifications so they can design a functional machine. As shown in this catalog, POTOP® designs and produces machines for both R&D customers to handle 10's grams of expensive materials and pilot production customers that scale up the process to 100's kg materials. The POTOP® machines are designed with scale up capability in mind so the materials and processing technology developed with the POTOP® R&D machines can be readily scaled up in large scale production machines.

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## COMPANY PROFILE

Guangzhou POTOP experimental analysis instrument Co., Ltd was co-founded in Guangzhou in 2009 by the National Engineering Research Center of Novel Equipment for Polymer Processing in South China University of Technology, Hong Kong cosmos machinery Co., Ltd and Guangzhou precision plastic machinery equipment Co., Ltd.

POTOP is specialized in R&D and manufacturing of polymer rheometer and processing experimental instruments. The leading manufacturing technology in such equipments, excellent quality of the equipments, first-class after-sales service wins many customers all over the world. Collaborated with the research team lead by Professor Jinping Qu academician in the National Engineering Research Center of Novel Equipment for Polymer Processing in South China University of Technology, POTOP had developed innovative polymer dynamic rheometer, master batch dispersion tester, mini precise functional film processing equipments, lab multi screw compounding experimental line, lab rubber forming machines and lab plastic processing equipment, covering a full range of polymer processing and rheometer instruments.

Guangzhou POTOP is striving to be the best manufacturer of polymer processing and rheometer instruments, combing the price of made-in-China with the quality of made-in-German. We will pay more attentions to the details and offer the best service for customers.

Adhere to long term operation objectives, POTOP maintains mutual benefit and collaboration relationship with customers and provides the optimal technical support, the best instruments and top after sale service.

Revolutionary progress in micro-electronics, renewable energy, medical industries demands polymeric parts and components that cannot be produced with current existing machineries. With a strong interdisciplinary engineering team including polymer scientists, mechanical engineers, and electrical engineers, POTOP has the capability to offer customer the best tailor-made nonstandard polymer analysis and processing experimental instruments with short lead time.

Customer satisfaction is the foundation of POTOP business. POTOP is establishing a global sales and technical support network to proudly bring the Made-In-China polymer processing instruments to our customers around the world.

## POLYMER RHEO-STATION (MODULAR VERSION)

Item	Description	Page
Main Control Module	Core module of polymer rheo-station (dynamic rheological workstation), providing vibrating driving force for other modules and integrating data collecting, saving, and analyzing into one module.	6
Vibration Module	Installed between the Main Control Module and other functional modules to generate the axial vibration force. The vibration force field is introduced into polymer processing to realize dynamic extrusion, compounding and injection.	7
Torque Module	Materials in the mixing chamber is sheared and mixed with the force exerted by two counter rotating rotors with different speeds. This force is measured by the torque sensor and simultaneously recorded by the computer software to form rheological spectrums.	8
Capillary Module	It consists of on-line weighing device, pressure sensor and capillary die. Combined with the Main Control Module and the Single Screw Extrusion Module, it serves as an Extrusion Capillary Rheometer.	9
Single Screw Extruder	It combines the function of polymer plasticizing, melting and extrusion.	10
Twin Screw Extruder	Composed of block barrels and parallel intermeshing co-rotating twin screw, it can be used to blend and mix different polymer with ingredients to a certain effect by rearranging screw elements according to the processing characteristics of the materials.	11
Triple Screw Extruder	Composed of block barrels and parallel intermeshing co-rotating triple screw, it can be applied to blend and mix different polymer materials with ingredients by rearranging screw elements according to the processing characteristics of the materials.	12
Casting Module	It is made by the casting roller, traction roller and rewinding roller composition, with independent rack. It is cast molding auxiliary module.	13
Calendering Module	It is made by the rolling die, three calendering roller, traction roller and take-up roller composition, with independent rack. It is rolling molding auxiliary module.	14
Mould Clamping Module	It is a clamping device in injection molding. Along with Single Screw Extrusion Module, Vibration Module and Main Control Module, the dynamic injection molding process can be completed.	15
Visualized Extrusion Module	With transparent glass barrel equipped, the whole process of homogeneous conveying, melting and extruding can be observed.	16

## POLYMER RHEO-STATION (MODULAR VERSION)

### Combinations of modules for polymer Rheo-station

Experimental line	Modules
Torque Rheometer	Main Control Module + Torque Module
Extrusion Capillary Rheometer	Main Control Module + Single Screw Extruder + Capillary Module
Dynamic Extrusion Capillary Rheometer	Main Control Module + Vibration Module + Single Screw Extruder + Capillary Module
Dynamic Injection Line	Main Control Module + Vibration Module + Single Screw Extruder + Mould Clamping Module
Visualized Extrusion Line	Main Control Module + Visualized Extrusion Module
Visualized Dynamic Extrusion Line	Main Control Module + Vibration Module + Visualized Extrusion Module
Twin Screw Compounding and Pelletizing Line	Main Control Module + Twin Screw Extruder + Mini Precise Pelletizer
Triple Screw Compounding and Pelletizing Line	Main Control Module + Triple Screw Extruder + Mini Precise Pelletizer
Triple Screw Dynamic Compounding and Pelletizing Line	Main Control Module + Vibration Module + Triple Screw Extruder + Mini Precise Pelletizer
Film Blowing Line	Main Control Module + Single Screw Extruder + Mini Precise Film Blowing Unit
Film Casting Line	Main Control Module + Single Screw Extruder + Mini Precise Casting Unit
Sheet Calendaring Line	Main Control Module + Single Screw Extruder + Mini Precise Light Calendaring Unit
Multi Screw Compounding and Pelletizing Line	Main Control Module + Twin (Triple) Screw Extruder + Mini Precise Pelletizer

# POLYMER RHEO-STATION (MODULAR VERSION)

## Main Control Module



## Features

- Driven by high precision servo motor.
- Controlled by advanced OPC technology and manipulated via an independent computer.
- Remote/local multi-point control is available for each independent unit.
- **Labview**<sup>®</sup> based data analysis program with powerful functions and user-friendly interface.

## Applications

- Operation and control platform for polymer rheo-station to control other modules.
- Provide driving, measurement and control function for the other modules.
- Data processing and analyzing.

## Technical Parameters

Item	Unit	RMOM-75
Revolution speed	rpm	360
Speed accuracy		0.5 % F.S
Max. torque	Nm	198
Pressure measurement range	MPa	0-100
Pressure measuring accuracy		0.2 % F.S
Main motor power	kW	7.5
Total weight	kg	400
Size (L×W×H)	mm	1120×690×1300

# POLYMER RHEO-STATION (MODULAR VERSION)

## Vibration Module



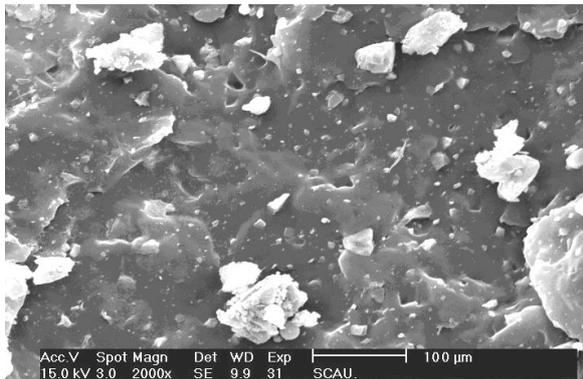
### Features

- An axial vibration force is superimposed along the screw axis.
- All digital hydraulic servo vibration system generates continuously variable vibration amplitude and frequency.
- High precision ball-screw and linear guide rail ensure stable axial movement during injection.
- Installed between the Main Control Module and the other functional modules.

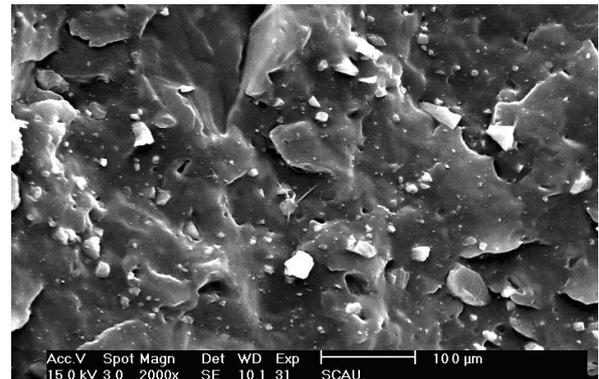
### Applications

- Research in the physical and mechanical properties and melt plasticizing mechanism under vibration force field.
- Produce vibrating injection pressure for dynamic injection line.

### Effect of Vibration



(a) Without vibration



(b) Vibration: A=1 mm, F=20 Hz

### Technical Parameters

Item	Unit	RIJM-01/25	RIOM-01/25
Amplitude	mm	0-1	
Frequency	Hz	0-25	
Injection function		Yes	No
Injection stroke (expand)	mm	80	No
Injection force (expand)	MPa	200	No
Total power	kW	7.5	4
Total weight	kg	400	
Size (L×W×H)	mm	690×690×1300	

# POLYMER RHEO-STATION (MODULAR VERSION)

## Toque Module



### Features

- Measuring condition is close to actual production.
- Advanced design for heater structure and cooling channel leads an even temperature distribution.
- Modular design facilitates easy operation, disassembling and clean.
- Electric overload protection device.
- Non-contact high precise torque sensor for precise and stable torque measuring.

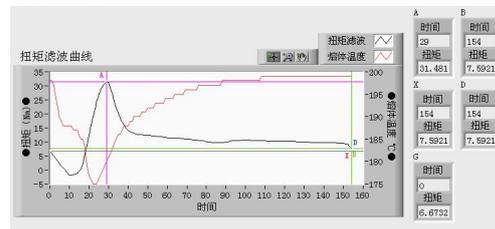
### Applications

- Formula development.
- Raw material quality inspection.
- PVC or rubber melting property test.
- PVC plasticizing agent absorption property test.
- Material thermal and shear stability test.
- XLPE cross-linking test.

