



**Design,  
Supply & Support**

One Stop Solution to your Filters Production

# ***PLM FILTER SOLUTION***

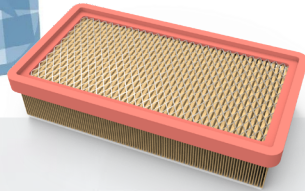
## ***Oil & Fuel Filtration***

**Hebei Leiman Filter Material Co., Ltd**

**Hebei Luman Filter Parts Co., Ltd**

**Hebei Deman Technology Co., Ltd.**





### To start a new factory, you may want to know:

- How much profit can I get from producing filters?
  - How much money do I need to invest to build a complete filter line?
  - What kinds of machinery and raw materials do I need to purchase?
  - If I don't know how to operate the machinery or have questions about the filter production flow, how can I solve these problems?
  - How can I train my workers to operate the machines smoothly?
- More...*

## What You Need is Exactly What We Can Supply.

Founded in 1990, PLM was specialized in filter element manufacturing. After years of development, PLM has become a filter production solution designer. So far, our solutions cover car and heavy-duty air filters, cabin filters, oil & fuel filters, primary/middle/high efficiency filters. We supply a complete line of filters production, from filter materials, production machines, testing machine to production line configuration and production process optimization to eliminate our customers free from worries. Today we have more than 200 kinds of machines and models fulfilling industry's diverse requirements. We have gained the ISO, CE and CO certifications.





SOMETHING WE CAN DO

## → Process & Equipment Solutions

- Production Guidance: Step-by-step manufacturing support.
- Machine Options: Multiple configurations to fit your needs.
- Innovative R&D: Redefining filter production with upgraded equipment.
- Diverse Product Lines: 12 production lines, 94 categories, 247 products.
- Factory Setup: Helped dozens of clients build their plants.
- Layout Planning: Let us design your factory floor.
- 30 Years of Expertise: Smarter, safer machine designs for smoother operations.



Build complete Eco Fuel & Oil Filter product line for customers and help them grow



Provide customized equipment solutions for well-known brand factories.



## Material Solutions

- Quality First: PLM ensures top-tier material selection.
- Procurement Advisor: We match you with the right materials.
- Flexible Grades: Premium, mid-range, and standard raw materials.
- Cost-Effective Choices: Save without sacrificing quality.



Filter glue



Cabin filter media



Filter paper



Filter mesh



Hot melt glue



Non-woven

SOMETHING WE CAN DO

## → Technical Support

- Cost & Profit Analysis: Crunch the numbers upfront.
- Easy Setup: Clear instructional videos for stress-free installation.
- Reliable Performance: Every machine delivers stable, lasting quality.
- Market-Specific Budgets: Customized for your region.
- Production Planning: Your virtual "Production Manager".
- Operations Boost: Staff training, maintenance, process optimization, and scalable layouts.
- Custom Machines & Molds: Built to your specs.
- Export Pros: Certified for global shipping and mixed-container loads.





SOMETHING WE CAN DO

## → Customer Service

- Dedicated Support Team: Always on standby.
- End-to-End Solutions: We help you make filters that sell.
- Quick Responses: No waiting around.
- 1-on-1 Service: 100% patience, 0% hassle.
- 30 Years in Filters: Trusted know-how.
- Global After-Sales: Smooth support worldwide.
- On-Time Delivery: Count on us to meet deadlines.

**In addition to specialized electrical and programming engineers, we also have three composite senior engineers with comprehensive experience and capabilities in filter production project design and implementation.**



### Eng. Zhang

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R&D technical manager  
20 years experience Experts Familiar with the production process and equipment of various products.



### Eng. Wang

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R&D Project manager 15 years experience Experts in filter machines Installation and production



### Eng. Zhang

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R&D technical manager 18 years experience Experts in punching and electrical

# Spin-on Fuel & oil Filter Line Process Guidance

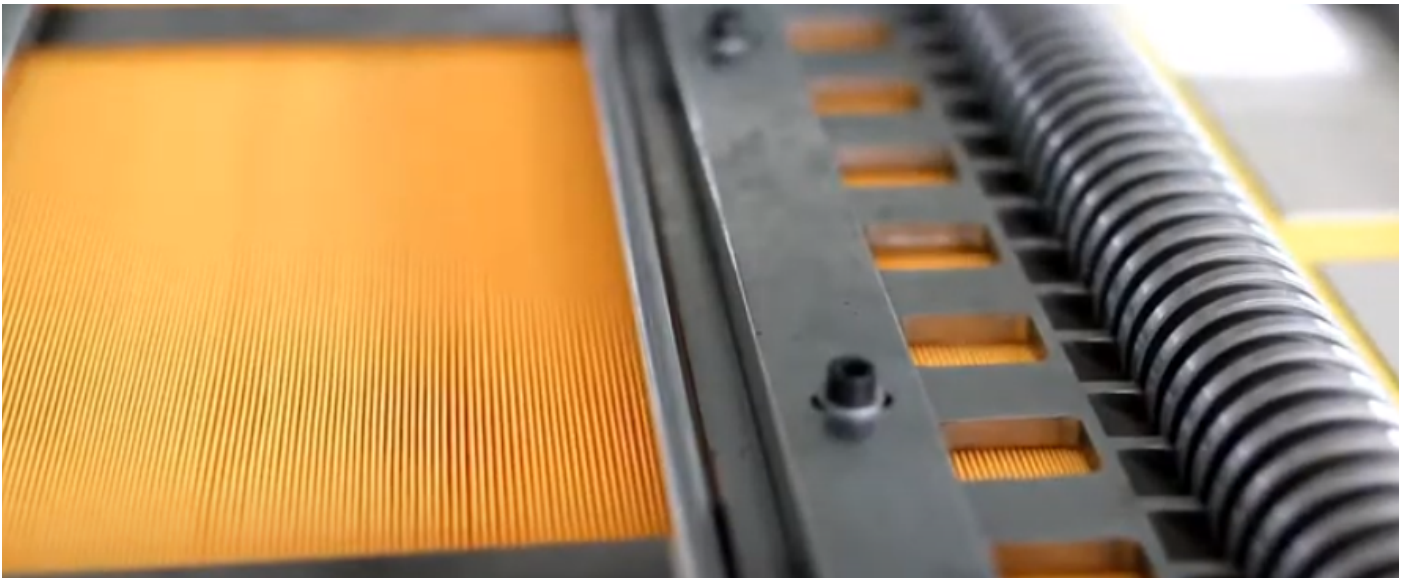


- 1. Filter Paper Pleating 
- 2. Filter Paper Curing And Cutting 
- 3. Pleated Paper Iron Clipping 
- 4. Center Tube Making 
- 5. Filter End Cap Gluing 
- 6. Filter Paper Curing or Inner Filter Curing 
- 7. Dense Plate Gluing 
- 8. Cover Plate, Filter Element, Spring, Sealing pad, Housing Assemble 
- 9. Filter Leak Detection, Water Blowing, Drying 
- 10. Screen Printing And Drying 
- 11. Laser Printing 
- 12. Assemble Seal Ring And Spray Oil 
- 13. Film Shrinking 
- 14. Packing Conveyor 
- 15. Packaging Machine 

