KMD®
Plastifizierungstechnik

Minitype Polymer Plasticizing Equipment

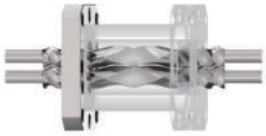
KMD Plastifizierungstechnik GmbH
www.kmd-industrie.de

Laboratory Equipment

KMD's series of lab testing equipment products, designed based on the requirements of materials technology and material forming technology, involved the interdisciplinary crossover. KMD has been chasing the development of materials and their application technology all the way forward for 30 years, and always on the road of development. KMD is willing to work together with you to develop lab equipment with special materials & special processes.

Originating from the requirements of demand, as manifested by its own continuous improvement and upgrading, the goal of its development process is to serve scientific research and technology development, the ultimate attribution is the high degree of maturity of its own lab testing equipment technology, amplified into a large production equipment, manufacturing new downstream products.

The sequence of existing products is as follows:



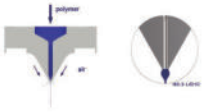
A. **Extruder Category:**
Single-screw Extruder, Twin-screw Extruder, Triple-screw Extruder

B. **Air-drawn Fiber Spinning Equipment Category:**
Spunbond, Meltblown, SMS Nonwoven Lab Equipment

C. **Mechanical-drawn Fiber Spinning Equipment Category:**
POY/ FDY/ BCF Fiber Spinning Lab Equipment

D. **Filter Pressure Value Tester**

E. **3D Printer (Screw Type):** Mono-Component & Bi-Component



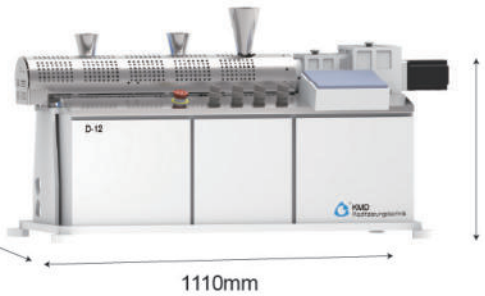
F. **Pilot & Mass Production Equipment**

A. Extruder Category:

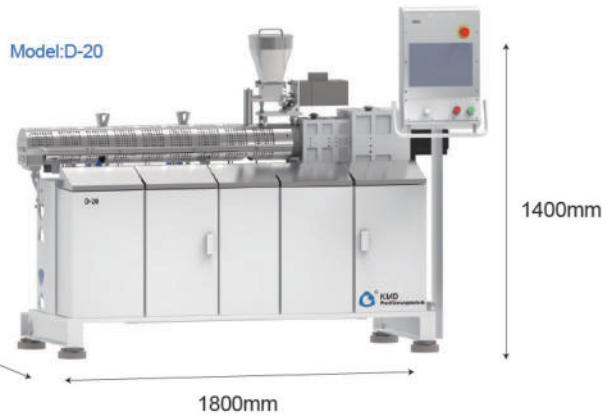
Single-screw Extruder, Twin-screw Extruder, Triple-screw Extruder

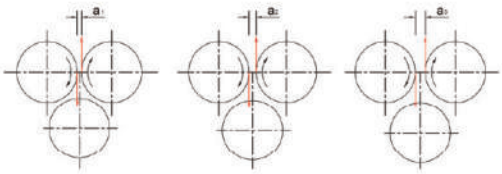
- High manufacturing precision of the kneading and screw elements, with good interchangeability.
- Small and uniform kneading gap between the high precision screw, assembled with a high precision barrel to form a precision mixing and grinding chamber, where the shear force can act in the micro-particles and can achieve the dispersion of nano-scale particles.
- The threaded element and barrel lining are made of tungsten alloy, which has excellent wear resistance, ensuring the relative stability of the kneading gap and also extending the service life of equipment.
- KMD has standardized the screw elements of triple-screw and twin-screw, the screw elements and the core shaft of the same type can be used interchangeably.