### Rotor type



### Master curve



### Technical Parameters

Item	Unit	RTOM-55/20
Chamber volume	cm <sup>3</sup>	55
Rotor speed ratio		2:3
Torque measuring range	Nm	0-200
Torque measuring accuracy		0.5 % F.S
Temp. measuring accuracy	°C	±0.1
Max. temp.	°C	350
Heating/cooling method		Electrical heating / Compress air cooling
Total power	kW	1.5
Total weight	kg	300
Size (L×W×H)	mm	840×690×1300

# POLYMER RHEO-STATION (MODULAR VERSION)

## Capillary Module



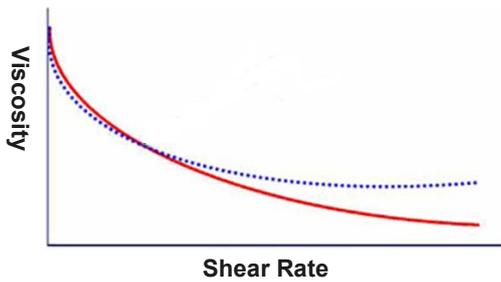
### Features

- Contains a capillary die and an online weighing device
- Equipped with high precision pressure sensor.
- Independent heating for capillary die with insulating material covered outside.
- The online weighing device can be connected to the control system and the weight change can be monitored simultaneously.

### Applications

- Polymer extrusion capillary rheological properties test.
- Polymer extrusion and shear behavior analysis.
- Polymer processing and performance evaluation.
- Polymer resin quality inspection.

### Typical Rheological Curve



### Electronic Scales



### Technical Parameters

Item	Unit	RCOM-01
Die diameter	mm	1/2
Die L/D ratio	L/D	15/20/30/40
Heating power	kW	0.42
Max. heating temp.	°C	350
Temp. measuring accuracy	°C	±1
Weighing range	g	4100
Weighing accuracy	g	±0.1

# POLYMER RHEO-STATION (MODULAR VERSION)

## Single Screw Extruder



### Features

- Combined with Main Control Module to perform melt plasticizing, conveying and measuring, providing stable feed material for other modules.
- Different screw structures for different materials.
- Providing stable melt flow for capillary rheological test.

### Applications

- Material plasticizing and conveying.
- Polymer quantitative extrusion.
- Formula development.
- Optimization of processing parameters.
- Small scale production of pipe, profile, film & sheet with relevant dies.

### Typical Screw Structure



### Technical Parameters

Item	Unit	RESM-20/25
Screw diameter	mm	20
L/D ratio	L/D	25
Max. temp.	°C	350
Temp. measuring accuracy	°C	±1
Heating/cooling method		Electrical heating / Air cooling
Max. throughput	kg/h	5
Total power	kW	4
Total weight	kg	300
Size (L×W×H)	mm	860×690×1270

# POLYMER RHEO-STATION (MODULAR VERSION)

## Twin Screw Extruder



### Features

- Integrated vacuum system with compact structure.
- Standard single screw metering feeder, optional twin screw metering feeder.
- Optional screen changer and melt pump.
- Optional side feeder for special material blending modification.
- Optional force feeder to improve feeding stability
- Optional glass fiber feeding port.
- Optional liquid feeding port for special liquid components.

### Applications

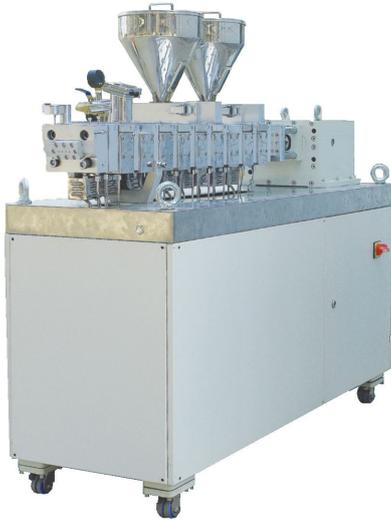
- Reactive extrusion.
- Extrusion foaming.
- Polymer alloys mixing and pelletizing.
- Polymer filling, reinforcement and modification.
- Material dehydration, de-volatilization and exhaust.

### Technical Parameters

Item	Unit	REDM-22/40
Screw diameter	mm	22
L/D ratio	L/D	40
Max. temp.	°C	350
Temp. measuring accuracy	°C	±1
Heating/cooling method		Electrical heating / Oil cooling
Hopper volume	L	5
Max. throughput	kg/h	20
Total power	kW	15
Total weight	kg	600
Size (L×W×H)	mm	1770×690×1570

# POLYMER RHEO-STATION (MODULAR VERSION)

## Triple Screw Extruder



### Features

- Parallel arranged intermesh three screws.
- Integrated vacuum system with compact structure.
- Standard single screw metering feeder, optional twin screw metering feeder.
- Optional screen changer and melt pump.
- Optional side feeder for special material blending modification.
- Optional force feeder to improve feeding stability.
- Optional glass fiber feeder.
- Optional liquid feeder for special liquid components.

### Applications

- Reactive extrusion.
- Extrusion foaming.
- Polymer alloys mixing and pelletizing.
- Filled composite extrusion.
- Material dehydration, de-volatilization and exhaust.

### Screw structure



### Technical Parameters

Item	Unit	RETM-22/40
Screw diameter	mm	22
L/D ratio	L/D	40
Max. temp.	°C	350
Temp. measuring accuracy	°C	±1
Heating/cooling method		Electrical heating / Oil cooling
Hopper volume	L	5
Max. throughput	kg/h	30
Total power	kW	15
Total weight	kg	800
Size (L×W×H)	mm	1770×690×1450

# POLYMER RHEO-STATION (MODULAR VERSION)

## Casting Module



## Features

- Combining casting, trimming, rolling and other functions in one unit.
- The power roller is driven independently by servo motor, the roller speed control precision, synchronization performance.
- Casting roller height can be adjusted to meet the different melt strength casting process/materials.
- Hard chrome mirror roller with 304 stainless steel roller core, high quality surface finish, no rust.
- Roller rolls improve the flatness of the film, anodizing treatment is more durable.
- Optional mold temperature / chiller, precise control of casting roll temperature.
- Optional air knife or electrostatic adsorption device to improve the absorption of melt and roller surface effect.
- Optional waste side collection device to facilitate waste recycling.
- Optional constant tension winding device to improve the film winding quality.
- Optional pattern roller / matte roller to achieve a different film surface treatment.

## Applications

- Cast molding of polymer materials experiments.
- Casting production process research and parameter optimization.
- New material cast ability test.
- Color Master batch dispersion performance test evaluation.

## Technical Parameters

item	unit	FDHM-26	FDHM-35	FDHM-50
Sheet width	mm	260	350	500
Haul-off speed	m/min	0-10		
Max. temp.	°C	10-220		
Temp. control accuracy	°C	±1		
Total power	kW	1		
Total weight	Kg	220	250	300
Size (L×W×H)	mm	1560×1046×1600		

## Calendering Module



### Feature

- Integrated rolling, trimming, winding and other functions in one unit.
- The three rollers are independently driven by servo motors, which can control the roller speed separately.
- The distance between upper and lower roller and middle roller can be adjusted continuously and can be precisely controlled by pressing force of cylinder.
- Hard chrome plated mirror roller with 304 stainless steel roll core, high surface finish, no rust.
- Imported PLC and touch screen, easy to operate, intelligent.
- Optional mold temperature / chiller, precise control of casting roll temperature.
- Optional waste side collection device to facilitate waste recycling.
- Optional constant tension winding device to improve the film winding quality.
- Optional pattern roller / matte roller to achieve a different sheet surface treatment.

### Applications

- Extrusion and calendering of polymer materials in combination with single screw extruder and sheet die.
- Calender production process and parameter optimization.
- New rolling performance test and research.
- Mechanical properties of polymer materials to sample the sample sheet.

### Technical Parameters

item	unit	FPLM-26	FPLM-35
Sheet width	mm	260	350
Sheet thickness	mm	0.2-2	0.2-2
Haul-off speed	m/min	0-10	
Max. temp.	°C	10-220	
Temp. control accuracy	°C	±1	
Total power	kW	3	
Total weight	kg	300	350
Size (L×W×H)	mm	720×915×1430	720×1150×1500

# POLYMER RHEO-STATION (MODULAR VERSION)

## Mould Clamping Module



### Features

- Combined with Main Control Module, Single Screw Extruder, Mould Clamping Module and mould for injection molding.
- Perform dynamic injection by adding Vibration Module into the system.
- Direct pressure clamping device uniform the clamping force, avoiding frequent die height adjustment.
- The linear guide rail improves the parallelism of mould installation surface.
- Self-lubricating bearing is adopted for the guide pillar.
- Mechanical-electro-hydraulic triple overload protection device.

### Applications

- Research in injection technique.
- Preparation of injection sample.
- Optimization of injection technique.

### Technical Parameters

Item	Unit	RLOM-15/26
Clamping force	kN	150
Space between for columns	mm	190×160
Max. distance between plates	mm	320
Clamping stroke	mm	260
Injection unit stroke	mm	150
Total power	kW	4
Total weight	kg	600
Size (L×W×H)	mm	2000×725×1360

# POLYMER RHEO-STATION (MODULAR VERSION)

## Visualized Extrusion Module



### Features

- High strength transparent glass barrel with excellent abrasion and compression performance.
- High precision far infrared temperature sensor ensures accurate temperature control.
- Perform pelletizing and other plastic molding with correspondent die.

### Applications

- Research in visualized extrusion.
- Research in phase dispersion.
- Research in polymer plasticizing.
- Teaching in extrusion mechanism.