# Machine solutions – Spin-on Fuel & oil Filter Line

## 1.

### Filter Paper Pleating



PLCZ55-1050-II

Full-Auto Knife Paper Pleating Machine



**PLM-JC-550**

Eco Oil Filter Origami Machine

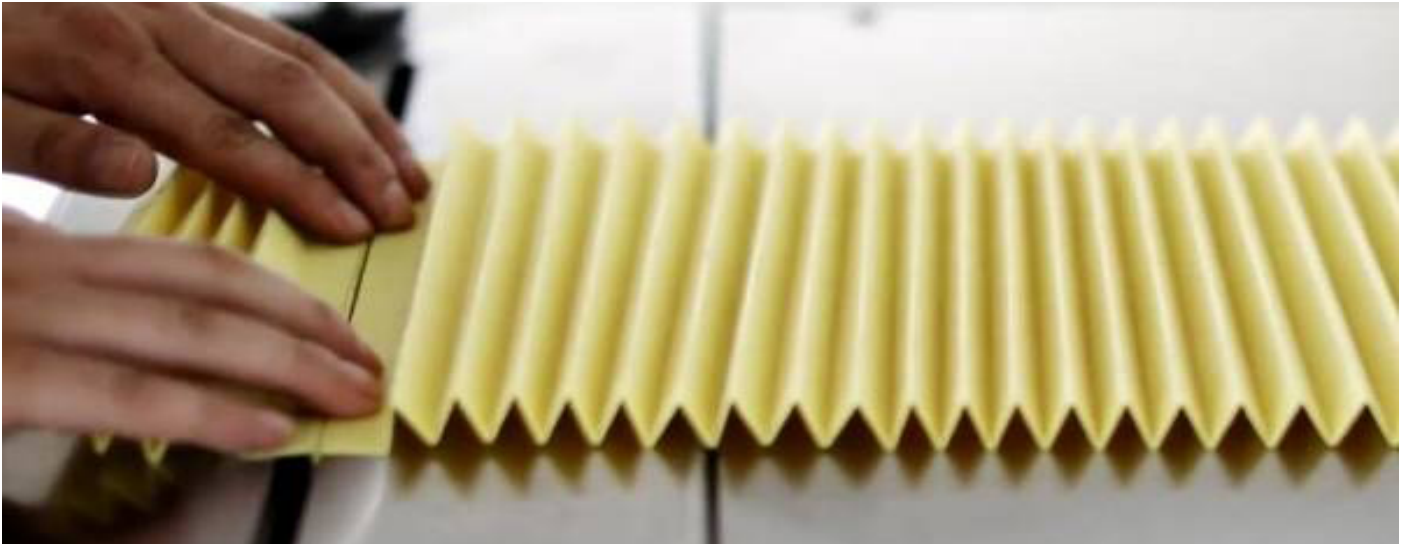


**PLM-JC-550A**

Eco Oil Filter Origami Machine

## 2.

# Filter Paper Curing And Cutting



**PLKX-600**

Through Type Curing Oven Production Line



### PLLZ-I

Paper Cutting Machine for 600,  
800 & 1050 Length Cutting

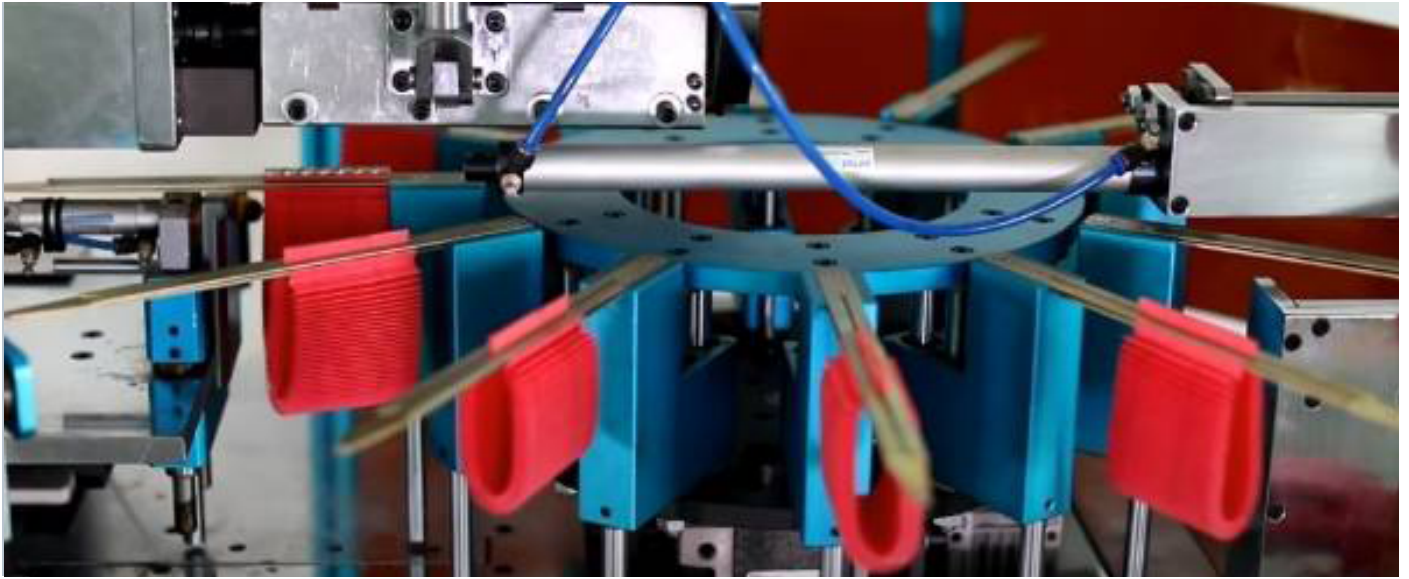


### PLLZ-II

Filter Paper Press Cutting Machine

# 3.

## Pleated Paper Iron Clipping



**PLJT-250**

Steel Clipping Machine for Fuel & Oil Filter Element Production

Best choice

**PLJT-250-12**

Full-Auto Turntable Clipping Machine



# 4.

## Center Tube Making



**PLJY-75**

Full-auto Spiral Center  
Tube Making Machine

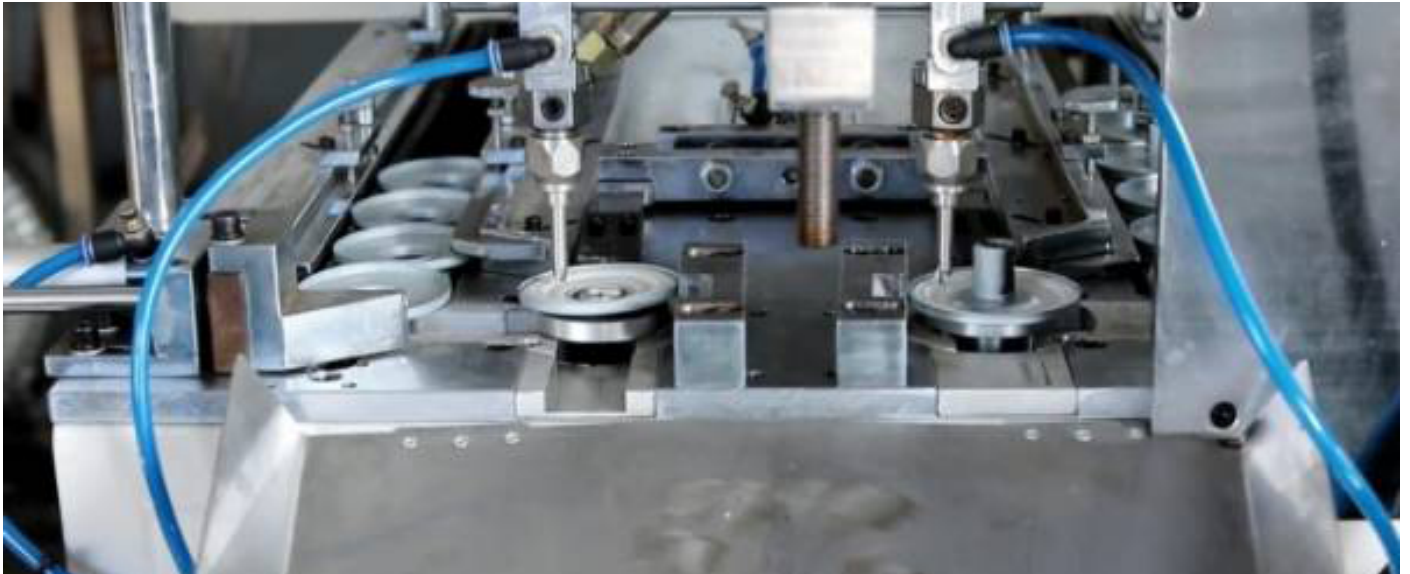


**PLJY-75-II** Best choice

Full-auto Spiral Center  
Tube Making Machine

# 5.

## Filter End Cap Gluing



### PLXS-600

Conveyor Belt (for specific conditions, please consult our staff)



### PLAB-6

A B Two Compounds  
Filter End Cap Gluing  
Machine

# 6.

## Filter Paper Curing or Inner Filter Curing

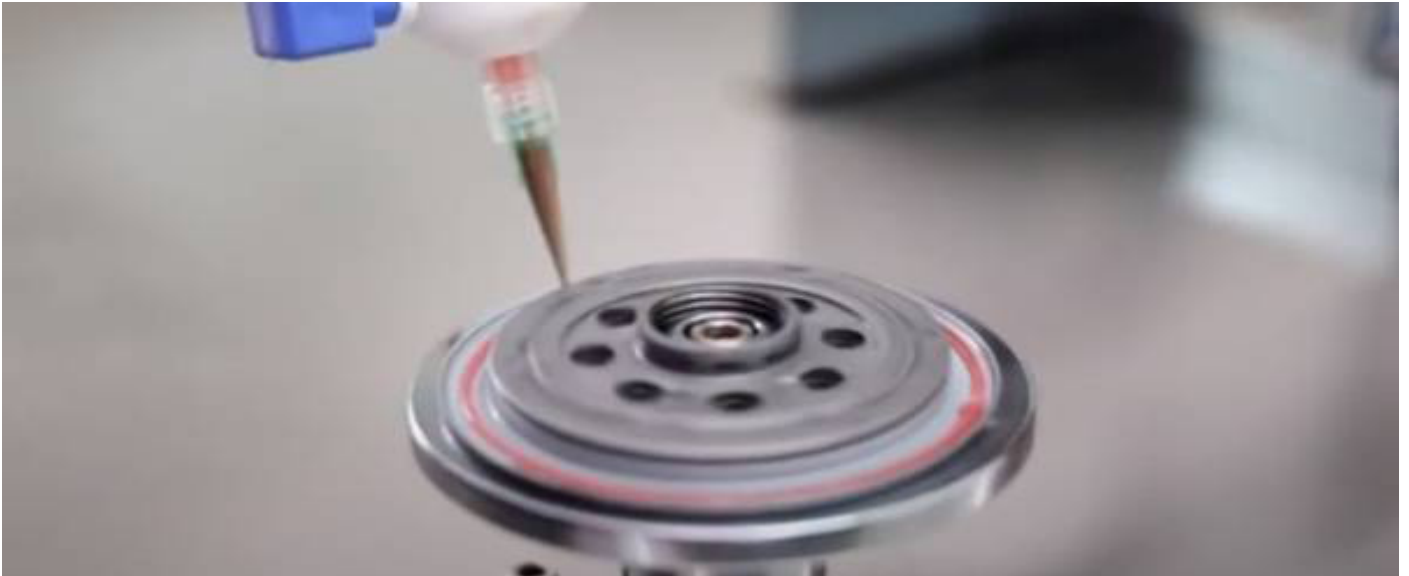


PLKX-600

Through Type Curing Oven Production Line

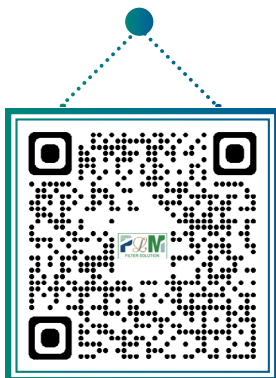
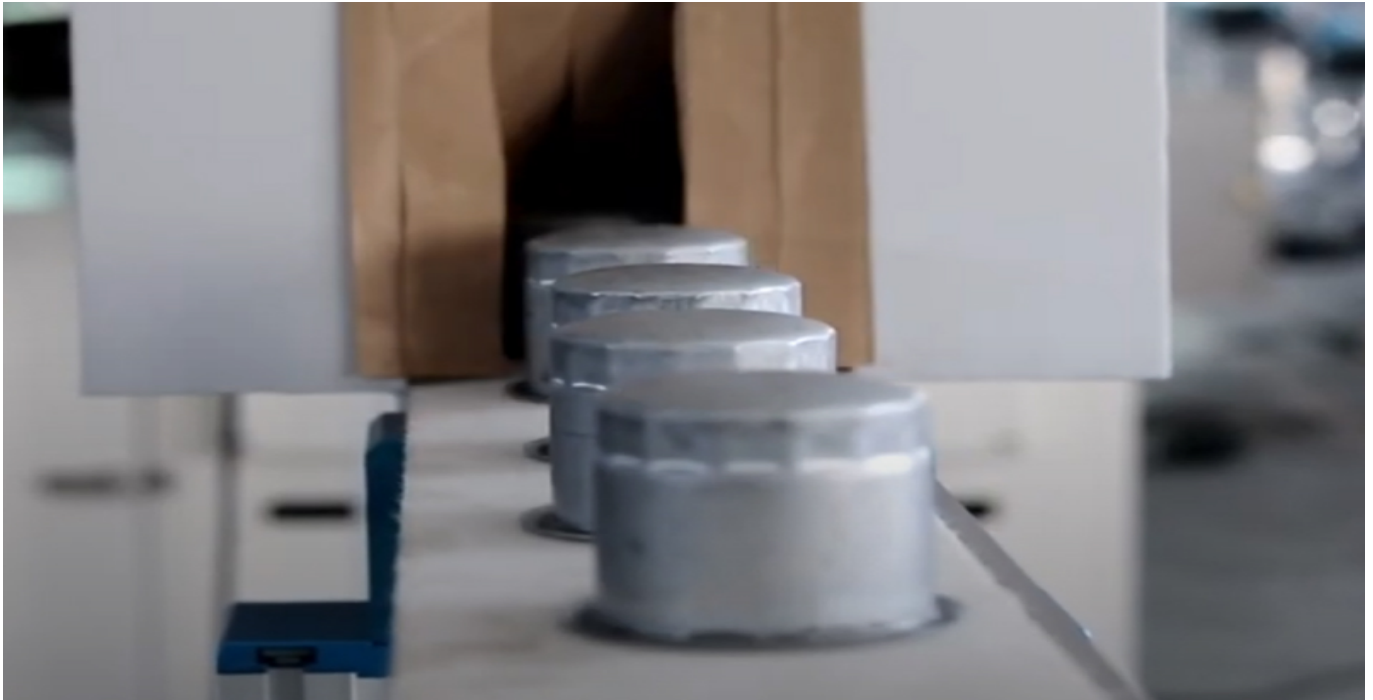
# 7.

## Dense Plate Gluing



**PLMB-4** Best choice

Automatic Sealing Plate Glue  
Injection Machine



### PLMB-2

Sealed Plate Gluing Machine

# 8.

## Cover Plate, Filter Element, Spring, Sealing pad, Housing Assemble



### PLXS-200

Conveyor Belt (for specific conditions, please consult our staff)



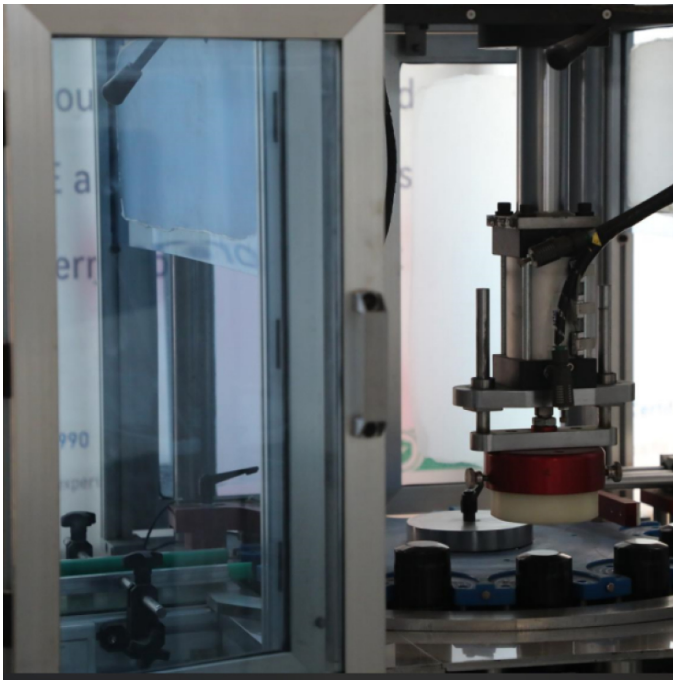
PLFC-130G

Seaming Machine



PLFC-150G

Seaming Machine



Best choice

### PLFJ-110

Full-Auto High Speed Turntable Seaming Production Line



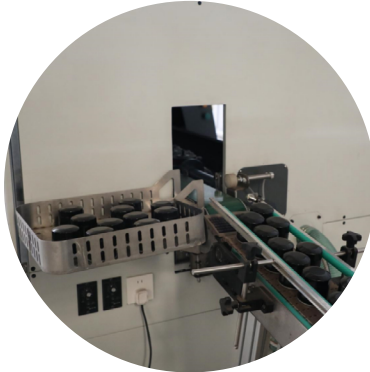
### PLFJ-150

Full-Auto High Speed Turntable Seaming  
Production Line



**PLJL-10**

Ten-station Seal Leakage Tester For Spin-on Filter



# 9.

## Filter Leak Detection, Water Blowing, Drying



### PLXS-12

Conveyor Belt (for specific conditions, please consult our staff)