Model:D-12



Model:D-20





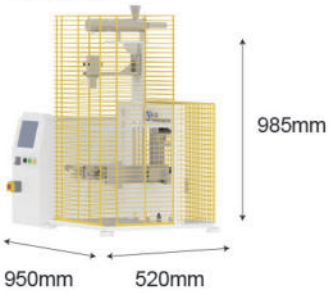
No.	Model	Description	Screw Diameter	Screw Type	Screw & Barrel Inner Sleeve	Side Feeding	Max. Output
1	Z12	Twin Screw Extruder	12mm	Three starts	Tungsten Alloy	Optional	0.5kg/h
2	D12	Triple Screw Extruder	12mm	Three starts	Tungsten Alloy	Included	1.0kg/h
3	Z16	Twin Screw Extruder	16mm	Two starts	Tungsten Alloy	Optional	3.0kg/h
4	Z20	Twin Screw Extruder	21mm	Three starts	Tungsten Alloy	Optional	5.0kg/h
5	D20	Triple Screw Extruder	21mm	Three starts	Tungsten Alloy	Included	8.0kg/h
6	Z32	Twin Screw Extruder	32mm	Two starts	Tungsten Alloy	Optional	50.0kg/h
7	Z38	Twin Screw Extruder	38mm	Three starts	Tungsten Alloy	Optional	60.0kg/h
8	D38	Triple Screw Extruder	38mm	Three starts	Tungsten Alloy	Included	80.0kg/h

B. Air-drawn Fiber Spinning Equipment Category:

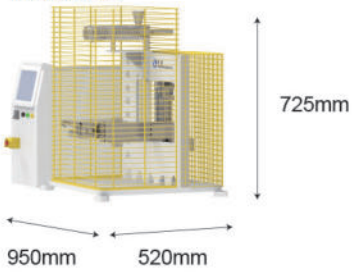
Spunbond, Meltblown, SMS Nonwoven Lab Equipment

- **Benchtop lab equipment models:** Single-hole meltblown benchtop lab equipment, Single-hole spunbond benchtop lab equipment; Mono- & Bi-component optional.
- **Small-scale lab equipment models:** 100~300mm width of Spunbond, Meltblown and SMS Nonwoven lab equipment; Mono- & Bi-component optional.
- **Pilot-scale lab equipment models:** 600~1000mm width of Spunbond, Meltblown, SMS Nonwoven lab equipment and other pilot models, Mono- & Bi-component optional, can be used for pilot-scale experiments and for continuous production of special nonwovens.
- KMD's Spin-pack components are developed and designed independently and have our own manufacturing capability. KMD designs and manufactures the Spin-pack components of the above models, and undertakes the design and co-development of new Spin-pack components.

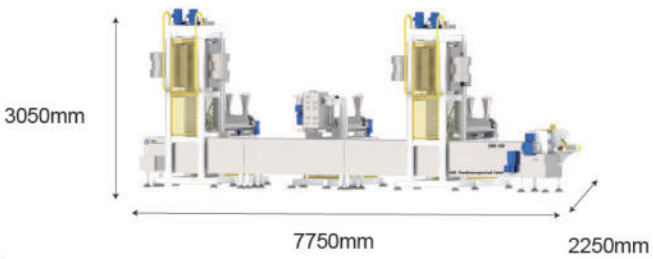
Model:S1-3D



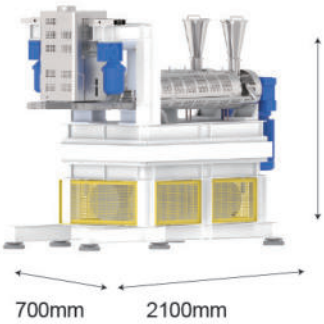
Model:M1-3D



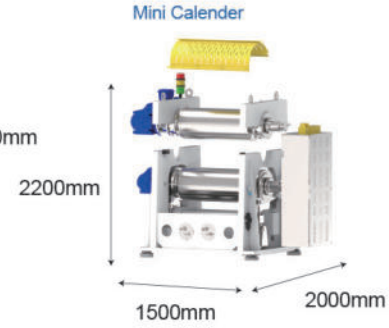
Model:SMS-100 Bico



Model:M-100 Bico



Mini Calender



No.	Model	Description	Components	Effective Width	Web Speed	Grammage
1	M1-3D	Single-hole Meltblown Lab Equipment	Mono	N/A	N/A	N/A
2	M1-3D BICO	Single-hole Meltblown Lab Equipment	Bi-Co	N/A	N/A	N/A
3	S1-3D	Single-hole Spunbond Lab Equipment	Mono	N/A	N/A	N/A
4	S1-3D BICO	Single-hole Spunbond Lab Equipment	Bi-Co	N/A	N/A	N/A
5	M-100	100mm Meltblown Lab Equipment	Mono/Bi-Co	100mm	30m/min	10~150g/m^2
6	M-150	150mm Meltblown Lab Equipment	Mono/Bi-Co	150mm	30m/min	10~150g/m^2
7	M-300	300mm Meltblown Lab Equipment	Mono/Bi-Co	300mm	100m/min	10~150g/m^2
8	M-600	600mm Meltblown Pilot Line	Mono/Bi-Co	600mm	100m/min	10~150g/m^2
9	M-1000	1000mm Meltblown Pilot Line	Mono/Bi-Co	1000mm	Customize	10~150g/m^2
10	S-100	100mm Spunbond Lab Equipment	Mono/Bi-Co	100mm	30m/min	10~150g/m^2