## Visualized extrusion process



Homogenizing section

Melting section

Feeding section

### Technical Parameters

Item	Unit	RVSM-20/25
Screw diameter	mm	20
L/D ratio	L/D	25
Max. temp.	°C	250
Temp. measuring accuracy	°C	±1
Max. pressure	MPa	10
Heating/cooling method		Electrical heating / Air cooling
Total power	kW	3
Total weight	kg	300
Size (L×W×H)	mm	750×690×1360

## POLYMER RHEO-STATION(STANDALONE VERSION)

Item	Description	Page
Torque Rheometer	The loaded materials in chamber is sheared and blended under the force exerted by the two counter rotating rotors with different revolution speed. The ribs of the rotors are subject to the reaction force of the material. The Torque Rheometer measures and records this reaction force by the torque sensor as the rheological curve, which can be used to identify difference between different materials.	18
Extrusion Capillary Rheometer	It can be used to measure the master curve of polymer composites. The measuring process is similar to that of extrusion and injection molding process that is the flow and deform process. It is an effective experimental apparatus to investigate the characterization of polymer molecular structure and processing performances. The behavior of melt fracture and unstable melt flow can be observed and investigated with this apparatus. Besides, this setup can be used to measure melt apparent shear viscosity, normal stress difference, melt density and other rheological parameters.	19

# POLYMER RHEO-STATION (STANDALONE VERSION)

## Torque Rheometer



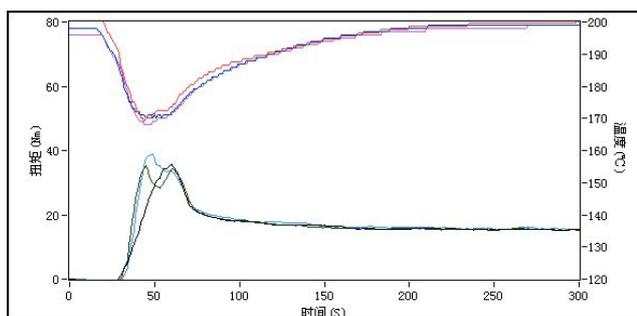
## Features

- Non-contact dynamic torque sensor and servo motor.
- Electric overload protection device.
- Via Torque (Temperature) –Time curve, features and differences of material microstructure, macroscopic morphology and processing properties can be obtained.
- Different rotors for different material (rubber, plastic, melt adhesive, food, etc.) and processing techniques.
- Different rotors are optional, e.g. Banbury, Roller, Cam and Sigma.

## Applications

- Formula design.
- Material property and quality test.
- PVC melting property test.
- PVC plasticizing agent absorption test.
- Thermal and shear stability test of the thermoplastic resin.
- XLPE cross-link test.
- Research in polymer flow and solidification behavior of cross linked polymer.

## Typical Curve



## Technical Parameters

Item	Unit	RTOI-55/20
Chamber volume	cm <sup>3</sup>	55
Revolution speed	rpm	200
Rotor speed ratio		2:3
Torque measuring range	Nm	0-200
Torque tolerance		0.5 % F.S
Max. temp.	°C	350
Temp. measuring accuracy	°C	±1
Heating/cooling method		Electrical heating / Air cooling
Driving power	kW	3
Total power	kW	4.5
Total weight	kg	300
Size (L×W×H)	mm	1250×690×1350

# POLYMER RHEO-STATION(STANDALONE VERSION)

## Extrusion Capillary Rheometer



### Features

- Measure material apparent viscosity curve with capillary die
- Obtain real viscosity curve by selecting dies with different L/D.
- Optional slit die can be used to get master curve for polymer melt flow.
- Automatically record diameter of extruded material and measure die swell ratio by laser diameter tester.

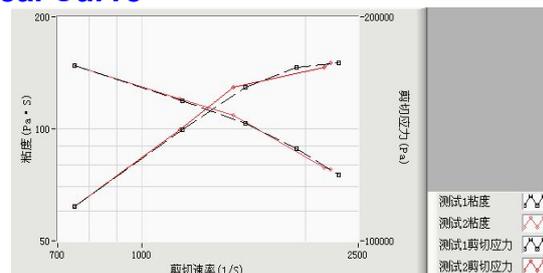
### Applications

- Apparent/real viscosity test.
- Die swell measurement.
- Development of new formula and product.
- Optimization of processing parameters.

## Laser Diameter Tester



### Typical Curve



### Technical Parameters

Item	Unit	RCSI-20/25
Screw diameter	mm	20
L/D ratio	L/D	25
Rated revolution speed	rpm	120
Pressure measuring range	MPa	0-70
Capillary die diameter	mm	1 (L/D=15/20/30)
	mm	2 (L/D=20/30/40)
Weighting range	g	0-4100
Weighting accuracy	g	±0.1
Max. temp.	°C	350
Temp. control accuracy	°C	±1
Main motor power	kW	3
Total power	kW	12
Total weight	kg	450
Size (L×W×H)	mm	1180×690×1720

## MASTERBATCH DISPERSION TESTER

Masterbatch Dispersion Tester is a combined experimental apparatus integrating filter pressure value (FPV) measurement, characterization of masterbatch dispersion performance and preparation of blown and cast film. It contains five modules including Mini Precise Single Screw Extruder (MESI-25/28), FPV Tester, Film Blowing Module, Film Casting Module and Computer Control System. Combined with Single Screw Extruder (MESI-25/28) and other functional modules, it forms different functional setups as FPV Tester, Film blowing Line and Film Casting Line to meet different experimental requirements.

Item	Description	Page
Filter Pressure Value (FPV) Tester	Combined with Mini Precise Single Screw Extruder, this module forms Filter Pressure Value (FPV) Tester to determine the filter pressure value for polymer composites and to identify the quality of masterbatch.	21
Film Blowing Module for Masterbatch Dispersion	Along with the Single Screw Extruder this module forms a film blowing line for preparation of tubular blown film.	22
Film Casting Module for Masterbatch Dispersion	Combined with the Single Screw Extruder and this module a film blowing line for masterbatch dispersion is obtained to prepare flat cast film.	23

# MASTERBATCH DISPERSION TESTER

## Filter Pressure Value (FPV) Module

### Features

- The melt pump is driven by servo motor.
- Equipped with manual plate nitride treated screen changer of high hardness and wear resistance.
- High precise melt pressure sensor provides an accurate melt pressure.
- The extruder can be moved axially along the linear guide rail on the top of the frame.

### Applications

- Accurate measurement of melt volume flow rate.
- Accurate melt conveying.
- Accurate pressure measurement before and after the melt pump
- Masterbatch dispersion test.
- Quality inspection and control during film production.
- Pigment quality inspection and control.

### Schematic structure of the tester



### Technical Parameters

Item	Unit	CMOM-60	
Melt pump flow rate	cm <sup>3</sup> /min	60	
Melt pump power	kW	0.75	
Pressure measuring range	MPa	Before pump	10
		After pump	35
Pressure measuring accuracy		±0.5% F.S	
Heating method		Electrical heating	
Max. temp.	°C	350	
Temp. control accuracy	°C	±1	
Total power	kW	4	

## Film Blowing Module for Masterbatch Dispersion

### Features

- The Film Blowing Module is fixed on the frame of the Filter Pressure Value Tester.
- The electrically movable working plate makes it convenient to adjust the height.
- The height of the film frame is variable which makes it easy to transport and move.
- Chrome coated mirror roll with 304 stainless steel shaft guarantees reliable quality and excellent film surface finish quality.

### Applications

- Cooling and curing for film bubble.
- Tubular film bubble stabilizing and shape setting.
- Tube film haul-off and winding.
- Material formula development.
- Properties test for blown film.
- Masterbatch dispersion test.
- Optimization and quality control for blown film processing parameters.

### Technical Parameters

Item	Unit	CBVM-25/26
Max. folding diameter	mm	25
Max lay flat width	mm	170
Haul-off speed	mm	260
Die diameter	m/min	0-3
Max. temp.	°C	350
Temp. control accuracy	°C	±1
Total power	kW	0.9

# MASTERBATCH DISPERSION TESTER

## Film Casting Module for Masterbatch Dispersion

### Features

- Each roll is independently driven by servo motor.
- Chrome coated mirror roll with 304 stainless steel shaft guarantees reliable quality and excellent film surface finish quality.
- The casting roll is oil heated
- The Film Casting Module is fixed on the frame of the Filter Pressure Tester module.
- The casting roll can move up and down along a linear guide rail.

### Applications

- Polymer casting film quality test.
- Masterbatch dispersion test.
- Material formula development.
- Optimization and quality control for casting film processing parameters.
- Optional Constant Tension Device makes smooth winding of film.

### Technical Parameters

Item	Unit	CDHM-20/26
Die width	mm	200
Roll width	mm	260
Haul-off speed	m/min	0-3
Max. temp.	°C	350
Temp. control accuracy	°C	±1
Total power	kW	1

## MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

Item	Description	Page
Mini Precision Single Screw Extruder	It consists of motor, gearbox, screw, barrel, heating and cooling system, and can be operated independently. It is the host extruder in the forming units.	25
Mini Precision Film Blowing Unit	This unit consists of film blowing die, air ring, bubble stabilizer frame, haul-off and winding roller. Each roller is independently driven by servo motor. Combined with the host extruder, it forms a film blowing line.	26
Mini Precision Film Casting Unit	Consists of casting die, casting roll, haul-off and winding roll, and can be used to form a film casting line with host extruder.	27
Mini Precision Light Calendaring Unit	It consists of triple calendaring roll, haul-off and winding roll, and can be used to form a film calendaring line with host extruder. All the calendaring roll are driven by servo motor independently.	28
Mini Precision Laminating Unit	A film laminating line is formed by combining a host extruder and laminating unit, which includes casting roll, rubber press roll, unwinder, preheating roll and lifting device.	29
Mini Precision MDO Unit	Vertically equipped with preheating roll, orientation roll, annealing roll, and chilling roll, film can be continuously heated, oriented, annealed with this setup.	30
Mini Precision Vertical Horizontal Stretching unit	The high-performance longitudinal stretching film can be obtained by using the horizontal structure, preheating roller, drawing roller, annealing roller and cooling roller arranged horizontally to continuously heat, longitudinally stretch, anneal and cool down the film.	31
Mini Precision multi Film Forming Unit	It integrates film casting and MDO stretching into one. It consists of unwinder roll, tension control device, cold orientation roll, preheating roll, stretching roll, annealing roll, cooling roll and winding roll. And each roll is independently driven by servo motor.	32

# MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Single Screw Extruder



### Features

- Professionally manufactured screw and barrel leads to high processing precision and quality.
- International-Brand variable frequency motor produces high precise screw speed.

