

DEKUMA



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DEKUMA

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Extrusion Technology of

Euro 6 & Electric Vehicles Tubings

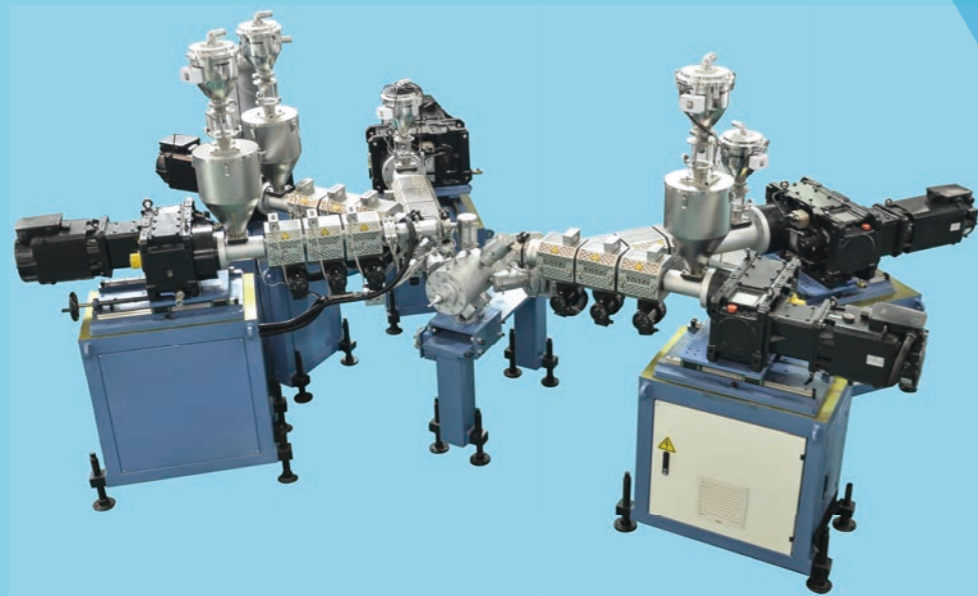


About Dekuma

Dekuma, founded in 2004, was a joint venture between Cosmos Machinery Ltd. (a Hong Kong public-listed company) and German Dekuma GmbH., specializing in the research, development, manufacturing, sales and after-sales of plastic pipe extrusion lines and rubber injection moulding machines.

Combining Cosmos group's strong production and processing capacity and the professional technology of German engineers, Dekuma commits to producing high-end rubber and plastic processing equipment and becoming the leading high-end rubber and plastic equipment manufacturer in China.

In 2011, by cooperation with a well-known multinational enterprises, Dekuma developed and manufactured China's first multi-layer nylon composite pipe extrusion line. After continuous improvement, Dekuma has developed a mature turn-key solution, with stable production speed at 40-80m/min. Production efficiency and stability are competitive to those of German and Swiss equipment. This technology reaches an international leading level and wins the National Science and Technology Progress Award in China. Now Dekuma single/multi layer nylon pipe extrusion lines have been successfully running in domestic and overseas end-users.



Dekuma Multi-layer extruder and die head

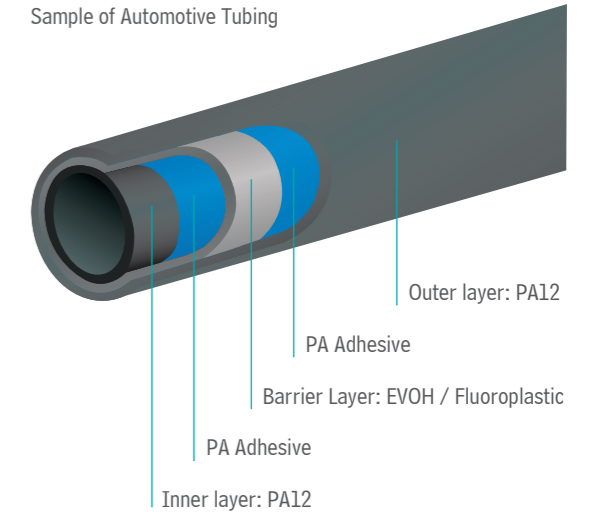
Nylon (PA) multi-layer tubing

Nylon (PA) multi-layer composite tubing has been a kind of light weight, high performance and environmental friendly pipeline product widely used in automobile fuel system in the world recently. Automotive nylon tubing, mainly used for oil supply, oil return, air brake and glass cleaning etc.

There are of single-layer, two-layer, three-layer, four-layer and five-layer tubings, and the outer diameter can be from 6mm to 32mm or other specifications as customers require.