### PLJL-4B Best choice

Four-station Seal Leakage Tester For Spin-on Filter



### PLJL-6

Six-station Seal Leakage Tester For Spin-on Filter



# 10.

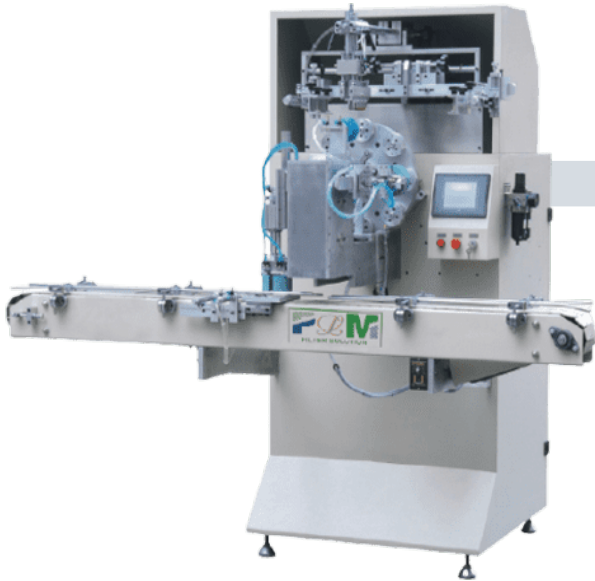
## Screen Printing And Drying



**PLGY-2**

Full-Auto Double Color Printing Machine





### PLAS-110

Full-Auto Turntable  
Screen Printing Machine



### PLSC-500

Multi-Function Screen  
Printing Machine



### PLSC-400

Screen Printing Machine

# 11.

## Laser Printing

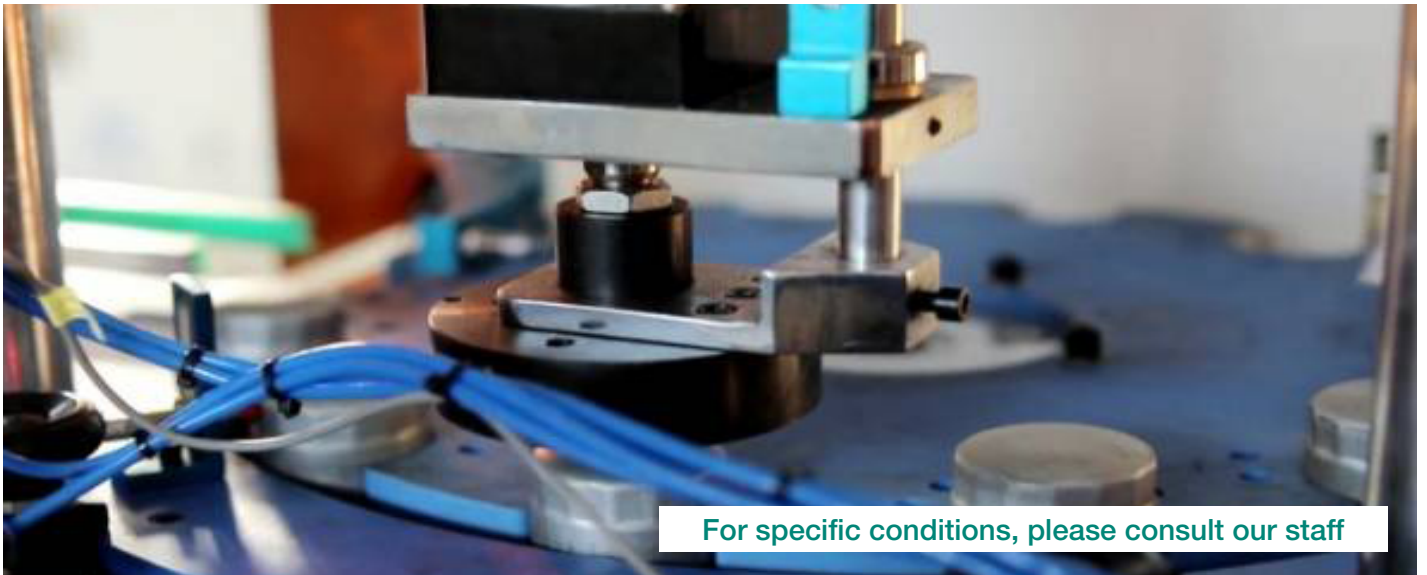


PLM-DB20

Laser Marking Machine

# 12.

## Assemble Seal Ring And Spray Oil

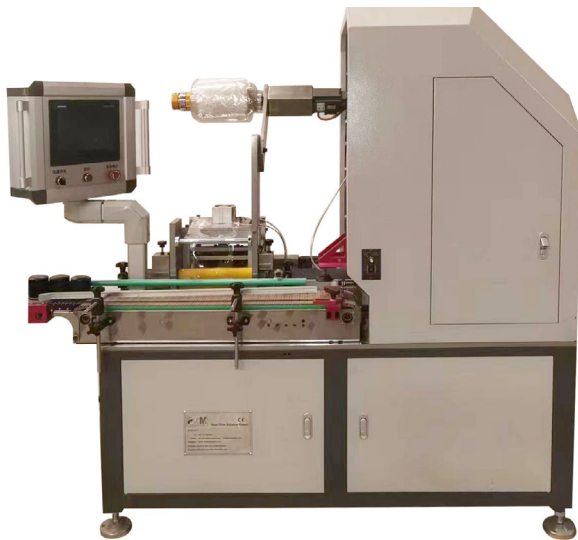
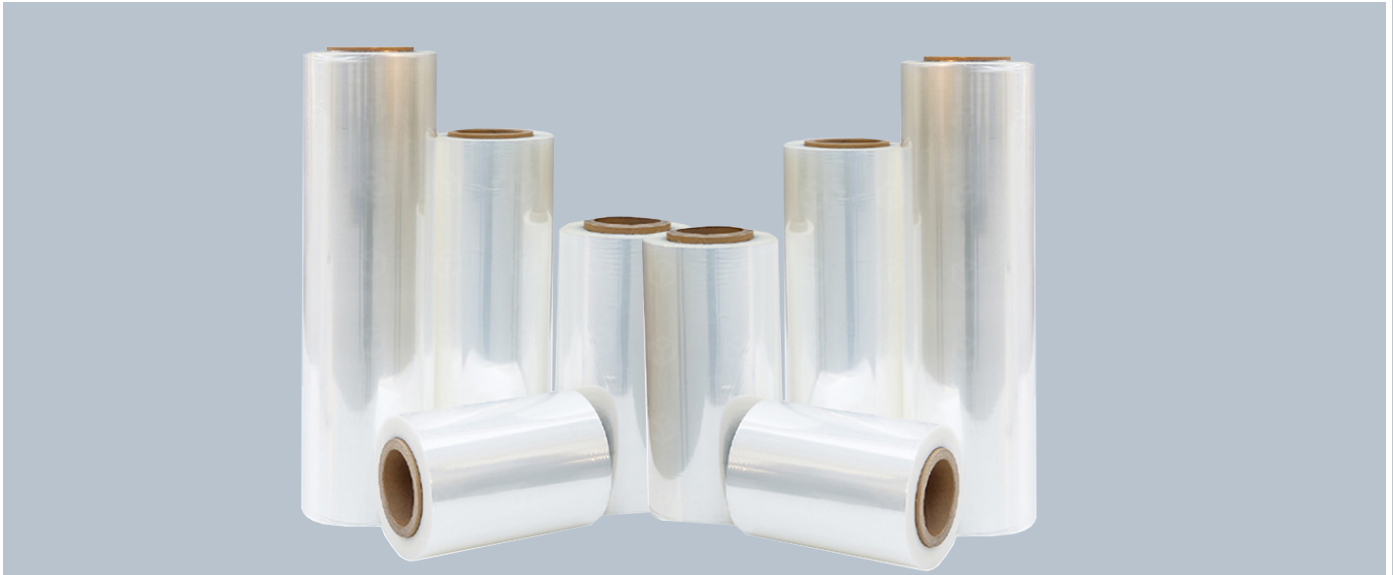