### Applications

- Polymer melting, plasticizing and extruding.
- Optimization of processing parameters
- Producing cast film, sheet and tube/pipe with corresponding dies.
- Optional melt pump or static mixing device can be used to improve plasticization effect
- Manual screen changer is optional to improve the purity and quality of melt.

### Technical Parameters

Item	Unit	MESI-20/28	MESI-25/28	MESI-30/30	MESI-35/32
Screw diameter	mm	20	25	30	35
L/D ratio	L/D	28		30	32
Rated revolution speed	rpm	120			
Max. temp.	°C	350			
Temp. control accuracy	°C	±1			
Heating/cooling method		Electrical heating / Air cooling			
Max. throughput	kg/h	3.5	7	13	25
Total power	kW	10		14	
Total weight	kg	300		350	400
Size (L×W×H)	mm	1970×690×1660		2070×690×1660	

# MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Film Blowing Unit



### Features

- The electrically lifted film frame makes it easy to lead the film and adjust the processing parameters.
- Equipped with retractable device in the blown film frame for easy transport and move.
- Chrome coated and mirror polished roll with 304 stainless steel shaft guarantees reliable quality and high surface quality of film.
- A-bracket steel ball positioning device makes it easy to adjust the inclined angle.

### Applications

- Equipped with Single Screw Extruder and a film blowing die a Film blowing Line comes out.
- Film bubble cooling, pressing and curing.
- Take-off and winding the tubular film.
- New formula development.
- Film blowing performance test.
- Masterbatch dispersion performance test.
- Optimization of blown film processing parameters.

### Technical Parameters

Item	Unit	FBVU-20	FBVU-26
Roller width	mm	200	260
Max. winding diameter	mm	200	
Central height of take-off roll	mm	1370-2000	
Winding speed	m/min	0-10	
Max. lay flat width	mm	120	170
Cooling air flow rate	L/min	30	
Total power	kW	0.9	
Total weight	kg	250	
Size (L×W×H)	mm	920×690×2580	

# MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Film Casting Unit



### Applications

- New formula development.
- Polymer casting performance test.
- Optimization of processing parameters.
- Optional fatten roll / matte roll finishes different film surface treatments

### Features

- Each roller is independently driven by servo motor.
- Chrome coated and mirror polished roller with 304 stainless steel shaft guarantees reliable quality and high surface quality of film.
- Anodized treated aluminum alloy flatten roller smoothes the film.
- Along with Single Screw Extruder and film casting die a Film Casting Line forms.
- It integrates film casting, trimming, flatting and winding.
- The gap between the casting roller and the die keeps variable by adjusting the height of casting roller.
- Optional touching screen can independently control this unit.
- Optional Mold Temperature Controller and Water Cooler for precise temperature control.
- Optional air knife or electrostatic adsorption device removes the air between film and roll surface.
- Optional trimming collection device improves winding quality
- Optional constant tension winding device produces smooth film and high quality.

### Technical Parameters

Item	Unit	FDHU-26	FDHU-35	FDHU-50
Roller width	mm	260	350	500
Take-off speed	m/min	0-10		
Max. temp.	°C	10-220		
Temp. control accuracy	°C	±1		
Total power	kW	1		
Total weight	kg	220	250	300
Size (L×W×H)	mm	1560×1046×1600		

# MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Light Calendaring Unit



### Features

- Three rollers are independently driven by servo motor.
- Linear guide rail is applied to guide the up or bottom roller for adjusting the gap between rolls.
- Combined with Single Screw Extruder and sheet die a Sheet Extrusion Line is obtained.
- Chrome coated and mirror polished roller with 304 stainless steel shaft guarantees reliable quality and high surface quality of film.
- It integrates film casting, trimming, flattening and winding.
- Optional touching screen can independently control this unit controllable.
- Optional Mold Temperature Controller and Water Cooler makes precise temperature control of the roll.
- Optional air knife or electrostatic adsorption device removes the air between film and roll surface.
- Optional trimming collection device improves winding quality
- Optional constant tension winding device produces smooth film and high quality.

### Applications

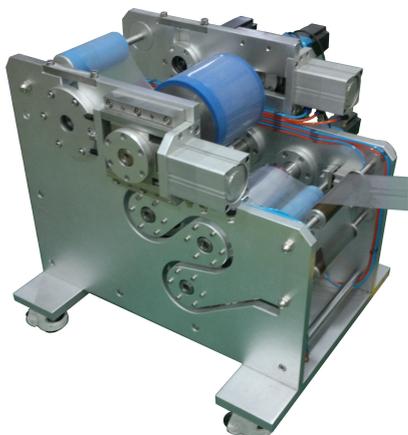
- New formula development.
- Polymer calendaring performance test.
- Optimization of calendaring processing parameters.
- Optional fatten roll / matte roll finishes different film surface treatments

### Technical Parameters

Item	Unit	FPLU-26	FPLU-35
Sheet thickness	mm	0.2-2	0.2-2
Sheet width	mm	180	260
Max. temp.	°C	10-220	
Temp. control accuracy	°C	±1	
Total power	kW	3	
Total weight	kg	300	350
Size (L×W×H)	mm	720×915×1430	720×1150×1500

# MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Laminating Unit



### Features

- All rollers are independently driven by servo motor.
- Rubber press roller is driven by air cylinder.
- Chrome coated and mirror polished roller with 304 stainless steel shaft guarantees reliable quality and high surface quality of film.
- Rollers are heated by Mold Temperature Controller and heat conduction oil to maintain uniform roller surface temperature.

### Applications

- Film lamination for different kinds of films.
- Optimization of laminating parameters.
- Polymer film laminating performance research.
- New laminating formula development.
- Preparation and process technology research of functional multilayer laminated film.

### Technical Parameters

Item	Unit	FAHU-26	FAHU-35
Roller width	mm	260	350
Take-off speed	m/min	0-10	
Max. width of entrance	mm	180	260
Max. preheating temp.	°C	150	
Temp. control accuracy	°C	±1	
Total power	kW	4.75	
Total weight	kg	400	
Size (L×W×H)	mm	1100×915×920	1100×1150×980

# MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision MDO Unit



### Features

- Rollers for preheating, stretching, annealing and cooling are all independently driven by servo motors.
- The gaps between the rollers can be adjusted by moving the relevant roll horizontally.
- Mold Temperature Controller and heat conduction oil is adopted to heat the rollers.
- 10' touch screen controller is easy to operate.
- European standard aluminum alloy frame makes it light, strong, corrosion resistant and durable.
- 304 stainless steel desktop, practical and beautiful.

### Applications

- Off-line film machine direction orientation.
- Optional single-point or two-point machine direction orientation.
- Combined with Mini Precise Film Casting Line an on-line MDO line is made up.
- Preparation of stretching film with different draw ratio.
- New formula development.
- Functional film preparation and processing research.
- Film tensile performance test.
- Optimization of film stretching parameters.

### Technical Parameters

item	unit	FOHU-26	FOHU-35
Roller width	mm	260	350
Preheat roller	No		3
Stretching point			1
Draw ratio			10:1
Gap between stretching points	mm		0-50
Setting roller			2
Cooling roller	No		1
Max. speed of film exit	m/min		40
Roller heating method		High temperature oil / electric heating	
Maximum temperature	°C	200/350	
Temperature control accuracy	°C	±1	
Total power	kW	42	
Total weight	kg	1000	
Size (L×W×H)	mm	2350×2140×2020	

# MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Horizontal Stretching Unit



### Applications

- Machine Direction tensile membrane laboratory preparation and pilot-scale production.
- Study and optimization of machine direction stretching production process.
- Tensile testing of films.
- R&D of new film materials and In-line machine direction stretching combined with extrusion casting test lines.

### Features

- The horizontal structure is easy to expand and convenient to thread the film, more suitable for pilot and small-scale production.
- Preheat roller, stretching roller, annealing roller and cooling roller are independently driven by servo motor, with higher speed control accuracy.

- Stretch roller gap adjustable, can achieve "zero pitch" stretch, reduce necking effect.
- Single, double (or even multi-point) stretch optional, adjustable stretch ratio.
- Oil / electric heating optional: oil heating. Temperature uniformity, and electric heating can obtain higher process temperature.
- High-performance PLC with 10-inch touch screen, high control accuracy, more convenient operation.

### Technical Parameters

item	unit	FOHU-26	FOHU-35
Roller width	mm	260	350
Preheat roller	No		3
Stretching point			1
Draw ratio			10:1
Gap between stretching points	mm		0-50
Setting roller			2
Cooling roller	No		1
Max. speed of film exit	m/min		40
Roller heating method		High temperature oil / electric heating	
Maximum temperature	°C	200/350	
Temperature control accuracy	°C	±1	
Total power	kW	42	
Total weight	kg	1000	
Size (L×W×H)	mm	2350×2140×2020	

# MODULAR FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Multi Film Forming Unit



### Features

- It integrates casting, stretching, haul-off and winding functions.
- The casting roller lifting device helps to adjust die lip.
- Oil based heating system is adopted.
- Each roller is independently driven by servo motor.
- Adjustable gaps between stretching rollers to meet different technical requirements.
- On-line film stretching, haul-off and winding is available.
- Optional Mold Temperature Controller and Water Chiller are available.
- Optional air knife or electrostatic adsorption device help to remove the air between film and roller surface.
- Optional waste trimming collection device improves winding quality.
- Optional constant tension winding device produces smooth film and high quality.
- Optional pattern roller / matte roller can be used for different surface treatments.

### Applications

- New formula development.
- Novel functional film preparation.
- Film casting performance test.
- Masterbatch dispersion test
- Cast film stretching test.