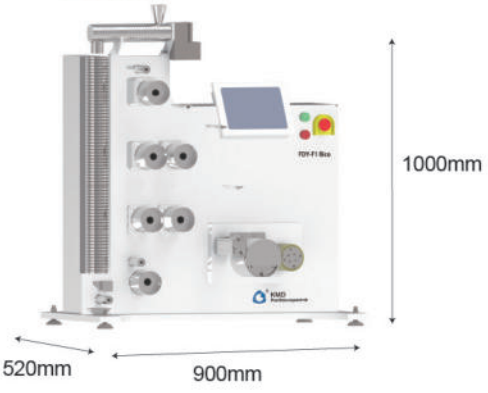
No.	Model	Description	Components	Effective Width	Web Speed	Grammage
11	S-150	150mm Spunbond Lab Equipment	Mono/Bi-Co	150mm	30m/min	10~150g/m^2
12	S-300	300mm Spunbond Lab Equipment	Mono/Bi-Co	300mm	100m/min	10~150g/m^2
13	S-600	600mm Spunbond Pilot Line	Mono/Bi-Co	600mm	100m/min	10~150g/m^2
14	S-1000	1000mm Spunbond Pilot Line	Mono/Bi-Co	1000mm	Customize	10~150g/m^2
15	SMS-100	100mm SMS Nonwoven Lab Equipment	Mono/Bi-Co	100mm	30m/min	15~150g/m^2
16	SMS-150	150mm SMS Nonwoven Lab Equipment	Mono/Bi-Co	150mm	30m/min	15~150g/m^2
17	SMS-300	300mm SMS Nonwoven Lab Equipment	Mono/Bi-Co	300mm	100m/min	15~150g/m^2
18	SMS-600	600mm SMS Nonwoven Pilot Line	Mono/Bi-Co	600mm	100m/min	15~150g/m^2
19	SMS-1000	1000mm SMS Nonwoven Pilot Line	Mono/Bi-Co	1000mm	Customize	15~150g/m^2

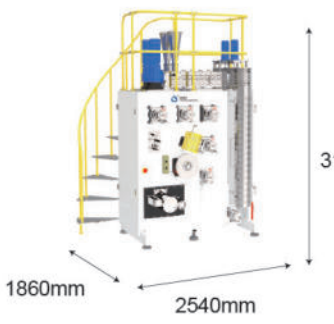
C. Mechanical-drawn Fiber Spinning Equipment Category:

POY/ FDY/ BCF Fiber Spinning Lab Equipment

- **Benchtop lab equipment models:** Single-hole benchtop lab equipment, Single-hole floor equipment. Configurations are POY, FDY; Mono- & Bi-component optional.
- **Small-scale lab equipment models:** POY, FDY, BCF single color, BCF tri-color; Mono- & Bi-component optional.
- KMD's Spin-pack components are developed and designed independently and have our own manufacturing capability. KMD designs and manufactures the Spin-pack components of the above models, and undertakes the design and co-development of new Spin-pack components.

Model:FDY-FI





Model:BCF-2000 Bico

Model:BCF-3000-3C

No.	Model	Description	Speed	Components	Output
1	FDY-F1	Single-hole FDY Spinning Lab Equipment	2000m/min	Mono/Bi-Co	0.1kg/h
2	POY-F1	Single-hole POY Spinning Lab Equipment	2000m/min	Mono/Bi-Co	0.1kg/h
3	FDY series	FDY Spinning Lab Equipment	2000,3000,4000m/min	Mono/Bi-Co	3.0~8.0kg/h
4	POY series	POY Spinning Lab Equipment	4000,5000,6000m/min	Mono/Bi-Co	3.0~8.0kg/h
5	BCF series	BCF Spinning Lab Equipment	2000,3000,4000m/min	Mono/Bi-Co	10.0kg/h
6	BCF Tri-color series	BCF Tri-color Spinning Lab Equipment	3000,4000m/min	Mono/Bi-Co	30.0kg/h

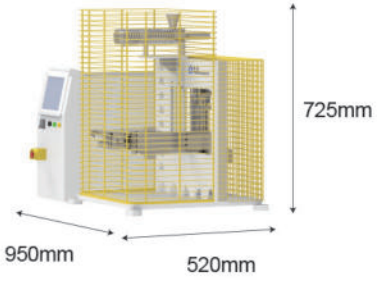
D. Filter Pressure Value Tester

As a filter value testing instrument for blended polymer materials, it is plasticized and extruded by a standard screw for polymer blended materials, and the melt is passed through a standard filter screen after precise measurement, and the change of pressure in front of the screen is its filter value. The change of this filter value index allows to judge the size of inorganic particles or the content of impurities in the blended modified material.
This filter value test is essential for fiber spinning and stability of fiber quality.