PA multi-layer composite tubing can effectively reduce pollution to the environment caused by automotive emissions and meet higher environmental protection requirements. At the same time, multi-layer composite tubing has excellent permeability resistance, which can meet the requirements of the EU emission standards stage VI and The Chinese VI Emission Standards (The sixth stage emission standards of vehicles in China)

Sample of Automotive Tubing



Nylon (PA) multi-layer tubing common structure

Model 1



Model 2



Model 3



PA Multi-layer tubing

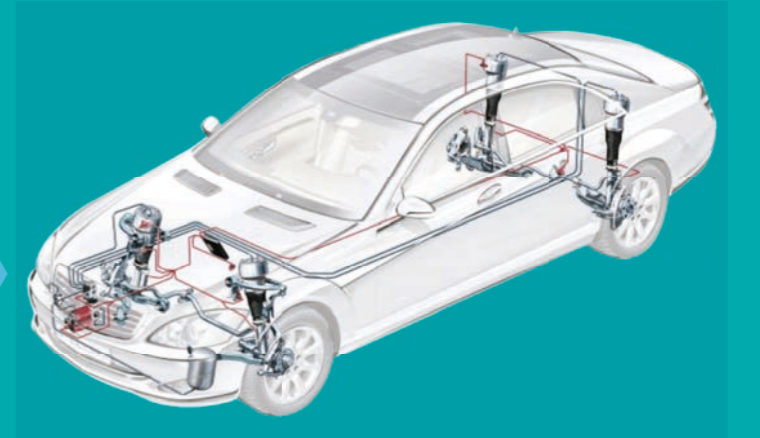


PA Multi-layer tubing + TPV Jacket



Automotive Bellows

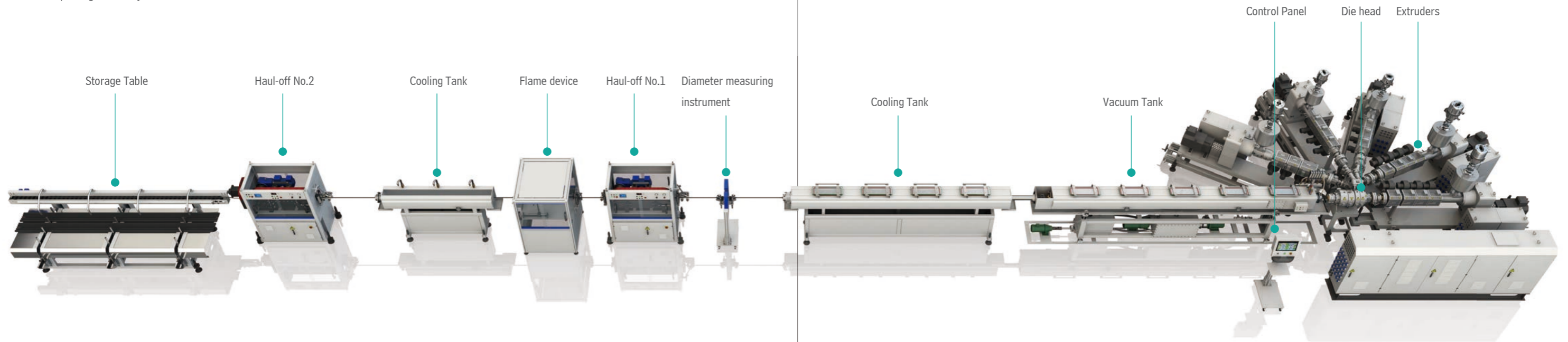
Different Automotive Tubings



Low-emission vehicles (LEVs) fuel system

Multi-layer Nylon Pipe Extrusion Line

Since 2012, Dekuma has cooperated with International famous automotive fuel system supplier to develop the extrusion line for automotive tubing, and kept improving all these years.



Multi-layer Nylon Bellows Extrusion Line (Main Components)

Since 2018, Dekuma develops its own multi-layer nylon bellows extrusion line. Thanks to its experience, Dekuma extrusion line can be used to produce both solid wall tubing and bellows on same line by changing down-stream.



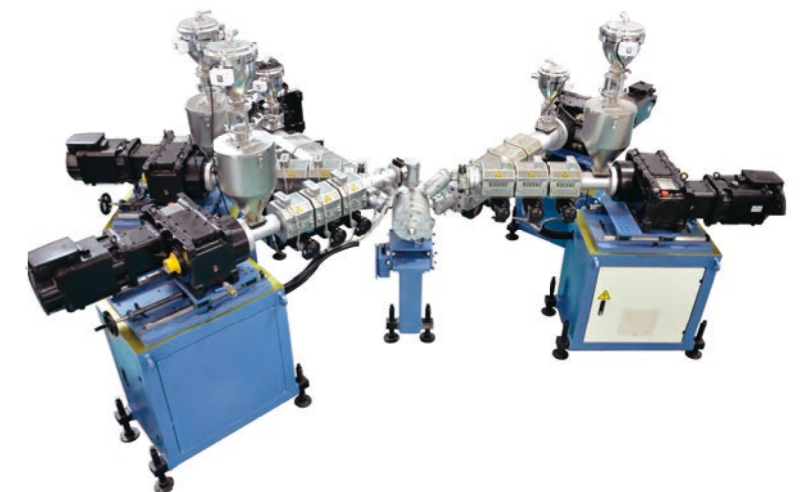
3D Imaging Positioning Cutting Machine with Hual-off unit