### Technical Parameters

item	unit	FOHU-26	FOHU-35
Roller width	mm	260	350
Preheat roller	No		3
Stretching point			1
Draw ratio			10:1
Gap between stretching points	mm		0-50
Setting roller			2
Cooling roller	No		1
Max. speed of film exit	m/min		40
Roller heating method		High temperature oil / electric heating	
Maximum temperature	°C	200/350	
Temperature control accuracy	°C	±1	
Total power	kW	42	
Total weight	kg	1000	
Size (L×W×H)	mm	2350×2140×2020	

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

Item	Description	Page
Desktop Mini Extrusion Casting Test Line	Mini-single-screw extruder and single-roller casting unit integrated structure, enabling the polymer film casting, trimming, rolling and other functions.	34
Mini Precision Single Screw Extrusion Casting Line	This setup consists of a Single Screw Extruder and a Mini Precise Film Casting Unit to perform film casting, trimming and winding.	35
Mini Precision Twin Screw Extrusion Casting Line	Combining the mini precision twin-screw extruder and casting unit to achieve the polymer material film casting, trimming, rolling and other functions.	36
Mini Precision Multi Layer Co-extrusion Casting Line	This multi layer film co-extrusion line consists of certain set of Single Screw Extruders, a multilayer film casting die, Mini Precise Film Casting Unit and a take-off and winding unit.	37
Mini Precision Extrusion Calendaring Line	Conventional sheet extrusion, multi-roll calendaring, sheet trimming, take-off and winding can be accomplished. This setup includes a Single Screw Extruder and a Mini Precise Calendaring unit with independent frames.	38
Mini Precision Extrusion Casting & MDO line	This setup consists of a Single Screw Extruder, a Mini Precise Film Casting Unit and a Mini Precise MDO Unit. It can complete film extruding, casting, trimming, in-line MD stretching and winding.	39
Mini Precision Extrusion Tape Horizontal Test Line	It has a small precision single-screw extruder, small precision casting unit and small precision machine direction stretching machine. It can accomplish the extrusion, trimming, in-line machine direction stretching and winding function of polymer material film.	40
Mini Precision Multi Layer Laminating Line	This setup can be used for film extrusion and lamination, further preparation of multilayer laminated film.	41
Mini Precision Extrusion Film Blowing Line	This setup integrates film extrusion, blowing, take-off and winding into one unit. The extruder and film blowing unit share the same frame. The film casting unit can be electrically lifted to lead the film. The telescopic film forming frame makes it easy to transport and move.	42
Film Biaxial Orientation Line	Both vertical and horizontal polymer film stretching	43

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Desktop -Mini Extrusion Casting Test Line



### Features

- Integrate film casting, trimming, rolling and rolling and other functions in one machine.
- The power roller is driven independently by servo motor for best speed control precision, synchronization performance.
- Casting roller height can be adjusted to meet the different melt strength casting process needs.
- Hard chrome mirror roller with 304 stainless steel roller core, high surface finish, no rust.
- Optional air knife or electrostatic adsorption device to improve the absorption of melt and roller surface effect.
- Optional waste side collection device to facilitate waste recycling.
- Optional constant tension winding device to improve the film winding quality.
- Optional pattern roller / matte roller to achieve a different film surface treatment.

### Applications

- Polymer film casting test
- Casting production process research and parameter optimization
- New material cast ability test
- Color Master batch dispersion performance test evaluation

### Technical Parameters

item	unit	FDHU-16
Screw diameter	mm	16
L/D ratio	L/D	20
Die width	mm	80
Film thickness	mm	0.02-0.1
Roller width	mm	200
Take-off speed	m/min	0-5
Roller surface temperature range	°C	10-220
Temp. control accuracy	°C	±1
Total power	kW	7.5
Total weight	kg	600
Size (L×W×H)	mm	1678×690×1682

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Single Screw Extrusion Casting Line



### Features

- Cantilever roller structure facilitates film feeding and operation.
- Optional melt pump and static mixer can improve plasticization and film quality.
- Optional Mold Temperature Controller and Water Cooling.
- Optional air knife or electrostatic adsorption device help to remove the air between film and roll surface.
- Optional waste trimming collection device improves winding quality.
- Optional constant tension winding device produces a smooth film and high quality.
- Optional pattern roller / matte roller can be used for different surface treatments.

### Applications

- Polymer film casting performance test.
- New formula development.
- Optimization of processing parameters.
- Small scale production of narrow film.

### Technical Parameters

Item	Unit	MESI-20/28	MESI-25/28	MESI-30/30	MESI-35/32
Auxiliary type		FDHU-26		FDHU-35	
Max. film width	mm	180		260	
Take-off speed	m/min	0-3			
Total power	kW	12	14	16	20
Size (LxWxH)	mm	3400×690×1720		3600×690×1720	

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Twin Screw Extrusion Casting Line

### Features

- Direct film casting after twin screw compounding to improve the development efficiency while maintaining better material properties.
- Melt pump metering extrusion, melt pressure, flow rate more stable.
- Cantilever roller structure, easy to lead film.
- Brand PLC and touch screen, easy to operate, intelligent control.
- Optional mold temperature / chiller, precise control of casting roller temperature.
- Optional air knife or electrostatic adsorption device to improve the absorption of melt and roller surface effect.
- Optional waste side collection device to facilitate waste recycling.
- Optional constant tension winding device to improve the film winding quality.
- Optional pattern roller / matte roller to achieve a different film surface treatment.

### Applications

- Functional casting film laboratory preparation.
- New material formula research and casting performance test.
- Production process research and parameter optimization.

### Technical Parameters

item	unit	MEDI-22/40		MEDI-35/40	
Auxiliary type		FDHU-26		FDHU-35	
Melt pump displacement	cc	5		10	
Max. film width	mm	180		260	
Take-off speed	m/min	0-3			
Total power	kW	12	14	16	20
Size (LxWxH)	mm	3400×690×1720		3600×690×1720	

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Multi Layer Co-extrusion Casting Line



### Features

- Both extruders are controlled by the main touch screen controller for remote control.
- Preparation of single layer cast film.
- Preparation of multilayer co-extrusion cast film.
- Optional melt pump and static mixer can improve plasticization and film quality.
- Optional Mold Temperature Controller and Water Cooling device is available for temperature control.
- Optional air knife or electrostatic adsorption device can improve the film adsorption & cooling.
- Optional waste trimming collection device improves winding quality.
- Optional constant tension winding device produces f smooth film and high quality.
- Optional pattern roller / matte roller can be used for different surface treatments.

### Applications

- Preparation of multilayer functional film.
- Polymer casting performance test.
- New formula development.
- Optimization of processing parameters.
- Small scale preparation of narrow film.

### Technical Parameters

Item	Unit	MESI-20/28	MESI-25/28	MESI-30/30	MESI-35/32
Auxiliary type		FDHU-26		FDHU-35	
Max. film width	mm	180		260	
Take-off speed	m/min	0-10			
Max. no. of layer		7			

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Extrusion Calendaring Line



### Applications

- Preparation of different sheet.
- New formula development.
- High viscosity polymer calendaring.
- Preparation of multi-functional polymer composite sheet.

### Features

- The three rollers are independently driven by servo motors for flexible speed control.
- Chrome coated mirror roller with 304 stainless steel shaft guarantees reliable quality and excellent film appearance.
- Optional melt pump and static mixer can improve plasticization and film homogenization.
- Optional Mold Temperature Controller and Water Cooling make a uniform temperature distribution on roll surface.
- Optional trimming waste collection device improves sheet quality.
- Optional constant tension winding device produces smooth film and high quality.
- Optional pattern / matte roller can be used for different surface treatments.
- Optional hydraulic or air cylinder for different materials.
- Optional two / three / four rollers configuration for different processing technology.

### Technical Parameters

Item	Unit	MESI-20/28	MESI-25/28	MESI-30/30	MESI-35/32
Auxiliary type		FPLU-26		FPLU-35	
Film width	mm	180		260	
Film thickness	mm	0.2-1			
Roller surface temp.	°C	RT-120			
Temp. control accuracy	°C	±1			
Take-off speed	m/min	0-3			
Main motor power	kW	4	5.5	7.5	11
Total power	kW	12	14	16	20
Total weight	kg	650	650	700	700
Size (LxWxH)	mm	3000×1120×1720	3100×1120×1720	3200×1120×1720	3300×1120×1720

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Extrusion Casting & MDO Line



### Features

- Each roller is independently driven by servo motor, ensuring precise roller revolution speed and speed ratio between adjacent rollers.
- Chrome coated and mirror polished roller with 304 stainless steel shaft guarantees reliable quality and high surface quality of film.
- Optional melt pump and static mixer can improve plasticization effect and film homogenization.
- Optional Mold Temperature Controller and Water Cooling device.
- Optional trimming collection device improves winding quality.
- Optional Constant Tension Device makes smooth winding effect and steady subsequent machine direction tensile.

### Applications

- Preparation of various sheets.
- New formula development.
- Calendaring of high viscosity polymer.
- Preparation of multi-functional polymer composite.

### Technical Parameters

Item	Unit	MESI-20/28	MESI-25/28	MESI-30/30	MESI-35/32
Auxiliary type		FOVU-26		FOVU-35	
Film width	mm	180		260	
Film thickness	mm	0.02-0.1			
Roller surface temp.	°C	RT-120			
Temp. control accuracy	°C	±1			
Take-off speed	m/min	0-15			
Main motor power	kW	4	5.5	7.5	11
Total power	kW	54	56	58	62
Total weight	kg	1600	1650	1700	1750

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Extrusion Tape Horizontal Test Line

### Features

- Each roller is independently driven by servo motor, ensuring precise roll revolution speed and speed ratio between adjacent rollers.
- Chrome coated and mirror polished roller with 304 stainless steel shaft guarantees reliable quality and high surface quality of film.
- Optional melt pump and static mixer can improve plasticization effect and film homogenization.
- Optional Mold Temperature Controller and Water Cooling device.
- Optional trimming collection device improves winding quality.
- Optional Constant Tension Device makes smooth winding effect and steady subsequent machine direction tensile.