**PLMF-1**

Automatic Sealing Ring Assembly Production Line

# 13.

## Film Shrinking



**PLM-RS-3**

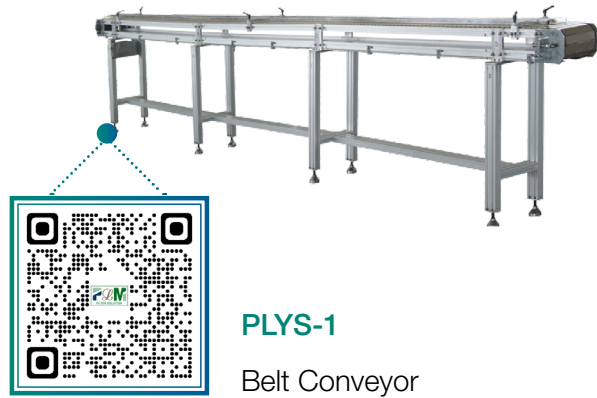
Automatic plastic sealing machine

# 14.

## Packing Conveyor



Conveyor Belt



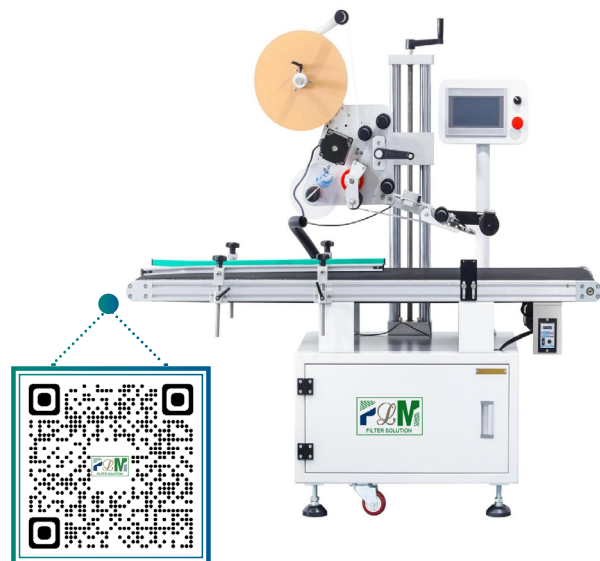
**PLYS-1**  
Belt Conveyor



Turntable table



Automatic labeling machine

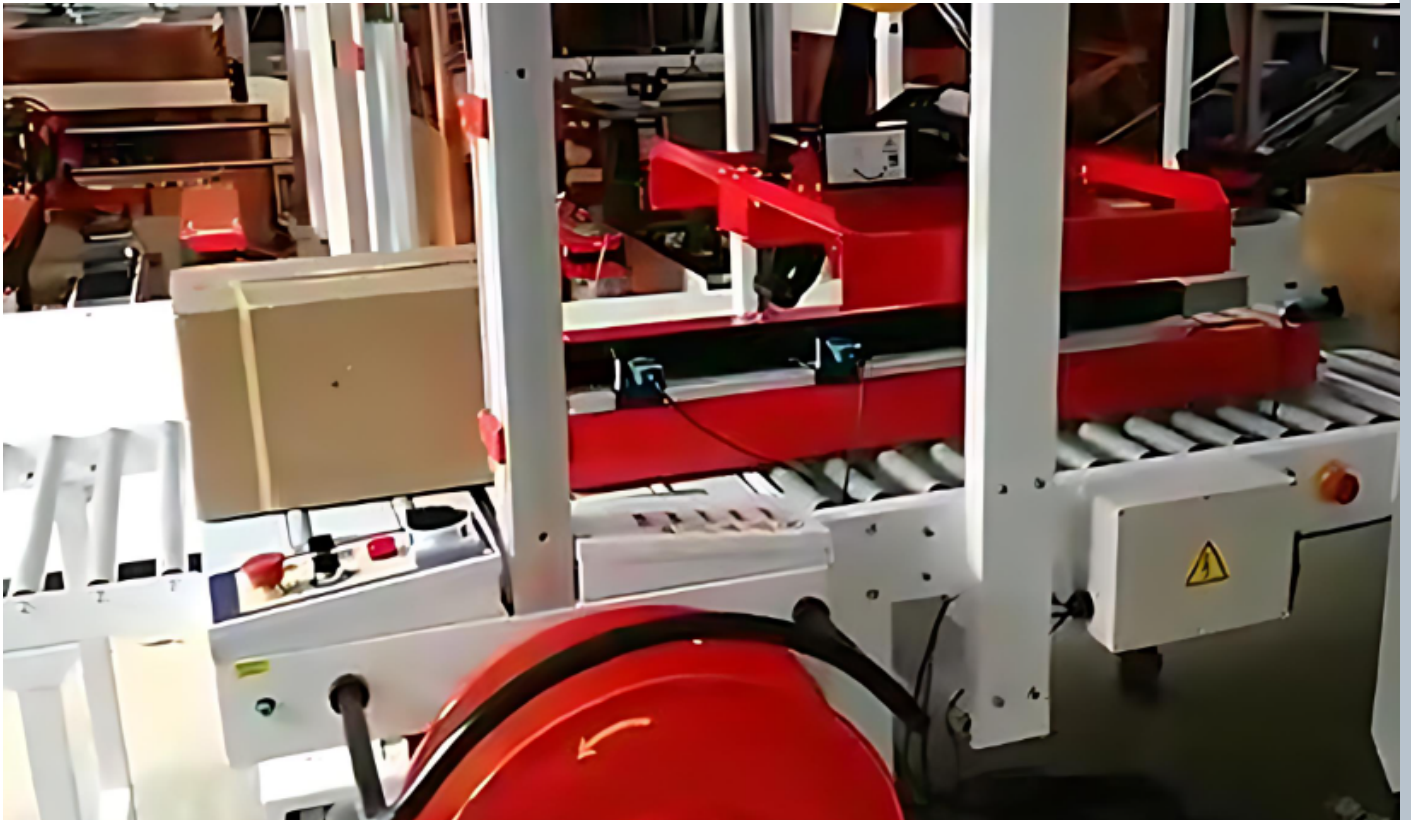


**PLTB-1**  
Automatic Labeling Machine



# 15.

## Packing



**PLM-DB5060**

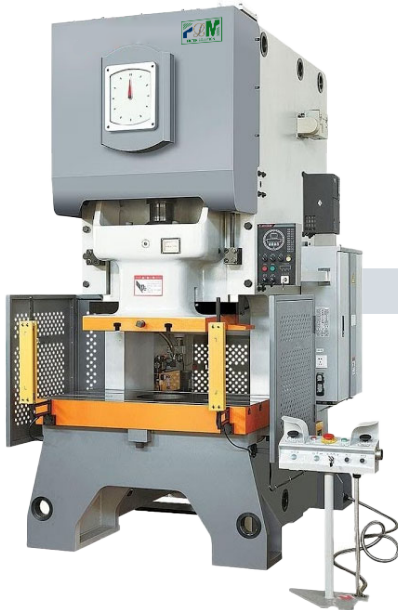
Automatic Sealing and  
Strapping Machine

# Stamped Threaded Cover Plate, Dense Plate, Bypass Valve, Upper And Lower Paper Core Cover, Housing



16 Ton, 25 Ton, 40 Ton, 125 Ton, 315 Ton,  
400 Ton and 500 Ton

for specific conditions, please consult our staff.



80 Ton  
Press Machine



160 Ton  
Press Machine



250 Ton  
Press Machine

## Cleaning (high output high quality options)



For specific conditions, please consult our staff

## Truck housing (Stretch machine)



For specific conditions, please consult our staff



**PLM-H-120**

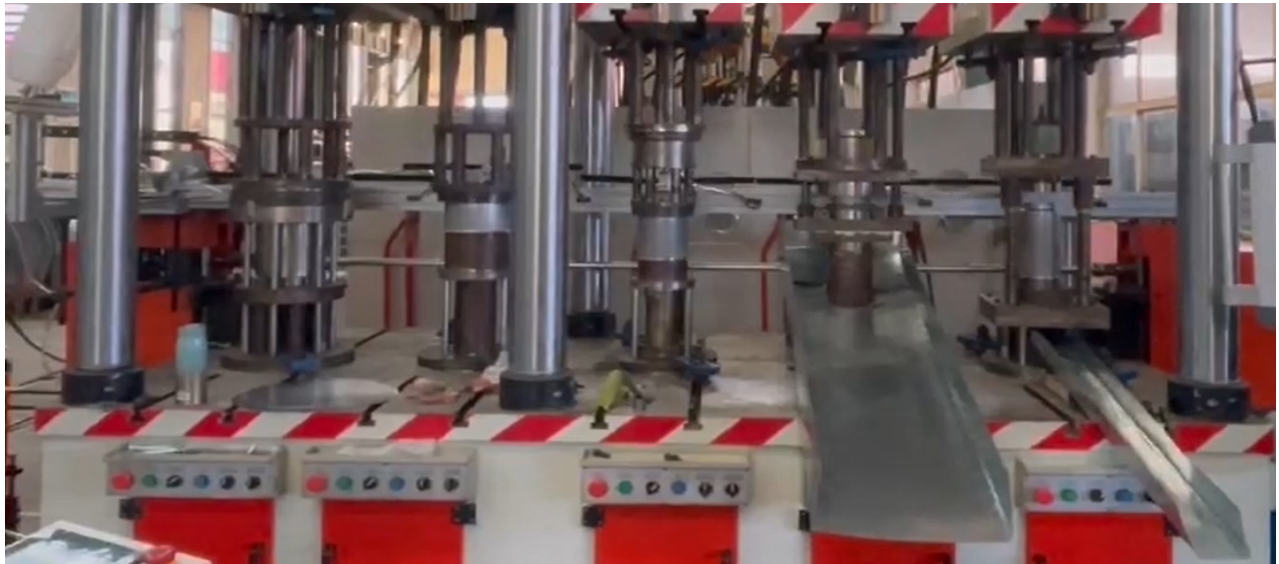
Multi-Station Automatic Stretching Machine

## Phosphating (high output high quality options)

For specific conditions, please consult our staff

## Spray Coating (high output high quality options)

For specific conditions, please consult our staff



### PLM-H-150

Full-automatic 4-stations stretching  
machine with robot hand

# Bottom Plate Component Production Equipment

Screw Plate, Dense Plate And Bypass Valve Welding



**PLTN-100**

Convex Spot-welding Machine



**PLTN-200-8**

Full-Auto Turntable  
Thread Cover  
Spot-welding  
Machine



**PLTN-100-8**

Full-Auto Turntable Bypass Valve  
Welding Machine



**PLM-DH-8A**

Full-Auto Turntable Bypass Valve  
Welding Machine



# Bypass Valve Riveting Assembly



## PLAQ-6

Bypass Valve Assembly Machine

For specific conditions, please consult our staff



## PLAQ-12

Bypass Valve Assembly  
Machine



## PLM-MH-10A

Full-Auto Turntable Bypass  
Valve Riveting Machine



## Filter Spring

**PLTH-1**

Automatic Springmaking Machine. For specific conditions, please consult our staff.



## Thread Cover Tapping And Test Thread Perpendicularity



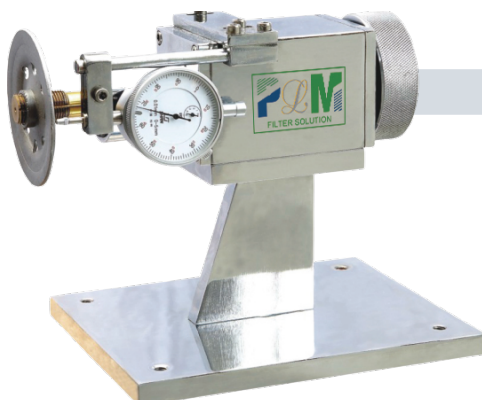
**PLAS-6** Best choice

Full-Auto Turntable  
Six-Station Tapping  
Machine



**PLAS-6F**

Full-Auto Turntable Six-Station  
Tapping Machine



**PLCD-1**

Perpendicular Measurement Instrument

# Material Solutions – Spin-on Fuel & oil Filter Line

## Filter Paper



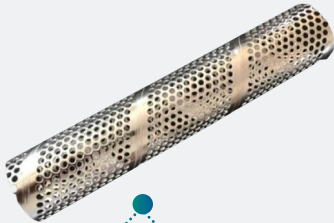
Filter paper is processed by mixing plant fiber pulp and a little cotton pulp. Because of its fiber structure, leaving numerous tiny holes for liquid particles passing through and leaving solid particles out, which is the basic principle of solid and liquid separation.

- The filter paper can separate impurity particles from the liquid and extend engine and auto service life.
- High filtration efficiency. 98% filtration efficiency of 4 μm particles and 99% filtration efficiency of 6 μm particles.
- Up to 800 L/m<sup>2</sup>/s air permeability.
- Oil filter paper can withstand up to 600 kPa pressure.
- Up to 70 70 mN/m high stiffness of cured filter paper.

Leiman Code	Type	Basic Weight (Before Cured)	Basic Weight (After Cured)	Air Permeability	Max. Pore Size	Average Pore Size	Thickness	Corrugated Depth	Stiffness (Before Cured)	Stiffness (After Cured)	Burst Strength (Before Cured)	Burst Strength (After Cured)	Usage
-	-	g/m <sup>2</sup>	g/m <sup>2</sup>	L/m <sup>2</sup> /s (ΔP=200 Pa)	um	um	mm	mm	mN/m	mN/m	kPa	kPa	-
LM295-400AS	Cured	295±10	285±10	400±50	< 85	< 70	1.5±0.1	-	> 50	> 70	> 450	> 600	For air filtration
LM208-5000C	Cured	208±10	198±10	500±50	< 85	< 75	1.1±0.1	0.35±0.05	> 6	> 10	> 400	> 500	For oil filtration
LM135-5500C	Cured	135±5	125±5	550±50	< 80	< 65	0.65±0.05	0.35±0.05	> 3	> 4	> 200	> 380	For oil filtration
LM205-3000C	Cured	205±10	195±10	300±30	< 60	< 50	1.0±0.1	0.35±0.05	> 9	> 12	> 280	> 450	For oil filtration
LM190-3000C	Cured	190±8	185±8	300±30	< 70	< 60	0.9±0.09	0.35±0.05	> 4	> 8	> 300	> 400	For oil filtration
LM180-3500C	Cured	180±8	170±8	350±50	< 75	< 65	0.9±0.09	0.35±0.05	-	> 10	> 300	> 400	For oil filtration
LM180-4500C	Cured	180±7	167±7	450±50	< 75	< 60	0.9±0.1	0.35±0.05	> 6	> 7	> 280	> 400	For oil filtration
LM175-3300C	Cured	175±8	165±8	330±30	< 70	< 55	0.65±0.05	0.35±0.05	> 6	> 8	> 400	> 550	For oil filtration
LM165-4000C	Cured	165±8	155±8	400±50	< 75	< 65	0.65±0.05	0.35±0.05	> 3	> 5	> 150	> 350	For oil filtration
LM140-4500C	Cured	140±5	135±5	450±50	< 80	< 70	0.75±0.05	0.35±0.05	> 3	> 5	> 250	> 300	For oil filtration
LM125-8000C	Cured	125±5	120±5	800±80	< 90	< 75	0.70±0.05	0.35±0.05	> 3	> 4	> 180	> 250	For oil filtration
LM240-90FC	Cured	240±10	230±10	90±30	< 45	< 35	0.78±0.05	0.35±0.05	> 12	> 14	> 300	> 450	For fuel filtration
LM150-100FC	Cured	150±8	140±8	100±30	< 50	< 35	0.6±0.05	0.35±0.05	> 4	> 6	> 300	> 450	For fuel filtration
LM140-150FC	Cured	140±5	130±5	150±30	< 50	< 40	0.6±0.05	0.35±0.05	> 4	> 5	> 250	> 400	For fuel filtration
LM208-4800S	Cured	208±10	198±10	480±80	< 85	< 70	1.0±0.1	-	> 12	> 15	> 400	> 500	For oil filtration
LM180-80FC	Cured	180±7	165±7	80±10	< 45	< 35	0.65±0.05	0.35±0.05	> 6	> 10	> 350	> 500	For Fuel filtration
LM90-35CF	-	90±5	-	35±5	< 40	< 28	0.4±0.03	-	0.1	-	> 230	-	-

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.