No.	Model	Description	Screw Diameter	Suitable Material
1	P25	Filter Pressure Value Tester	25mm	Thermoplastic Polymers

E. 3D Printer (Screw Type): Mono-Component & Bi-Component

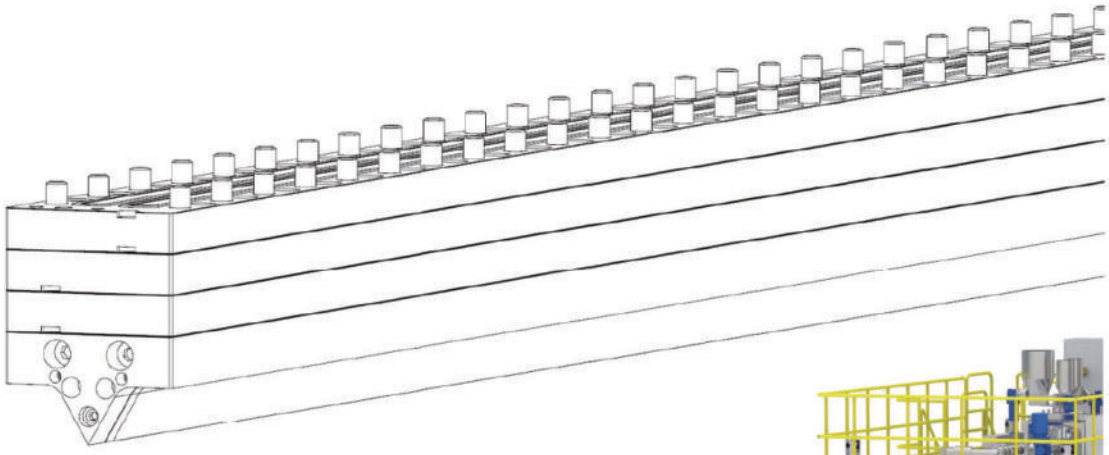
Based on the development of KMD micro-screw technology, our 3D micro-printers can use screw-type feeding with more accurate metering accuracy, lighter shape and smaller motion inertia. Its characteristics are:
Raw materials are plasticized in the printing process, improve the phase uniformity of the material, maintain the stretching of molecular chain, improve the melt strength index, etc. For example, after dissolution treatment of ultra-high molecular weight polyethylene, replasticization makes its molecular chain more fully spread out, and reduce the phase separation of solvent and polymer chain, subsequently improve the quality of final products.
It is mainly applied to 3D printing of thermoplastic polymer materials.



No.	Model	Description	Screw Diameter	Suitable Materials
1	3D-1	3D Printer (Screw Type)	6mm	Thermoplastic Polymers
2	3D-1 BICO	3D Printer (Screw Type)	6mm	Thermoplastic Polymers

F. Pilot & Mass Production Equipment

The development of Lab equipment technology has given rise to the technology of new large mass production equipment. The starting point of the lab testing equipment is in the "material technology" and "material forming technology" requirements.
The process is manifested in the continuous improvement and upgrading of the lab equipment itself, to meet the needs of research and technology development, mature pilot equipment technology will be scaled up for mass production equipment, and manufacturing of new downstream products.
For example:
The development of Spin-pack components technology of KMD pilot equipment, which has contributed to the evolution of the Spin-pack components of mass production equipment in terms of design concepts, which in recent years have been distinguished in the meltblown mass production equipment.
In terms of fluid application design, many aspects of performance are particularly unique, including air fluid and non-Newtonian fluid, and ultimately, significant differentiation was distinguished in the characteristics of its final fiber products index.



KMD Plastifizierungstechnik GmbH
Rudolf-Diesel-Str. 22-24 22941 Bargteheide, Germany

Tel: +49 (0) 451 4989 7868
Fax: +49 (0) 451 4989 7867

info@kmd-industrie.de
www.kmd-industrie.de