### Applications

- Preparation of various sheets.
- New formula development.
- Calendaring of high viscosity polymer.
- Preparation of multi-functional polymer composite.

### Technical Parameters

Item	Unit	MESI-20/28	MESI-25/28	MESI-30/30	MESI-35/32
Auxiliary type		FOVU-26		FOVU-35	
Film width	mm	180		260	
Film thickness	mm	0.02-0.1			
Roller surface temp.	°C	RT-120			
Temp. control accuracy	°C	±1			
Take-off speed	m/min	0-15			
Main motor power	kW	4	5.5	7.5	11
Total power	kW	54	56	58	62
Total weight	kg	1600	1650	1700	1750

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Multi Layer Laminating Line



### Features

- Each roller is independently driven by servo motor.
- Equipped with independent oil heating temperature control system.
- Equipped with preheating rubber roller or steel roller for different materials.
- Double strength cylinder ensures precise adjustment of back pressure of press roll and excellent laminating strength.
- Optional pattern roller / matte roller can be used for different surface treatments.

### Applications

- Preparation of multilayer laminating film.
- Multilayer laminating between non-plastic and plastic film.
- Optimization of multilayer calendaring processing parameters.

### Technical Parameters

Item	Unit	MESI-20/28	MESI-25/28	MESI-30/30	MESI-35/32
Auxiliary type		FAHU-26		FAHU-35	
Film width	mm	0.02-0.2			
Take-off speed	m/min	0-10			
Max. temp. on roll surface	°C	150			
Temp. control accuracy	°C	±1			
Total weight	kg	700		850	
Size (L×W×H)	mm	1970×700×1660	1970×700×1660	2070×700×1660	2070×700×1660

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Mini Precision Extrusion Film Blowing Line



### Features

- The film blowing frame can be electrically lifted, making film leading more easily.
- The retractable film blowing frame makes it easy to be transported and moved.
- Take-off roller driven by servo motor achieves stepless speed regulation and guarantees neat film collection.
- High strength aluminum alloy gearbox obtains excellent cooling effect.
- Integrated frame saves much space.

### Applications

- New formula development.
- Film blowing performance test.
- Masterbatch dispersion test.
- Optimization of processing parameter for film blowing.
- Research on blown film forming performance.
- Preparation of tubular blowing film.
- Investigation in polymer film blowing process.

### Technical Parameters

Item	Unit	FBSI-20/28	FBSI-25/28
Screw diameter	mm	20	25
L/D ratio	L/D	28	
Screw speed	rpm	120	
Max. lay flat width	mm	120	170
Take-off speed	m/min	0-10	
Max. temp.	°C	350	
Temp. control accuracy	°C	±1	
Max. output	kg/h	3.5	7
Motor power	kW	3	4
Total power	kW	11	12
Total weight	kg	550	600
Size (L×W×H)	mm	1735×944×2630	

# COMPLETE FUNCTIONAL FILM FORMING EQUIPMENT

## Film Biaxial Stretching Machine

### Features

- Including biaxial stretching mechanism, static pressure box, heating oven
- High-performance temperature sensor
- Servo motor drive
- Real-time monitoring of polymer materials, tensile changes in the film

### Applications

- Prepare Biaxially oriented film samples for properties test and optimization of formulations.
- Evaluate the biaxial orientation capability of new materials and films in lab-scale.
- Biaxial tensile properties of polymer film.
- Investigate biaxial orientation temperatures, ratios, speeds for production scale up.

### Technical Parameters

item	unit	
Maximum sample thickness	mm	4
Sample size	mm	90×90
		115×115
		140×140
Maximum stretching speed	mm/s	500
Tensile force	N	2,000
Maximum temperature	°C	400
Temperature control accuracy	°C	±1
Maximum dimension after stretching	mm	730 x 730
L×W×H	mm	4500×2000×1700

## MULTI SCREW COMPOUNDING EQUIPMENT

Blending and compounding modification of polymer plays an important role in plastics industry. In order to improve the mixing uniformity of various components and increase composite effect of ingredients, powerful compounding equipments are in great demand. The compounding extruders can enhance the dispersion of ingredients using strong shearing and kneading of multi screws. POTOP unit multi screw compounding extruders achieve a wide application in the field of polymer modification. Based on traditional single screw extruder and twin screw extruder, POTOP has successfully developed some special compounding extruders such as Mini Precise 1.5 Screw Compounding Extruder, 2.5 Screw Compounding Extruder and Triple Screw Compounding Extruder to meet sophisticated requirements. These special extruders have excellent mixing and dispersing effect which greatly increase throughput and reduce energy consumption.

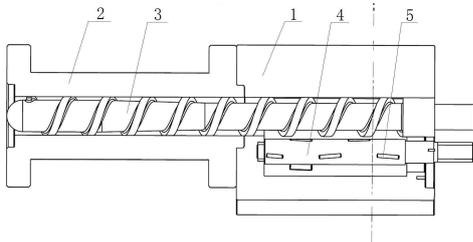
Item	Description	Page
Mini Precision 1.5 Screw Compounder	This setup composes of long (main) and short (auxiliary) screws at feeding port, where tableting is equipped on auxiliary screw. With tableting polymer material is pressed and squeezed into the channel of the screw pairs and solves the problem of poor feeding and easy bridging. It is appropriate for some special materials such as low viscosity liquid, high viscosity solid, elastomer, light, fluff, and irregular shaped material, etc.	45
Mini Precision Twin Screw Compounder	Block designed barrels and screw along with parallel intermeshing co-rotating twin screw make it available to rearrange the combination of screw elements, catering for different characteristics of materials. And finally achieves excellent mixing and kneading effect.	46
Mini Precision 2.5 Screw Compounder	There exists an extra short screw in feeding part of conventional co-rotating twin screw extruder. This short one is parallel intermeshed with the other two screws in order to improve the feeding effect of some special materials.	47
Mini Precision Triple Screw Compounder	Block designed barrels and in-line arranged triple screw can be used to blend different polymer composites via rearranging the combination of screw elements. Compared with twin screw extruder the additional screw brings about more excellent mixing effect and throughput.	48
Mini Precision Pelletizer	This mini precise pelletizer provides the characteristics of smooth running, low noise and low power consumption. It is suitable for laboratory application and small scale production.	49

# MULTI SCREW COMPOUNDING EQUIPMENT

## Mini Precision 1.5 Screw Compounder



### Screw structure



(1. Feeding base, 2. Barrel, 3. Main screw, 4. Auxiliary screw, 5. Tableting)

### Features

- An intermeshing co-rotating long-short twin screw structure locates at the feeding part.
- Driven by international brand variable frequency motor.
- High strength aluminum alloy gearbox with tapered roller thrust bearing guarantees stable, reliable and stronger axial bearing capacity.
- Qualified for feeding and conveying special materials to avoid bridging problems.

### Applications

- Extrusion for thermo-cement, general plastics, engineering plastics, elastomer, etc.
- Reactive extrusion.
- Extrusion and foaming for polymer composites.
- Modification of filled polymer.
- It independently achieves material conveying, plasticizing, mixing and providing material for the other modules.
- Combined with melt pump and corresponding dies it can be used for pelletizing, film casting, and profile extrusion.

### Technical Parameters

Item	Unit	MEEI-35
Main screw diameter	mm	35
L/D for feeding part	L/D	4
Open width of feeding part	mm	135
Auxiliary screw diameter	mm	35
Rated screw speed	rpm	120
Max. working temp.	°C	260
Temp. control accuracy	°C	±1
Heating/cooling method		Electrical heating / Air cooling
Total power	kW	12
Total weight	kg	450
Size (LxWxH)	mm	2000×850×1600

# MULTI SCREW COMPOUNDING EQUIPMENT

## Mini Precision Twin Screw Compounder



### Features

- Driven by international brand variable frequency motor.
- Equipped with single screw feeder and horizontal blender to avoid material bridging.
- Optional twin screw feeder.
- Optional screen changer and melt pump to increase plasticization.
- Optional side feeder for special materials.
- Optional forced feeder to increase feeding stability.
- Optional glass fiber feeding port for the filling and modification of glass fiber.
- Optional liquid feeding port for liquid material precise metering feeding.

### Applications

- Mixing, kneading, extruding and pelletizing of general and engineering plastics, elastomer.
- Material blending modification and reactive extrusion.
- Highly effective compounding of polymer alloy.
- Modification of filled polymer composites.
- Polymer dehydration, de-volatilization and exhaust.

### Technical Parameters

Item	Unit	MEDI-22/40	MEDI-35/40
Screw diameter	mm	22	35
L/D	L/D	40	40
Rated screw speed	rpm	600	
Hopper volume	L	5	
Max. temp.	°C	350	
Temp. control accuracy	°C	±1	
Heating/cooling method		Electrical heating / Oil cooling	
Max. throughput	kg/h	20	40
Total power	kW	18	27
Total weight	kg	800	900
Size (L×W×H)	mm	2375×690×1630	

# MULTI SCREW COMPOUNDING EQUIPMENT

## Mini Precision 2.5 Screw Compounder

### Features

- Equipped with single screw feeder and horizontal blender.
- Optional twin screw feeder.
- PLC touch screen intelligent control system.
- Optional screen changer and melt pump to increase plasticization.
- Optional side feeder for special materials.
- Optional secondary feeding device achieves forced feeding for special materials.
- Optional glass fiber feeding port for the feeding and modification of glass fiber.
- Optional liquid feeding port for liquid material precise metering feeding.

### Applications

- Composites mixing and pelletizing.
- Polymer material plasticizing and conveying.
- Blending modification and reactive extrusion for polymer composite.
- Mixing and kneading for general and engineering plastics, elastomer, etc.
- Modification of filled polymer.
- Polymer dehydration, de-volatilization and exhaust.