## Spiral Perforated Metal



Spiral perforated metal is an alternative to perforated metal mesh, which are widely used as center tubes for supporting. It can also be used as the outer mesh to protect filters to withstand pressures.

Spiral perforated metal can be used in heavy duty air filters (truck air filters), spin-on fuel and oil filters and hydraulic filters.

- Material: stainless steel 304, 316, 316L
- Diameter: 19–180 mm
- Thickness: 0.6–3.5 mm
- Dimensions and filtration fineness is produced as customers' request.

## Spring – High Strength and Stability



Spring is key component of spin-on fuel and oil filters. It is used to spin-on filter and fix filter element in the iron shell when it is vibrated and the oil is flowing.

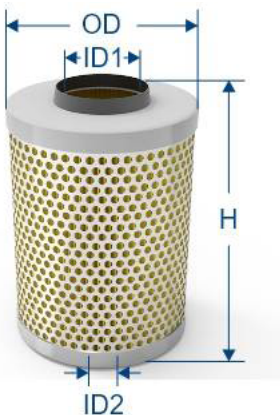
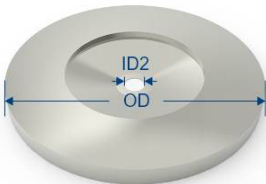
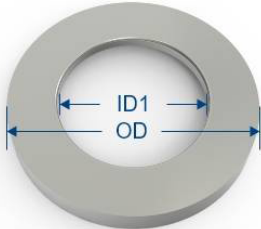
High precision

Fatigue resistance

Corrosion resistance.

- Material: stainless steel 304, 316, 316L
- Diameter: 19–180 mm
- Thickness: 0.6–3.5 mm
- Dimensions and filtration fineness is produced as customers' request.

## Metal End Caps for Air & Oil Filters



Metal end caps are mainly used for the end closure of paper (filter cloth) and filter screens of heavy-duty vehicle air filter. The two ends of the filter paper and the filter screen are sealed to ensure that all the gas passes through the filter paper (filter cloth) without short circuit.

- Material: galvanized steel plates.
- Thickness: 0.4/0.5/0.6/0.7 mm
- We can customize metal end caps according to original part number

Brand	Original Part Number	Filter Element Dimension (mm) OD × ID1 × H	Bottom End Cap Inner Diameter ID2 (mm)
Mercedes BENZ	0030944204	327 × 161 × 259	10.5
Mercedes BENZ	0020942404	327 × 167 × 353	11
Mercedes BENZ	0040940204	279 × 125 × 409	-
Mercedes BENZ	0030945004	302 × 192 × 475	11
Mercedes BENZ	0030941504	303 × 192 × 475	10
Mercedes BENZ	0030949604	279 × 125 × 349	-
Mercedes BENZ	0030941604	180 × 152 × 451	17
Mercedes BENZ	0010948304	327 × 167 × 259	11
Mercedes BENZ	0010949304	276 × 133 × 257	11
Mercedes BENZ	0010947304	264 × 132 × 231	11
Mercedes BENZ	0030947004	327 × 192 × 482	11
Mercedes BENZ	0010949404	209 × 103 × 219	8.5
Mercedes BENZ	0010944204	197 × 103 × 376	8.5
Mercedes BENZ	0030949104	420 × 254 × 318	10.5
Mercedes BENZ	0030949204	420 × 254 × 261	10.5
Mercedes BENZ	4192494A	163 × 86 × 350	8.5
Mercedes BENZ	41272212	327 × 217 × 618	10.5
Mercedes BENZ	0010941004	227 × 117 × 381	10.5
VOLVO	8149961	333 × 199 × 417	-
VOLVO	475755	270 × 177 × 577	11
VOLVO	8149064	305 × 150 × 414	-
VOLVO	1544449	350 × 211 × 366	10.5
VOLVO	1660903	197 × 166 × 320	10.5
VOLVO	475386	310 × 200 × 368	10.5
VOLVO	1080918	271 × 160 × 600	-
VOLVO	0010944704	228 × 116 × 383	10.5
VOLVO	1660376	270 × 177 × 577	10.5
VOLVO	1665563	259 × 184 × 545	-
SCANIA	0030945004	302 × 192 × 475	10.5
IVECO	370754	301 × 191 × 475	10.5
IVECO	395773	302 × 192 × 379	11
IVECO	197946201	310 × 132 × 496	11
IVECO	P117437	280 × 170 × 418	17
IVECO	107029	306 × 196 × 521	17

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.

Brand	Original Part Number	Filter Element Dimension (mm) OD × ID1 × H	Bottom End Cap Inner Diameter ID2 (mm)
IVECO	2992374	327 × 217 × 482	10.5
IVECO	P150706	173 × 88 × 368	17
IVECO	41272212	327 × 217 × 618	10.5
IVECO	1904581	150 × 71 × 336	8.5
IVECO	1905983	243 × 132 × 286	10.5
IVECO	41272515	327 × 217 × 515	10.5
RENAULT	70660360	234 × 123 × 345	17
RENAULT	AZ39761	306 × 196 × 423	17
RENAULT	5010066304	307 × 194 × 472	17
RENAULT	0003564135	324 × 212 × 533	4.5
RENAULT	P117797	264 × 153 × 568	4.5
RENAULT	5010094146 5000751674	281 × 171 × 391	17
RENAULT	70662471 70662477	164 × 135 × 408	17
RENAULT	7411394	306 × 195 × 398	17
RENAULT	5010064372	162 × 134 × 381	17
RENAULT	P117437	281 × 171 × 421	17
RENAULT	219517	242 × 132 × 496	10.5
RENAULT	0010944704	228 × 116 × 381	10.5
RENAULT	5000559401 5001860615	166 × 76 × 321	–
RENAULT	17801-A0108	190 × 102 × 243	22
HINO	17801-2410	190 × 104 × 243	22
HINO	17801-2490	306 × 196 × 495	23
HINO	17801-2550	306 × 196 × 469	17
HINO	17801-2900	160 × 132 × 312	17
HINO	17801-1020	306 × 196 × 469	17
HINO	17801-2290	306 × 196 × 418	23
HINO	17801-2910	277 × 165 × 367	23
MANN	C23440/1	228 × 116 × 381	10.5
MANN	2165044	163 × 86 × 350	8.5
MANN	C20325/2	198 × 132 × 376	8.5
MANN	219517	242 × 132 × 496	10.5
MANN	0030945004	303 × 192 × 475	10.5
MANN	0030941504	303 × 192 × 475	10.5
MANN	P778441	243 × 132 × 376	10.5
DAF	197946201	242 × 126 × 420	10.5
DAF	395773	302 × 191 × 381	10.5
DAF	218989	197 × 103 × 376	8.5
DAF	0010944704	227 × 117 × 381	10.5
DAF	219517	242 × 132 × 496	10.5
DAF	16546-T3401	155 × 79 × 201	13.5

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.

## One Component Thermosetting Adhesive – Durable & Efficient



One component thermosetting adhesive is suitable for the bonding and sealing of spin-on oil, fuel filter elements and other products.

Sealing Glue Model	LM1712
The Tensile Shear Strength (Steel Bonded Steel)	Normal > 10 kg/cm <sup>2</sup>
Tensile Strength <sup>1</sup>	> 200 N
Aging Resistance of Engine Oil	(135°C × 192 h) without degumming.
Appearance	homogeneous viscous liquid
Density	1.5±0.2 g/cm <sup>3</sup>
Curing Conditions	10–20 min (160 °C to 180 °C)
Volatile Content	≥ 98%
Viscosity	3000–50000 mPa·s

<sup>1</sup>Peel strength of curved filter paper and metal parts when 5 pleats filter paper with 9.5 mm height and 22 mm width insert into 2.5 mm thick glue

*Remark: The follow information is for reference only. Please consult our sales staff for specific selection.*

## Anaerobic Adhesive for Thread Cover Plates Sealing



Anaerobic adhesive is suitable for bonding and sealing thread cover plates of various spin-on oil filters and fuel filters.

- High strength
- High viscosity
- Excellent oil resistance
- Excellent high and low temperature change
- Extreme tensile strength
- Extreme shear strength
- For active metal surfaces

Sealing Glue Model	LM1013
Appearance	red viscous liquid
Cure Time	30 min
Storage Period	6 months
Content	750 mL
Viscosity	1000-5000 mPa·s (adjustable)
Sealing Pressure	30 MPa
Working Temperature	-55 °C to 165 °C

*Remark: The follow information is for reference only. Please consult our sales staff for specific selection.*

## Spin-On Fuel & Oil Filter Shells



Shell is widely used in spin-on fuel and oil filters and is used as a container to hold the filter element to maintain pressure operation.

- Withstand voltage
- Reliable operation
- No leakage
- Loss of inorganic oil
- Corrosion resistance



Item		Technical Data
Thickness	Car Spin-On Filter	0.4 –0.6 mm
	Truck Spin-On Filter	0.6–1.0 mm
Stretching Thickness		No more than 20% – 25%
Withstand Pressure (4–7 kg)		No deformation or breakage.
Size		OEM according to original part number
Sealing Pressure		30 MPa
Working Temperature		-55 °C to 165 °C

*Remark: The follow information is for reference only. Please consult our sales staff for specific selection.*

## Bypass Valve for Oil Filters

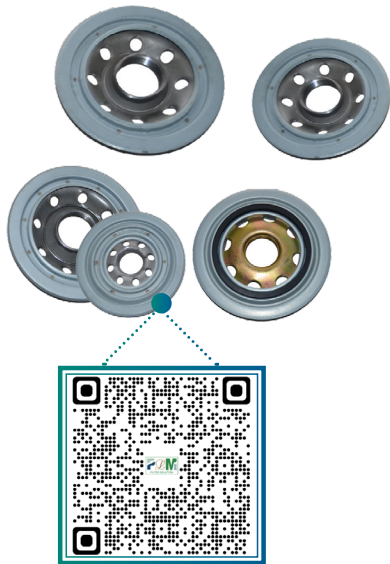


Bypass valve is installed on the spin-on fuel and oil filter. When the filter element is blocked and the oil pressure reaches 100±20 kPa, the bypass valve will automatically open to allow the oil to flow through.

- Stable function throughout the service life
- Valve pressure is suitable for engine parameter requirements
- The bypass valve can also play a role at low temperatures (anti-frost) and keep it completely sealed;
- Provide the best fuel supply for the engine.



## Cover Plates & Sealing Plates for Efficient Production



Cover plates and sealing plates are commonly used together. The precision-manufactured high-strength threaded cover plates and sealing plates are used to spin-on the filter to prevent the deflection (movement) of the gasket sealing surface and provide a strong threaded connection to the engine.