Cooling tank with Haul-off Unit



Calibration Table for Bellows



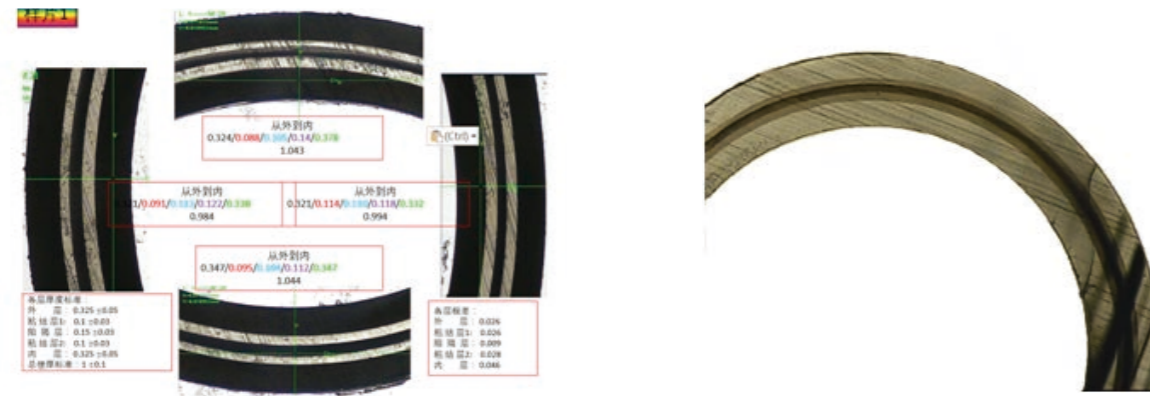
Extruders & Die Head for Multi-layer Bellows

Test Reports

Commissioning tensile performance test results

Test Item	Technical standard requirements	Testing result
Vertical stretching	Elongation at break: $\geq 170\%$	285%, 301%, 280%
	Break strength: $\geq 24\text{N/mm}^2$	25.63N/mm ² , 25.72N/mm ² , 25.45N/mm ²
Lateral stretching	Elongation at break: $\geq 170\%$	425%, 417%, 429%
	Break strength: $\geq 25\text{N/mm}^2$	22.82N/mm ² , 22.23N/mm ² , 26.59N/mm ²

Sample Slice Analysis



Item	Nylon tube	Item Model	PB550A/B 8mm
Date of manufacture	2012.11.30	Extrusion speed	60M/min
Measuring tool	Quick vision	Item color	White

Standard	Upper deviation	Lower deviation	Point0	Point1	Point2	Point3
0.45	0.03	0.03	0.468	0.436	0.433	0.465
0.15	0.02	0.02	0.147	0.152	0.145	0.144
0.05	0.02	0.02	0.053	0.05	0.049	0.053
0.05	0.02	0.02	0.049	0.046	0.055	0.063
0.3	0.03	0.03	0.302	0.32	0.33	0.282

Patents and awards

The success of Dekuma nylon (PA) multilayer composite pipe extrusion line is the result of many years of technical accumulation

NO.	Honors and certificates	Name of issuing authority	Time
1	The die head of five-layer oxygen resistance composite pipe for PE-RT floor heating won the 「RONGGE technical innovation award」	RONGGE industrial media co., LTD.	2012.6
2	"CNC multi-layer pipe extrusion line" has been identified as Dongguan's first (set) key technical equipment	Dongguan science and technology bureau	2017.1
3	"CNC multi-layer plastic composite pipe extrusion line" won the provincial high-tech products in 2017	Dongguan science and technology bureau	2017.12
4	"Development and industrialization of plastic pipe extrusion CNC system and equipment" passed the 2015 Dongguan industrial breakthrough (CNC generation) project acceptance	Dongguan science and technology bureau	2018.2.27
5	Five-layer co-extrusion machine (invention patent)	SIPO	2016.8.5
6	A five-layer co-extrusion machine (utility model patent)	SIPO	2016.8.5
7	Vacuum sizing seat (invention patent)	SIPO	2016.8.9
8	A vacuum sizing seat (utility model patent)	SIPO	2016.8.9