### Technical Parameters

Item	Unit	MEZI-22/40	MEZI-35/40
Screw diameter	mm	22	35
L/D	L/D	40	
Rated screw speed	rpm	600	
Hopper volume	L	5	
Max. temp.	°C	350	
Temp. control accuracy	°C	±1	
Heating/cooling method		Electrical heating / Oil cooling	
Max. output	kg/h	25	50
Total power	kW	20	25
Total weight	kg	850	950
Size (L×W×H)	mm	2380×690×1720	

# MULTI SCREW COMPOUNDING EQUIPMENT

## Mini Precision Triple Screw Compounder



### Features

- Equipped with single screw feeder & horizontal blender.
- Optional twin screw feeder.
- Optional screen changer and melt pump to increase plasticization.
- Optional side feeder for special materials.
- Optional secondary feeding device achieves forced feeding for special materials.
- Optional glass fiber feeding port for the filling and modification of glass fiber.
- Optional liquid feeding port for liquid material.

### Applications

- Mixing, kneading and pelletizing of general and engineering plastics, elastomer, etc.
- Polymer blending modification and reactive extrusion.
- Highly effective compounding of polymer alloy.
- Modification of filled polymer.
- Polymer dehydration, devolatilization and exhaust.

### Screw structure



### Technical Parameters

Item	Unit	METI-22/40	METI-35/40
Screw diameter	mm	22	35
L/D	L/D	40	
Rated screw speed	rpm	600	
Hoper volume	L	5	
Max. temp.	°C	350	
Temp. control accuracy	°C	±1	
Heating/cooling method		Electrical heating / Oil cooling	
Max. throughput	kg/h	30	60
Total power	kW	20	24
Total weight	kg	1100	1200
Size (L×W×H)	mm	2380×690×1630	2380×690×1700

# MULTI SCREW COMPOUNDING EQUIPMENT

## Mini Precision Pelletizer



### Features

- Driven by international brand variable frequency motor.
- High strength aluminum alloy cutting chamber and durable alloyed tool steel cutter.
- Equipped with silicone press roller to make the cutting stable
- Equipped with visualized window.
- Stopping automatically when the door is open.
- European standard aluminum alloy profile frame makes it light and corrosion resistant.

### Applications

- Polymer strand pelletizing.
- Off-line strand pelletizing.
- Suitable for general and engineering plastics.

### Technical Parameters

Item	Unit	AGVU-04
Pellet diameter	mm	1-4
No. of strands		4
Pellet length	mm	3±0.2
Rated blade speed	rpm	380
Max. throughput	kg/h	20
Total power	kW	0.8
Total weight	kg	75
Size (L×W×H)	mm	580×480×1115

## RUBBER FORMING MACHINES

Rubber forming machines are tailor developed on the basis of lab precise testing and forming machines for the application of rubber testing and processing in laboratory in polymer related R&D institutions and universities. The mini precise equipments for rubber plasticizing, calendaring, extruding and pressing are manufactured with high performance construction materials and sophisticated control elements in view of special plasticizing, vulcanizing and forming characteristics.

Item	Description	Page
Mini Precision Rubber Extruder	This extruder adopts cold feeding, electrical heating and water cooling temperature control system. A water cooling channel is located in the center of the screw. With different profile dies, it can be used to produce profiles with different specifications. Provide different optional screw structures for different rubbers.	52
Mini Precision Rubber Double Roll Mill	It has two parallel rollers, the gap between which can be adjusted. It can be used to blend and plasticize rubber material to provide uniform soften or melting materials for calender. The two counter rotating rollers apply a squeeze and shear force on materials and initiate accompany chemical reaction which breaks out internal molecular chains and blends different ingredients to a homogeneous level.	53
Mini Precision Rubber Internal Mixer	An intermittent mixing equipment. The two counter rotating rotors apply a squeeze and shear force on materials, further reduce the temperature and viscosity of materials, which promotes the wettability of rubber on compounding agents and ensures a sufficient contact between them.	54
Mini Precision Press Vulcanizer	This setup can offer the required pressure and temperature for vulcanization of rubber, where pressure is obtained by hydraulic system driven by name brand variable frequency motor and the temperature is provided by electrical heaters. This equipment can be used for preparation of rubber or plastics.	55
Mini Precision Heavy Double-Roller Unit	The rollers are independently driven by the servo motors with high precision speed control. The hard chrome mirror roller is equipped with 304 stainless steel roll core, the quality is reliable and the surface finish of the products is high. The roller with electric heating / oil heating optional, through the optional special mold temperature controller can control the roll surface temperature and its high-precision distribution.	56
Mini Precision Three-Roll Calendaring Unit	The rollers are independently driven by the servo motors with high precision speed control. The hard chrome mirror roller is equipped with 304 stainless steel roll core, the quality is reliable and the surface finish of the products is high. The roller with electric heating / oil heating optional, through the optional special mold temperature controller can control the roll surface temperature and its high-precision distribution.	57
Mini precision four-roll calendaring unit	The rollers are independently driven by the servo motors with high precision speed control. The hard chrome mirror roller is equipped with 304 stainless steel roll core, the quality is reliable and the surface finish of the products is high. The roller with electric heating / oil heating optional, through the optional special mold temperature controller can control the roll surface temperature and its high-precision distribution	58
Mini Precision Rubber	All rolls are independently driven by servo motor with high	59

## RUBBER FORMING MACHINES

Multi Roll Calender	accuracy. Chrome coated and mirror polished press roll with 304 stainless steel shaft can produce highly polished products. Both electrical and oil heating methods are available. Oil heating with dedicated mould temperature controller is recommended for an even temperature distribution.	
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## Mini Precision Rubber Extruder



### Features

- International brand variable frequency motor.
- Equipped with vaned side feeder simultaneously driven by the same motor.
- Oil heating to ensure accurate temperature control.
- The screw is chilled by internal cooling water channel.
- Optional screw designs for different materials.
- Durable high strength welded frame.

### Applications

- Extrusion of universal rubber.
- Mixing and reactive extrusion of rubber with different ingredients.
- Extrusion of simple rubber profile.
- Rubber formula development.
- Optimization of rubber extrusion parameters.

Item	Unit	LESI-45/12	LESI-65/16	LESI-75/20
Screw diameter	mm	45	65	75
L/D ratio		12	16	20
Max. temp.	°C	200	200	200
Temp. control accuracy	°C	±3	±3	±3
Heating/cooling method		Oil heating / Water cooling		
Max. output	kg/h	30	60	70
Main motor power	kW	22	30	37
Total power	kW	20	55	45
Total weight	kg	800	1500	1800
Size (L×W×H)	mm	1860×700×1520	2060×700×1620	2025×2200×1500

# RUBBER FORMING MACHINES

## Mini Precision Rubber Double Roll Mill



### Features

- Each roller is independently driven by servo motor.
- Chrome coated mirror roll with 304 stainless steel shaft guarantees reliable quality and excellent film appearance.
- Auto shutdown protection cover.
- Optional electric/oil heating method.
- Optional Mold Temperature Controller ensures fine roll surface temperature distribution.
- The gaps between rollers can be adjusted manually with mechanical ruler as a reference.
- High strength aluminum alloy frame makes it light, beautiful and durable.
- 304 stainless steel desktop

### Applications

- Rubber/plastic formula development.
- Mixing and plasticizing of rubber and plastics.
- Rubber mixing and vulcanization.
- Extrusion of conventional rubber.
- Preparation of rubber/plastic sheet.
- Surface treatment for rubber/plastic sheet
- Optimization of rubber milling parameters.

### Roll Gap Control Device



### Technical Parameters

Item	Unit	LRHI-200
Sheet thickness	mm	0.2-2
Sheet width	mm	200
Heating		Electric / Oil heating
Max. temp.	℃	200
Temp. control accuracy	℃	±3
Main motor power	kW	4
Total power	kW	9
Total weight	kg	300
Size (L×W×H)	mm	860×700×1520

## Mini Precision Rubber Internal Mixer

### Features

- The rotor is driven by international brand variable frequency motor.
- The standard rotor is made of high strength alloy, whose configuration is designed according to the materials and process.
- Electric heating and PID temperature control method achieves high heating speed and accurate temperature control.
- Auto counting of mixing time.
- Equipped with 7' touching screen.
- High strength aluminum alloy frame with compact structure makes it durable.

### Applications

- Mixing and plasticizing of common rubbers
- Rubber filling, mixing and dispersion
- Rubber formula design
- Preheating of common rubber and providing material for heat feeding extruder



### Technical Parameters

Item	Unit	LK01-03
Mixing chamber volume	L	3
Max. rotating speed	rpm	50
Rotor speed ratio	Shear	1:1.24
Upper bolt drive		Pneumatic
Upper bolt pressure	MPa	0.1-0.5
Mixing chamber reversal angle	°	110
Flip motor power	kW	0.5
Main motor power	kW	5.5
Heating method		Oil heating
Max. temp.	°C	200
Temp. control accuracy	°C	±3
Total power	kW	15
Total weight	kg	600
Size (L×W×H)	mm	1250×750×2000

# RUBBER FORMING MACHINES

## Mini Precision Press Vulcanizer



### Applications

- Hot press and sulfide processing of the conventional rubber.
- Preparation of vulcanize rubber products.
- Preparation of simple thermosetting plastic products.
- Thermoforming of the conventional rubber, plastic and their composites.
- Vulcanization research of the conventional rubber.
- Optimization and control of rubber vulcanization processing parameters.

### Features

- Adopting international brand variable frequency motor.
- High strength stainless steel platen and guide posts.
- Electric heating and PID temperature control system achieves high heating speed and accurate temperature control.
- Adjustable molding time.
- Equipped with 7' touching screen.

### Technical Parameters

Item	Unit	LSVI-25
Clamping force	kN	250
Hot plate dimension	mm	350×350
Hot plate distance	mm	100
No. of layer		2
Max. pressure	MPa	15
Hot plate pressure	MPa	2
Plunger stroke	mm	200
Max. temp.	℃	350
Temp. control accuracy	℃	±3
Main motor power	kW	3.7
Total power	kW	12
Total weight	kg	650
Size (L×W×H)	mm	1200×550×1450

## Mini Precision Heavy Double-Roller Unit



### Features

- Blending of rubber/plastic and dispersion of ingredients.
- Plasticizing and mixing of rubber and plastics.
- Rubber / plastic formula development.
- Preparation of rubber/plastic sheet.
- Optional embossing roller / matt roller for different sheet surface treatments.
- Surface treatments for rubber/plastic sheet.
- Optimization of rubber calendaring parameters.