- Precise assembly of threads
- Easy to disassemble and assemble
- The gasket base is firmly formed to achieve a firm fit

## Rubber Sealing Ring

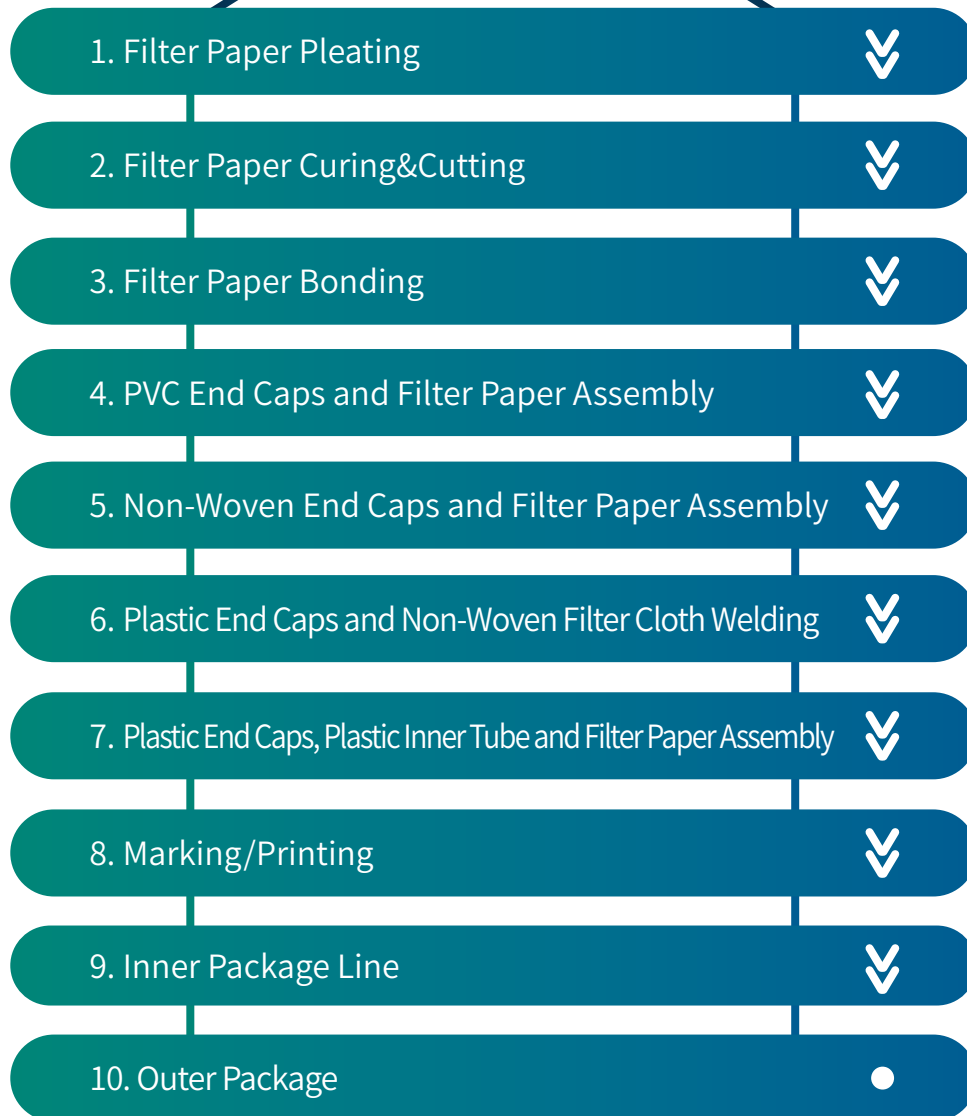


The rubber sealing ring is made of silica gel. It is used for spin-on filters and heavy duty air filters to ensure that the filter and the engine body are tightly connected. It can help filters resist changing pressure, mechanical loads and ensure that will not cause leakage even under extreme temperatures.

Sealing ring shape	square and triangle
Color	red, light green, yellow, black, or customized according to customer requirements
Square type rubber sealing ring	8 × 8, 10 × 10, 12 × 12, 10 × 12
Triangle type rubber sealing ring	8 × 10, 10 × 12
Weight/Net Content	1000 g
Viscosity	2–5 mPa·s
Tensile Shear Strength	≥10 MPa

*Remark: The follow information is for reference only. Please consult our sales staff for specific selection.*

# Eco Fuel Oil Filter Line Process Guidance



# Machine solutions – Eco Fuel Oil Filter Line

## 1.

### Filter Paper Pleating



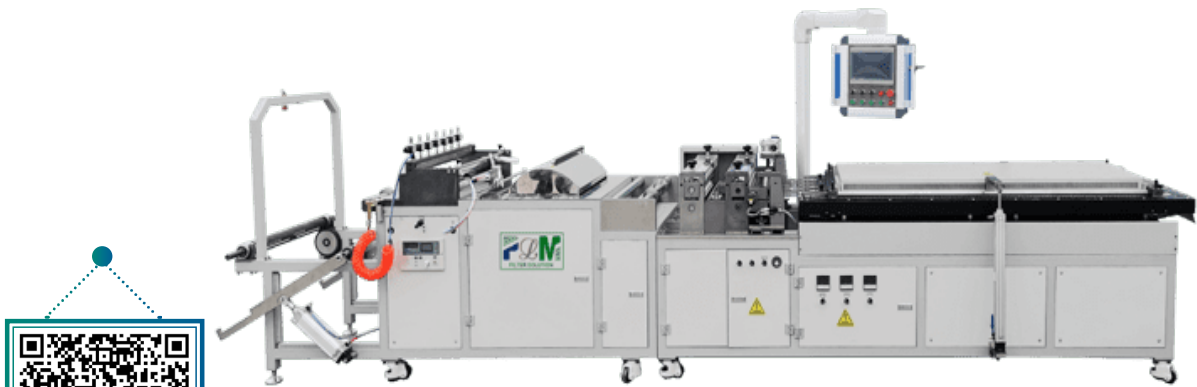
**PLGT-420** Best choice

Full-Auto Rotary Filter Paper Pleating Machine



**PLM-JC-550**

Eco Oil Filter Origami Machine



**PLM-JC-550A**

Eco Oil Filter Origami Machine



**PLPG-350**

Full-Auto Filter Paper Pleating Production Line



# 2.

## Filter Paper Curing&Cutting



**PLKX-600**

Through Type Curing Oven Production Line



### PLLZ-I

Paper Cutting Machine for 600,  
800 & 1050 Length Cutting

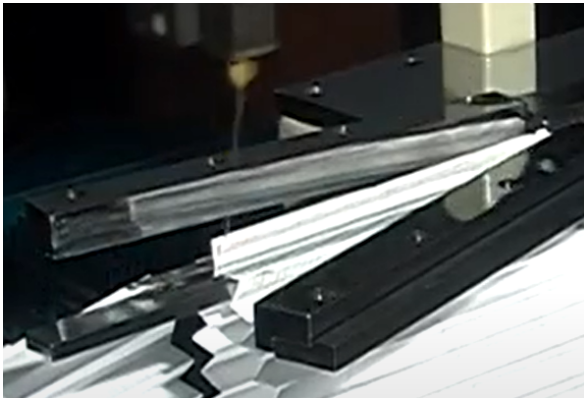


### PLLZ-II

Filter Paper Press Cutting Machine

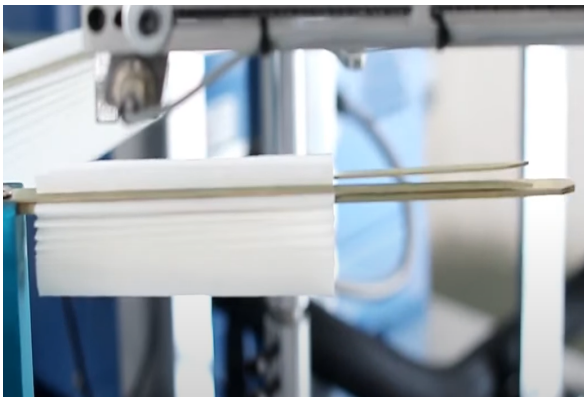
# 3.

## Filter Paper Bonding



**PLRZ-250**

Hot Melt Filter Element  
Paper Bonding Machine



**PLRZ-250-8** Best choice

Automatic Rotary Type  
Hot Melt Adhesive  
Machine



**PLM-JB-1**

Toyota Eco Oil Filter Paper Bonding  
Machine



### PLCS-1A

Automatic Filter Ultrasonic  
Welding Machine

# 4.

## PVC End Caps and Filter Paper Assembly

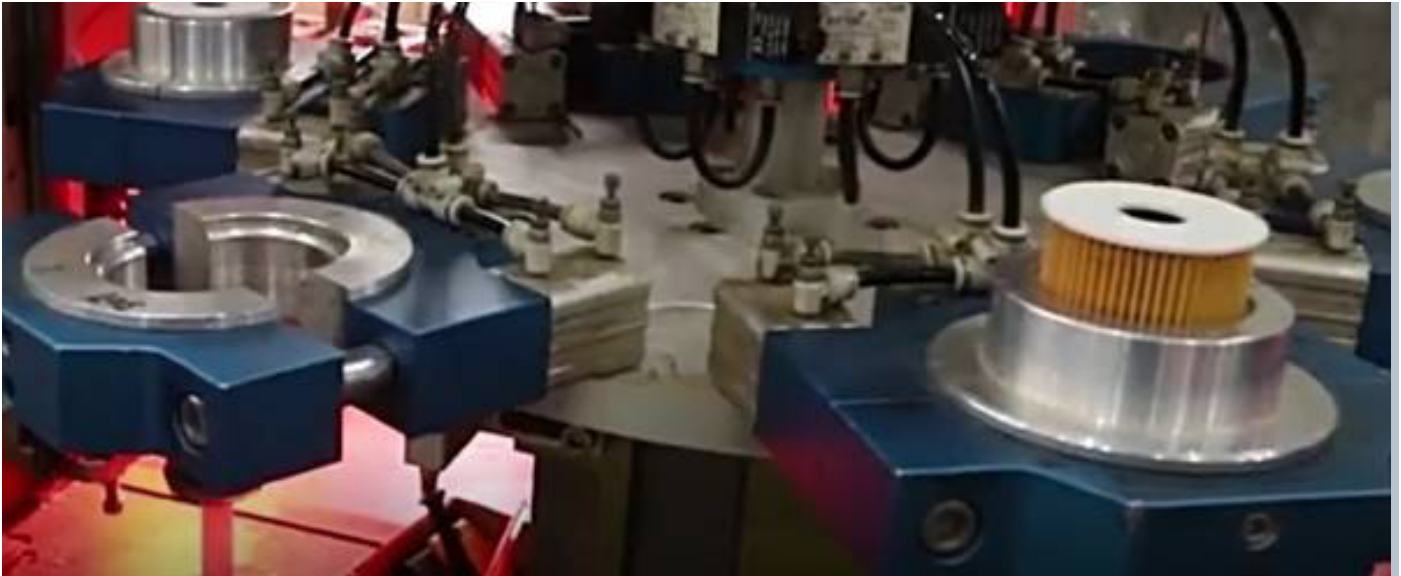


**PLPV-8**

Filter Element PVC Film  
Making Machine

# 5.

## Non-Woven End Caps and Filter Paper Assembly



### PLCS-4

Automatic Four-Station  
Ultrasonic Welding  
Machine

# 6.

## Plastic End Caps and Non-Woven Filter Cloth Welding



**PLCS-1**

Ultrasonic Welding  
Machine

# 7.

## Plastic End Caps, Plastic Inner Tube and Filter Paper Assembly

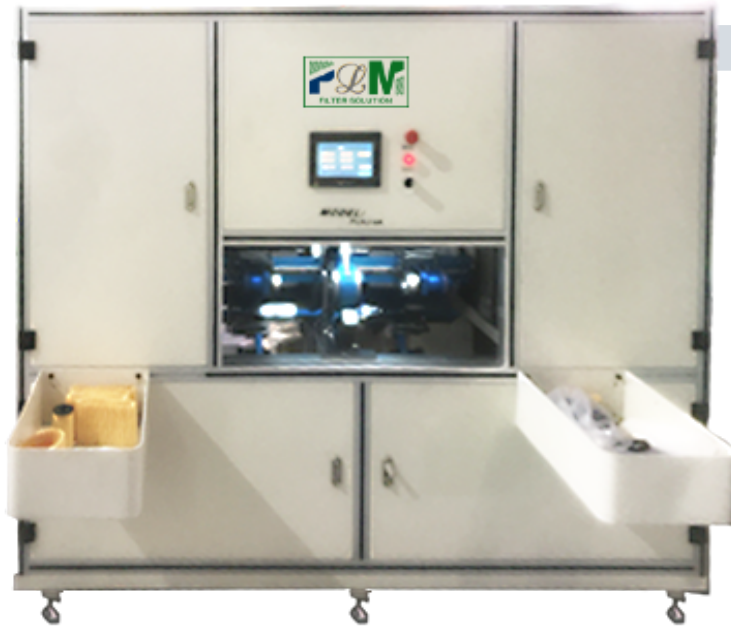


For specific conditions, please consult our staff directly.