### Applications

- Each roller is independently driven by servo motor.
- Chrome coated mirror roller with 304 stainless steel shaft guarantees reliable quality and excellent film appearance.
- Optional electric /oil heating according to different processing conditions.
- Optional Mold Temperature Controller ensures fine surface and axial temperature distribution.
- The gaps between the three rolls can be adjusted manually.
- Optional calendaring rolls: 3, 4, 5 or tailored.
- High strength aluminum alloy frame makes it light, beautiful and durable.

### Technical Parameters

Item	Unit	LPVU-26
Sheet thickness	mm	0.5-5
Roller width	mm	260
Roller speed	rpm	0-36
Max. temp.	°C	200
Temp. control accuracy	°C	±3
Heating method		Electrical (Oil) heating
Roller speed	m/min	0-3
Total power	kW	25
Total weight	kg	600
Size (L×W×H)	mm	600×1135×1620

# RUBBER FORMING MACHINES

## Mini Precision Three-Roll Calendering Unit



### Features

- The pressure roller is independently driven by the servo motor with precise speed control.
- Hard chrome mirror pressure roller with 304 stainless steel roll core, reliable, high surface finish products.
- According to the process requirements to select the electric heating / oil heating.
- Optional special mold temperature controller to control the roll surface temperature and its high-precision axial distribution.
- The roller spacing manually adjustable, with a mechanical ruler reference.
- High-strength welding frame, compact and durable
- Optional European standard high-precision aluminum alloy frame, light and beautiful, durable.

### Applications

- Rubber / plastic mixing and dispersion of components.
- Rubber and plastic plastics, mixing.
- Rubber, plastic formula design.
- Rubber, plastic sheet preparation.
- Rubber, plastic sheet surface treatment.
- Rubber calendering process parameters optimization and control.
- Optional embossing roller / matte roller on the diversification of rubber sheet surface treatment.

### Technical Parameters

Item	unit	LPVU-26
Roller width	mm	260
Roller spacing adjustment range (manual)	mm	0.5-5
Roller surface temp.	°C	10-220
Temp. control accuracy	°C	±3
Heating method		Electrical (Oil) heating
Take-off speed	m/min	0-10
Total power	kW	25
Total weight	kg	700
Size (L×W×H)	mm	600×1135×1620

## Mini Precision Four-Roll Calendaring Unit



### Features

- The pressure roller is independently driven by servo motor to achieve precise speed control.
- Hard chrome mirror pressure roller with 304 stainless steel roll core, reliable, high surface finish products.
- According to the process requirements to select the electric heating / oil heating.
- Optional special mold temperature controller to control the roll surface temperature and its high-precision axial distribution.
- Roller spacing manually adjustable, with a mechanical ruler reference.
- European standard high-precision aluminum alloy frame, light and beautiful, durable.
- Optional high-strength welding frame, compact and durable.

### Applications

- Rubber / plastic mixing and dispersion of components.
- Rubber and plastic plastics, mixing.
- Rubber, plastic formula design.
- Rubber, plastic sheet preparation.
- Rubber, plastic sheet surface treatment.
- Rubber calendaring process parameters optimization and control.
- Optional embossing roller / matte roller on the diversification of rubber sheet surface treatment.

### Technical Parameters

Roll width	unit	LPVU-26
Roller width	mm	260
Roller spacing adjustment range (manual)	mm	0.5-5
Roller surface temp.	°C	10-220
Temp. control accuracy	°C	±3
Heating method		Electric heating / oil heating
Take-off speed	m/min	0-10
Total power	kW	25
Total weight	kg	900
Size (L×W×H)	mm	1060×1390×1800

# RUBBER FORMING MACHINES

## Mini Precision Rubber Multi Roll Calendar



### Features

- The pressure roller is independently driven by the servo motor to ensure precise speed control
- Hard chrome mirror pressure roller with 304 stainless steel roll core, reliable, high surface finish products
- According to the process requirements to select the electric heating / oil heating
- Optional special mold temperature controller to control the roller surface temperature and its high-precision axial distribution
- Roller spacing manually adjustable, with a mechanical ruler reference
- Optional calender rollers: 3, 4, 5 or custom
- High-strength aluminum alloy frame, light and beautiful, durable

### Applications

- Rubber / plastic mixing and dispersion of components
- Rubber and plastic plastics, mixing
- Rubber, plastic formula design
- Rubber, plastic sheet preparation
- Optional embossing roller / matte roller on the diversification of rubber sheet surface treatment
- Rubber, plastic sheet surface treatment
- Rubber calendaring process parameters and control

#### Technical Parameters

Item	Unit	LPVU-26
Roller width	mm	260
Roller spacing adjustment range (manual)	mm	0.5-5
Roller speed	rpm	0-36
Max.temp	°C	200
Temp. control accuracy	°C	±3
Heating method		electrify (oil) heating
Operating speed	m/min	0-3
Total power	kW	25
Total weight	kg	600
Size (L×W×H)	mm	1200×550×1500

## PROFILE EXTRUSION EQUIPMENT

Experimental profile extrusion equipments for polymer composites are developed specially for high-tech industries and universities based on the characteristics of polymer composites and extrusion techniques. With different tailor designed screws, profile mould, chilling and setting device, auto cutting and winding auxiliary standard and qualified polymer composite profiles can be produced. All the equipments are made of high-strength structural materials and equipped with sophisticated imported control elements as well as independently developed control technique. These kinds of experimental instruments can be applied in development of polymer composites formula and optimization of extrusion technique.

Item	Description	Page
Mini Precision Pipe Extrusion Line	This setup consists of a Mini Precise Single Screw Extruder, a pipe die, chilling and setting device, auto cutting and winding auxiliary. It can be used to produce various kinds of tubes or pipes with different specifications.	61
Mini Precision Wire Extrusion Line	The set of equipment using single screw extruder, with plastic wire mould and follow-up cooling, stereotypes, automatic winding auxiliary, can complete a variety of specifications of the wire extrusion.	62
Miniature 3D Printer Filament Extruder Line	Desktop Miniature 3D Printer Filament Extruder Line is made of a single screw extruder and filament take-up unit. It is mainly used for polymer wire performance test, winding neat rows of sexual development, process optimization, cost control, and small-scale production.	63

# PROFILE EXTRUSION EQUIPMENT

## Mini Precision Pipe Extrusion Line

### Features

- Equipped with international brand variable frequency motor.
- Optional screws with different structures for different materials and products.
- Digital display for the host extruder, cooling, take-up, winding and devices.
- PLC based control and display system.
- High precise imported temperature and pressure sensors ensure accurate processing control.
- High strength aluminum alloy profile /welding frame
- High precision manufacturing process for screw, barrel and die achieves the product dimension tolerances of less than  $\pm 0.05$  mm.

### Applications

- Pipe extrusion for PVC, PE, ABS, EVA, PP, PC, TPU tube/pipe.
- Extrusion for single/multi-cavity pipes of various specifications.
- Pipe formula development.
- Optimization and control of pipe extrusion processing parameters.



### Technical Parameters

Item	Unit	SESI-30	SESI-45	SESI-65
Screw diameter	mm	30	45	65
Screw L/D ratio	L/D	25-40		
Screw rotating speed	rpm	120	100	90
Tube/pipe diameter	mm	8-25	15-30	20-65
Take-up speed	m/min	2-6	1.5-5	1-4
Output	kg/h	8	18	38
Main motor power	kW	7.5	11	22
Total power	kW	18	25	38

## Mini Precision Wire Extrusion Line

### Features

- Equipped with international brand variable frequency motor.
- Optional screws with different structures for different materials and products.
- Digital display for the host extruder, cooling, haul-off, winding and devices.
- PLC based control and display system.
- High precise imported temperature and pressure sensors ensure accurate processing control.
- High strength aluminum alloy profile /welding frame
- High precision manufacturing process for screw, barrel and die achieves the product dimension tolerances of less than  $\pm 0.05$  mm.

### Applications

- Wire extrusion for PVC, PE, ABS, EVA, PP, PC, TPU.
- Extrusion for single/multi-cavity wire of various specifications.
- Wire formula development.
- Optimization and control of wire extrusion processing parameters.

### Technical Parameters

Item	unit	
Screw diameter	mm	45
L/D ratio	L/D	28
Production range	mm	1.75,3.0
Wire diameter accuracy	mm	$\pm 0.02$
Total power	kW	35
Size (L×W×H)	mm	1500×1500×2100

# PROFILE EXTRUSION EQUIPMENT

## Miniature 3D Printer Filament Extruder Line



### Features

- It is used for the polymer wire extrusion molding test.
- The development of winding neat rows.
- Process optimization, cost control and small-scale production.

### Applications

- Using SIEMENS touch operation, real-time display of the running state, alarm information and system parameters.
- PID temperature control, the accuracy up to  $\pm 1^{\circ}\text{C}$ .
- The traction unit using imported servo motor drive and is composed of the closed-loop control system with diameter measuring instrument, can quickly response to a host of speed change, which can quickly respond to the change of the speed of the extruder.
- Using imported servo motor drive, to ensure the tension balance, rolling smooth and tidy.

### Technical Parameters

Item	Unit	SESIH-20/28
Screw Diameter	mm	20
L/D ratio	mm	28
Screw speed	rpm	94
Roll speed	m/min	10
Max. output	Kg/h	3
Material size	mm	$\Phi 1.75$
Material accuracy	mm	$\pm 0.05$
Main motor power	kW	1.5
Total power	kW	5
Size (L×W×H)	mm	2080×780×1320

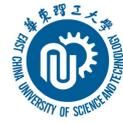
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***POTOP***<sup>®</sup>

**POTOP SELECTION MANUAL**

**Version 3.0**

**October, 2016**