**PLHJ-6** Best choice

Full-Auto ECO Filter  
Rotary Heat Plating  
Machine



### PLHJ-6A

Full-Auto ECO Filter Rotary  
Heat Plating Machine



### PLKX-1

Drying Oven

# 8.

## Marking/Printing



**PLPM-1240**

Fully Automatic Printing Machine



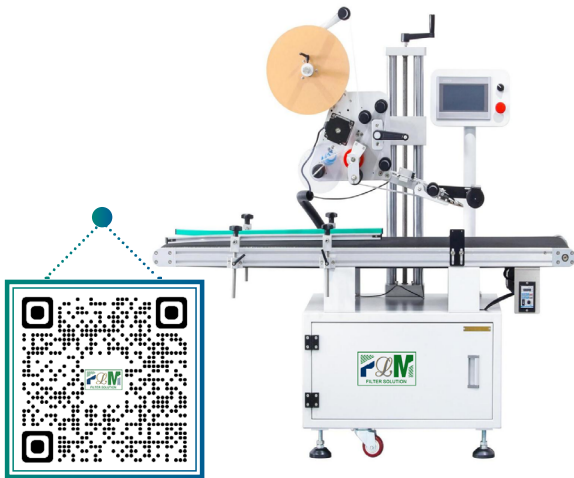
**PLM-DB20**

Laser Marking Machine



# 9.

## Inner Package Line



**PLTB-1**

Automatic Labeling Machine

Conveyor Belt

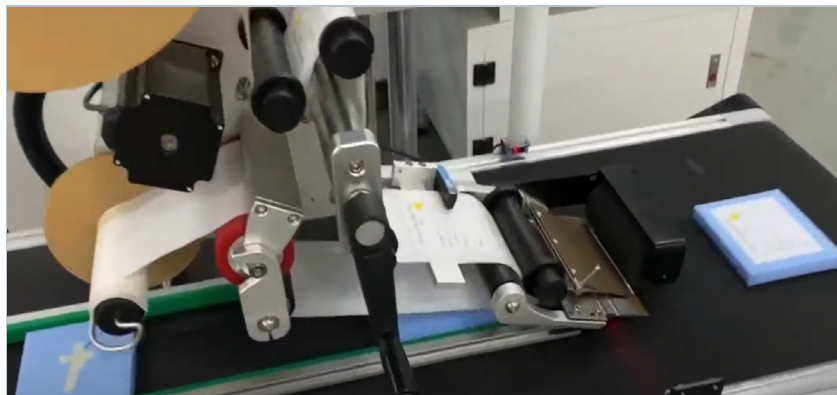


**PLYS-1**

Belt Conveyor



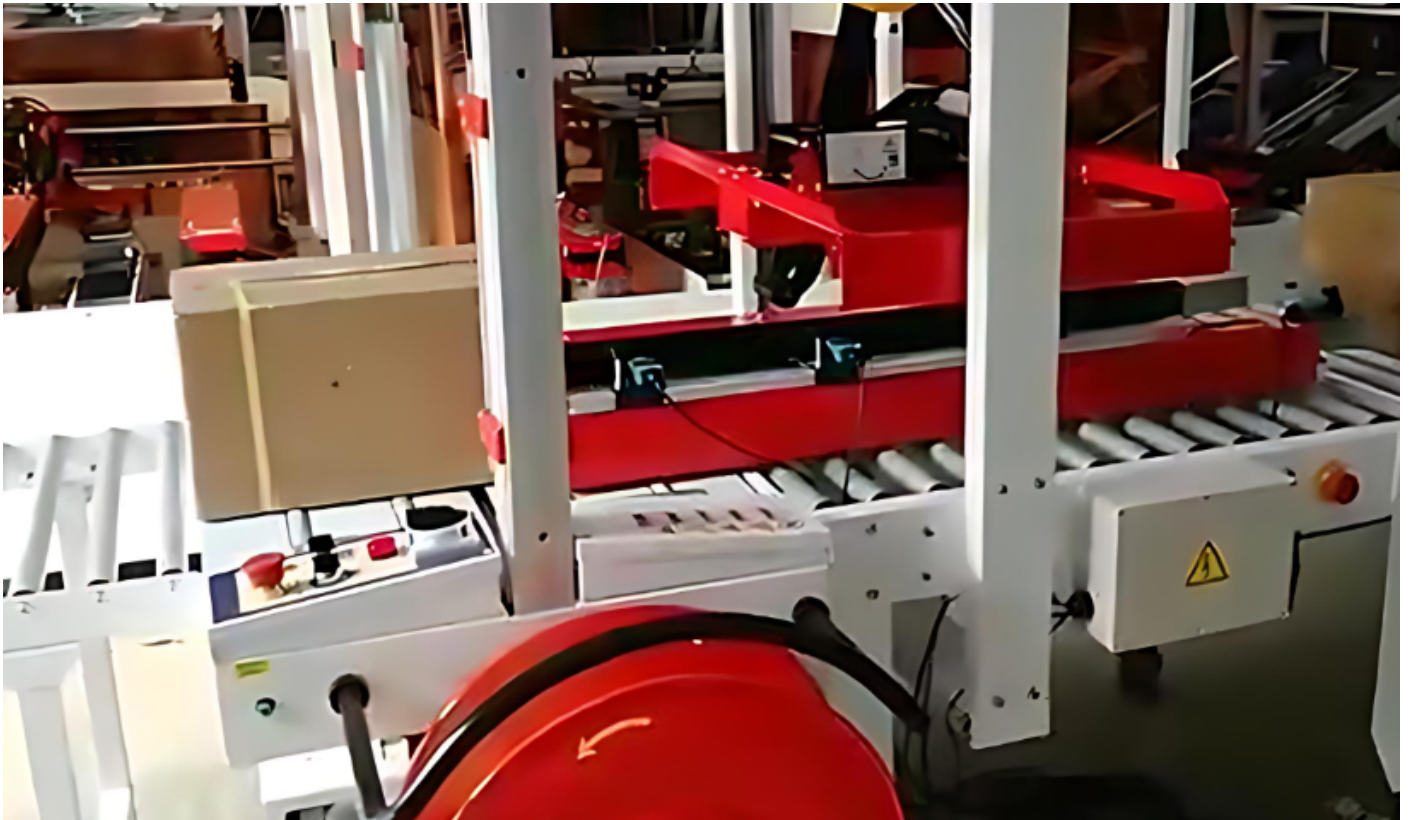
Turntable table



Automatic labeling machine

# 10.

## Packing



**PLM-DB5060**

Automatic Sealing and  
Strapping Machine

# Material Solutions – Eco Fuel Oil Filter Line

## Filter Paper



Filter paper is processed by mixing plant fiber pulp and a little cotton pulp. Because of its fiber structure, leaving numerous tiny holes for liquid particles passing through and leaving solid particles out, which is the basic principle of solid and liquid separation.

The filter paper has not been hardened after being impregnated with Phenolic resin, which can not satisfied the stiffness requirements of filter elements. After being pleated, the filter paper will be heated for 10–15 minutes at the 150 °C temperature.

Cured filter paper is widely used to produce oil and fuel filter element of heavy trucks, auto and cars.

Leiman Code	Type	Basic Weight (Before Cured)	Basic Weight (After Cured)	Air Permeability	Max. Pore Size	Average Pore Size	Thickness	Corrugated Depth	Stiffness (Before Cured)	Stiffness (After Cured)	Burst Strength (Before Cured)	Burst Strength (After Cured)	Usage
-	-	g/m <sup>2</sup>	g/m <sup>2</sup>	L/m <sup>2</sup> /s (ΔP=200 Pa)	um	um	mm	mm	mN/m	mN/m	kPa	kPa	-
LM295-400AS	Cured	295±10	285±10	400±50	< 85	< 70	1.5±0.1	-	> 50	> 70	> 450	> 600	For air filtration
LM208-5000C	Cured	208±10	198±10	500±50	< 85	< 75	1.1±0.1	0.35±0.05	> 6	> 10	> 400	> 500	For oil filtration
LM135-5500C	Cured	135±5	125±5	550±50	< 80	< 65	0.65±0.05	0.35±0.05	> 3	> 4	> 200	> 380	For oil filtration
LM205-3000C	Cured	205±10	195±10	300±30	< 60	< 50	1.0±0.1	0.35±0.05	> 9	> 12	> 280	> 450	For oil filtration
LM190-3000C	Cured	190±8	185±8	300±30	< 70	< 60	0.9±0.09	0.35±0.05	> 4	> 8	> 300	> 400	For oil filtration
LM180-3500C	Cured	180±8	170±8	350±50	< 75	< 65	0.9±0.09	0.35±0.05	-	> 10	> 300	> 400	For oil filtration
LM180-4500C	Cured	180±7	167±7	450±50	< 75	< 60	0.9±0.1	0.35±0.05	> 6	> 7	> 280	> 400	For oil filtration
LM175-3300C	Cured	175±8	165±8	330±30	< 70	< 55	0.65±0.05	0.35±0.05	> 6	> 8	> 400	> 550	For oil filtration
LM165-4000C	Cured	165±8	155±8	400±50	< 75	< 65	0.65±0.05	0.35±0.05	> 3	> 5	> 150	> 350	For oil filtration
LM140-4500C	Cured	140±5	135±5	450±50	< 80	< 70	0.75±0.05	0.35±0.05	> 3	> 5	> 250	> 300	For oil filtration
LM125-8000C	Cured	125±5	120±5	800±80	< 90	< 75	0.70±0.05	0.35±0.05	> 3	> 4	> 180	> 250	For oil filtration
LM240-90FC	Cured	240±10	230±10	90±30	< 45	< 35	0.78±0.05	0.35±0.05	> 12	> 14	> 300	> 450	For fuel filtration
LM150-100FC	Cured	150±8	140±8	100±30	< 50	< 35	0.6±0.05	0.35±0.05	> 4	> 6	> 300	> 450	For fuel filtration
LM140-150FC	Cured	140±5	130±5	150±30	< 50	< 40	0.6±0.05	0.35±0.05	> 4	> 5	> 250	> 400	For fuel filtration
LM208-4800S	Cured	208±10	198±10	480±80	< 85	< 70	1.0±0.1	-	> 12	> 15	> 400	> 500	For oil filtration
LM180-80FC	Cured	180±7	165±7	80±10	< 45	< 35	0.65±0.05	0.35±0.05	> 6	> 10	> 350	> 500	For Fuel filtration
LM90-35CF	-	90±5		35±5	< 40	< 28	0.4±0.03	-	0.1	-	> 230	-	-

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.

## Hot Melt Glue



Hot melt glue, also called hot melt adhesive is widely used in air filters and oil filters for bonding, shaping and assembling in the production process. Because hot melt glue is environmental protection and fast curing, which can increase production efficiency. Different filter applications have different requirements for the characteristics and materials of filter hot melt glue. Commonly used filter hot melt glue include EVA, PO (Polyolefin), PA (Polyamide), etc. And PA hot melt glue is especially used for oil-resistant and high-temperature filtration.

Glue Model	LMHH190
Application	For Pleating Paper Bonding of ECO Fuel and Oil Filter
Appearance	Bright yellow and brown particles
Density	–
Contents	PA (Polyamines)
Odor	Odourless
Melt Condition	Bright yellow and brown transparent
Melt Speed	3–8 s
High Temperature Resistance	220–240 °C
Low Temperature Resistant	–
Viscosity	1600–3200 cP (210 °C)
Softening Point	175±5 °C
Glue Performance	Even & smooth
*Recommended Operating Temperature	180–200 °C
Advantage	UL grade standard, non-toxic, in line with environmental protection requirements. Resistant to high temperature ultraviolet rays and flame retardant.

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.

## One Component Thermosetting Adhesive – Durable & Efficient



One component thermosetting adhesive is suitable for the bonding and sealing of spin-on oil, fuel filter elements and other products.

Sealing Glue Model	LM1712
The Tensile Shear Strength (Steel Bonded Steel)	Normal > 10 kg/cm <sup>2</sup>
Tensile Strength <sup>1</sup>	> 200 N
Aging Resistance of Engine Oil	(135°C × 192 h) without degumming.
Appearance	homogeneous viscous liquid
Density	1.5±0.2 g/cm <sup>3</sup>
Curing Conditions	10–20 min (160 °C to 180 °C)
Volatile Content	≥ 98%
Viscosity	3000–50000 mPa·s

<sup>1</sup>Peel strength of curved filter paper and metal parts when 5 pleats filter paper with 9.5 mm height and 22 mm width insert into 2.5 mm thick glue

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.

## Two Component Filter Cartridge Adhesive for Bonding & Seaming



Two component filter cartridge adhesive is especially suitable for plastic or metal end cap sealing in hydraulic oil filter elements, dust filter elements, industrial filters, oil filters, fuel filters and other products.

Model		LM1541	LM1645
Tensile Strength (Steel-Steel) (MPa)		> 4.0	> 4.0
Tensile Shear Strength (Steel-Steel) (MPa)		> 3.0	> 3.0
Tensile Strength of Paper Filter Element (C0304) N		> 700	> 700
A:B		5:01	6:01
Liquid Color	A	White	White
	B	Brown	Brown
Volatile Content (%)	A	≥ 98	≥ 98
	B	≥ 98	≥ 98
Density (g/mL)	A	1.35±0.1	1.3±0.1
	B	1.22±0.05	1.22±0.05
Viscosity (mPa·s at 25 °C)	A	3000–6000	3000–6000
	B	200–250	200–250

*Remark: The follow information is for reference only. Please consult our sales staff for specific selection.*



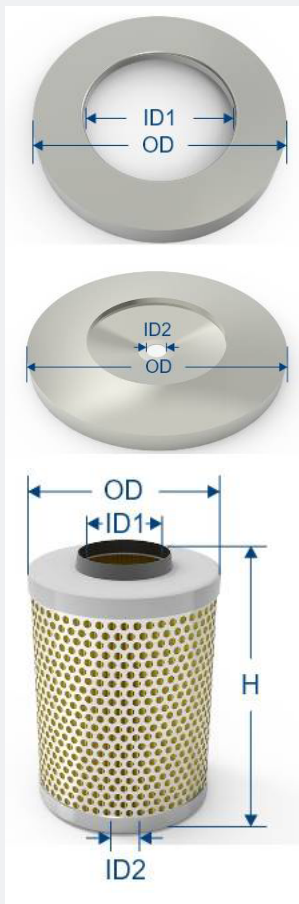
## Metal End Caps for Air & Oil Filters



Metal end caps are mainly used for the end closure of paper (filter cloth) and filter screens of heavy-duty vehicle air filter. The two ends of the filter paper and the filter screen are sealed to ensure that all the gas passes through the filter paper (filter cloth) without short circuit.

- Material: galvanized steel plates.
- Thickness: 0.4/0.5/0.6/0.7 mm
- We can customize metal end caps according to original part number

Brand	Original Part Number	Filter Element Dimension (mm) OD × ID1 × H	Bottom End Cap Inner Diameter ID2 (mm)
Mercedes BENZ	0030944204	327 × 161 × 259	10.5
Mercedes BENZ	0020942404	327 × 167 × 353	11
Mercedes BENZ	0040940204	279 × 125 × 409	-
Mercedes BENZ	0030945004	302 × 192 × 475	11
Mercedes BENZ	0030941504	303 × 192 × 475	10
Mercedes BENZ	0030949604	279 × 125 × 349	-
Mercedes BENZ	0030941604	180 × 152 × 451	17
Mercedes BENZ	0010948304	327 × 167 × 259	11
Mercedes BENZ	0010949304	276 × 133 × 257	11
Mercedes BENZ	0010947304	264 × 132 × 231	11
Mercedes BENZ	0030947004	327 × 192 × 482	11
Mercedes BENZ	0010949404	209 × 103 × 219	8.5
Mercedes BENZ	0010944204	197 × 103 × 376	8.5
Mercedes BENZ	0030949104	420 × 254 × 318	10.5
Mercedes BENZ	0030949204	420 × 254 × 261	10.5
Mercedes BENZ	4192494A	163 × 86 × 350	8.5
Mercedes BENZ	41272212	327 × 217 × 618	10.5
Mercedes BENZ	0010941004	227 × 117 × 381	10.5
VOLVO	8149961	333 × 199 × 417	-
VOLVO	475755	270 × 177 × 577	11
VOLVO	8149064	305 × 150 × 414	-
VOLVO	1544449	350 × 211 × 366	10.5
VOLVO	1660903	197 × 166 × 320	10.5
VOLVO	475386	310 × 200 × 368	10.5
VOLVO	1080918	271 × 160 × 600	-
VOLVO	0010944704	228 × 116 × 383	10.5
VOLVO	1660376	270 × 177 × 577	10.5
VOLVO	1665563	259 × 184 × 545	-
SCANIA	0030945004	302 × 192 × 475	10.5
IVECO	370754	301 × 191 × 475	10.5
IVECO	395773	302 × 192 × 379	11
IVECO	197946201	310 × 132 × 496	11
IVECO	P117437	280 × 170 × 418	17
IVECO	107029	306 × 196 × 521	17



Remark: The follow information is for reference only. Please consult our sales staff for specific selection.

Brand	Original Part Number	Filter Element Dimension (mm) OD × ID1 × H	Bottom End Cap Inner Diameter ID2 (mm)
IVECO	2992374	327 × 217 × 482	10.5
IVECO	P150706	173 × 88 × 368	17
IVECO	41272212	327 × 217 × 618	10.5
IVECO	1904581	150 × 71 × 336	8.5
IVECO	1905983	243 × 132 × 286	10.5
IVECO	41272515	327 × 217 × 515	10.5
RENAULT	70660360	234 × 123 × 345	17
RENAULT	AZ39761	306 × 196 × 423	17
RENAULT	5010066304	307 × 194 × 472	17
RENAULT	0003564135	324 × 212 × 533	4.5
RENAULT	P117797	264 × 153 × 568	4.5
RENAULT	5010094146 5000751674	281 × 171 × 391	17
RENAULT	70662471 70662477	164 × 135 × 408	17
RENAULT	7411394	306 × 195 × 398	17
RENAULT	5010064372	162 × 134 × 381	17
RENAULT	P117437	281 × 171 × 421	17
RENAULT	219517	242 × 132 × 496	10.5
RENAULT	0010944704	228 × 116 × 381	10.5
RENAULT	5000559401 5001860615	166 × 76 × 321	–
RENAULT	17801-A0108	190 × 102 × 243	22
HINO	17801-2410	190 × 104 × 243	22
HINO	17801-2490	306 × 196 × 495	23
HINO	17801-2550	306 × 196 × 469	17
HINO	17801-2900	160 × 132 × 312	17
HINO	17801-1020	306 × 196 × 469	17
HINO	17801-2290	306 × 196 × 418	23
HINO	17801-2910	277 × 165 × 367	23
MANN	C23440/1	228 × 116 × 381	10.5
MANN	2165044	163 × 86 × 350	8.5
MANN	C20325/2	198 × 132 × 376	8.5
MANN	219517	242 × 132 × 496	10.5
MANN	0030945004	303 × 192 × 475	10.5
MANN	0030941504	303 × 192 × 475	10.5
MANN	P778441	243 × 132 × 376	10.5
DAF	197946201	242 × 126 × 420	10.5
DAF	395773	302 × 191 × 381	10.5
DAF	218989	197 × 103 × 376	8.5
DAF	0010944704	227 × 117 × 381	10.5
DAF	219517	242 × 132 × 496	10.5
DAF	16546-T3401	155 × 79 × 201	13.5

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.



## Plastic End Caps & Inner Tubes for Eco Filters Production



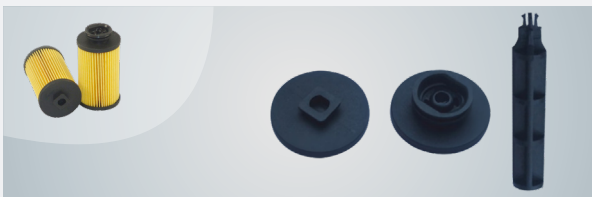
Size (mm)	Original Part Number	
Top Caps: OD: 94, ID: 26	ME222135	
Bottom Caps: OD: 94		
Inner Tube: OD: 49, ID: 41, H: 79		



Size (mm)	Original Part Number	
Top Caps: OD: 73, ID: 32.5	2D0127177	2D0127159
Plastic Part: OD: 46, ID: 33	15430-PLZ-D00	93190777
	97223218	OX163
	650300	HU820X



Size (mm)	Original Part Number	
Top Caps: OD: 81.5, ID: 40.5, H: 18.5	XNE113 504170771	
Bottom Caps: OD: 81, ID: 14.5, H: 28.5		
Inner Tube: OD: 34, ID: 29.5, H: 111		



Size (mm)	Original Part Number	
Top Caps: OD: 42.8, Total Height: 6.1, ID: 15.9, H: 3.5	13M10	U58/1
Bottom Caps: OD: 42.8, H: 6.8	E102UD179	10151970B
	0001420089	0001420289
	0019903080	A0001420289
Inner Tube Height: 84.2	A0001420089	

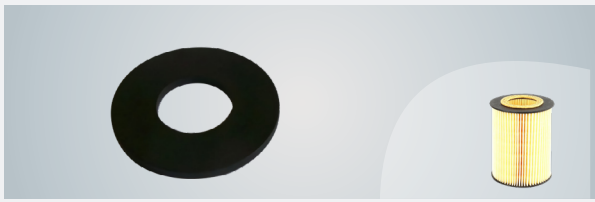


Size (mm)	Original Part Number	
Top Caps: OD: 66, ID: 18	HU7018Z	0071771649
Bottom Caps: OD: 66	31152017F	31152019F
	68109834AA	71771649
	K68109834AA	K68109834AA
Inner Tube: OD: 38, ID: 33, H: 95	1-68109834AA	E216HD301



Size (mm)	Original Part Number	
Top Caps: OD: 83, ID: 15	614080739	4220920051
Inner Tube: OD: 42, ID: 38, H: 127	P811	E10KP
	E10KPD10	

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.



Size (mm)	Original Part Number
Top and Bottom Caps: OD: 52, ID: 24, T: 3	1457429147



Size (mm)	Original Part Number
Top Caps: OD: 90, ID: 21.5, H: 47.5	77366216
Bottom Caps: OD: 66, ID: 15, H: 4.5	77366607
Cap mi: OD: 72, ID: 66, H: 21	818021
Inner Tube: OD: 36, ID: 31, H: 90.5	FFH-4010



Size (mm)	Original Part Number
Top Caps: OD: 48.5, ID: 23, H: 19	1457436033
Bottom Caps: OD: 44.5, ID: 22, H: 15	417283



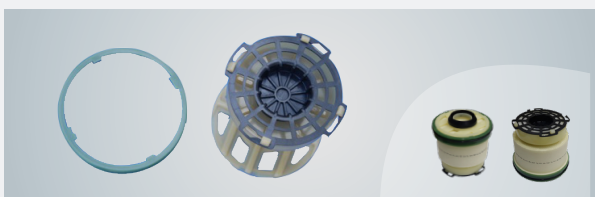
Size (mm)	Original Part Number
Outer Mesh: OD: 70, ID: 67, H: 96	11811-NY025 ME354459



Size (mm)	Original Part Number
Top and Bottom Caps: OD: 47, ID: 27, H: 96	04152-31080 04152-31020 04152-31040 V9111-3007



Size (mm)	Original Part Number
Top Caps: OD: 84, ID: 22	23390-78221 23390-78220
Bottom Caps: OD: 80, ID: 21	SFF7822E



Size (mm)	Original Part Number
Parts: 81 × 72 × 12	
Top Caps: OD: 72, ID: 22	AB399176AC 1725552
Bottom Caps: OD: 72, ID: 27	U2Y0-13-ZA5
Inner Tube: OD: 81, ID: 72, H: 12	

Remark: The follow information is for reference only. Please consult our sales staff for specific selection.

# Technical Support



## Production Cost & Profit Calculation

According to your needs and requirements, we will calculate the budget you need and supply an optimal solution to help you get the best equipment within your limited budget.



## Extendable Upgradable Production Line & Reasonable Layout

We will design extendable, upgradable production line and calculate the most reasonable footprint of the production line according to your requirements.



## Worker Training

We have create rich training documents and videos for your fast learning and training. You can come to our factory for actual operation instruction.



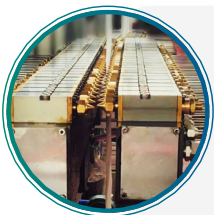
## Machine Installation & Maintenance Guidance

Before delivery, we have debug and test machine to achieve the best performance. Besides, we will deliver the installation guidance and maintenance guidance along with machines.



## Technological Improvements & Production Flow Optimization

We will evaluate your machines and production flow based on the production state of your production lines and put forward our suggestions for improvements.



## Machine & Mold Customization

We will customize machine to match your local market needs. Besides, various molds customization service are accepted for your efficient and easy production.



## Professional team after-sales support

We have a commitment of "4, 8, 36" which means respond to your requirements within 4 hours, give the pre-solution within 8 hours and complete within 36 hours.



# Our Global Partners





**Design,  
Supply & Support**

One Stop Solution to your Filters Production

# PLM FILTER SOLUTION GROUP

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**Hebei Luman Filter Parts Co., Ltd**

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