

TECHNICAL SPECIFICATION

LJ350/200A CONTINUOUS ALUMINUM EXTRUSION PRODUCTION LINE

LJ350/200A CONTINUOUS EXTRUSION TUBE PRODUCTION LINE

—, **Technical specification:**

1.1 Extrusion mode: Radial direction continuous extrusion by single round and single groove.

1.2 Application: Aluminum tube

1.2.1 Main technical parameters:

Diameter of extrusion wheel:	Ø340mm
Power of main motor:	200KW
Max rotating speed of main machine:	20r/min
Range of speed regulation:	0-20r/min
Diameter of products:	Ø4-Ø 30
Thickness of tube:	0.4-6mm
Max. production capacity:	150kg/h
Flash level:	<3-5%
Power supply:	380V 50Hz 260KVA

1.2.2 Raw material:

Ø9.5mm Aluminum rod aluminum content: 99.7%

Diameter tolerance: ±0.2mm

Strength of aluminum rod: ≤95N/mm

1.2.3 Equipment composition and Configuration:

No.	Reference No.	Specification	Q'ty	Remark
1	A1001	Pay off stand and guide roller	1set	
2	A1002	Straightener	1set	
3	A1003	Aluminum cleaning system (Brushing machine)	2set	
4	A1004	Aluminum feeding and cutting system	1set	
5	A2001-01	LJ350/200A continuous aluminum extrusion machine	1set	
6	A2002-01	LJ350/200A Products and tools cooling system	1set	
7	A3001	Hydraulic lubrication station	1set	
8	A3002	Extra HV hydraulic station	1set	

9	A3003	Product length counter	1set	
10	A3004	Dancer	1set	
11	L5001-2	SP1000 Take up system	2sets	
12	A6001	Electrical control system	1 set	
13	F001	Hot air drying machine	1set	
Spare parts				
1		Extrusion wheel	1pc	
2		Die chamber	1pc	
3		Main shaft	1pcs	
4		Sealed parts	1set	
5		Scraping knife	1pc	
6		Electrical Furnace	1pc	

二. Main performance of each components:

1. A1001 Aluminum rod pay-off stand

1.1. Specification:

Diameter of aluminum rod:	Φ9.5mm
ID of packing:	>870mm
Weight of packing:	2T
Max peed:	20m/min

1.2 Dimension:

3500mm×1000mm×2500mm

1.3 Weight of pay-off stand: around 1000Kg

1.4 Explanation

The device is a stand as same as the basketball stand, put coil of aluminum rod down the outlet basket of pay-off stand, aluminum rod will pass through the bottom of outlet basket, climbing over the roller on the top of pay-off stand, going down through the bottom of the roller in outlet basket, then pass through guide roller, going to the straightener.

1.5 Photo



2. A1002 Straightener

2.1 Specification:

Material: aluminum rod

Diameter: $\Phi 9.5\text{mm}$

2.2 Dimension:

Length:	800mm ($\Phi 9.5\text{mm}$)
Width:	500mm ($\Phi 9.5\text{mm}$)
Height:	1400mm ($\Phi 9.5\text{mm}$)

2.3 Weight: 150Kg ($\Phi 9.5\text{mm}$)

2.4 Explanation:

The straightener is suitable for $\Phi 9.5$ aluminum rod. The straightener is assembled on the steel frame. The straightener is composed of inlet guide wheel, straightening device, and outlet guide wheel. The aluminum rod will pass through a set of cross inlet guide rollers, then go into the straightener.

The straightening device is composed of 5pcs of vertical guide wheels and 5pcs of horizontal guide wheels, after straightening, aluminum rod will go out passing through outlet guide wheel.

There is one set of damping device which aluminum rod will pass through after cleaning system, to avoid any vibration happened during aluminum rod cleaning.

2.5 Photo:



3. A1003 Aluminum cleaning system (Brushing machine)

3.1 Specification:

Diameter of inlet rod:	Φ9.5 mm
Max inlet speed:	30 m/min
Power of each motor:	2.2kW

3.2 Diameter of each holder:

Length:	860 mm
Width:	500 mm
Height:	1350 mm

3.3 Explanation:

Two brushes rotate by a motor drive, and the stolen goods on the surface of the aluminum rods through the middle are moved.

3.4 Photo:



4. A1004 ALUMINUM FEEDING & CUTTING SYSTEM

4.1 SPECIFICATION:

Raw material: Diameter of aluminum rod $\Phi 9.5$ mm
Feeding motor: 1.1kW
Cutting: Diameter of aluminum rod $\Phi 9.5$ mm

4.2 DIMENSION:

Length: 600mm
Width: 400mm
Height: 300mm

4.3 WEIGHT: 300Kg

4.4 EXPLANATION:

Aluminum feeding device is composed of two parts: upside parts is pinch roller, can adjust the compaction of aluminum rod, lower part is active guide wheel with power, when straightened aluminum rod enter into the feeding device, adjust pressing force, press the button on the operating panel to start; After aluminum rod enter into extruding device, the feeding motor will stop work, and complete auto-feeding.

The cutting device is assembled on a steel frame, and is composed of two sets of hydraulic blades, when extruding device is stopped, the cutting device will start automatically.

The feeding device and the cutting device is jointed by screw bolts, ether assembled on the extruding archway, or assembled on the independent frame. The device is reliable and easy to operate.

4.5 Photo:



5. A2001-01 LJ350/200A ALUMINUM CONTINUOUS EXTRUDING MACHINE

5.1 EXTRUDING MODE

Adopt single wheel and single groove radial direction continuously extruding.

5.2 Application:

Microchannel tubes

5.3 Specification:

Diameter of Extrusion wheel:	Φ340mm
Max rotating speed of extrusion wheel:	20r/min
Power of main motor:	200KW
Average daily production efficiency:	150kg/h
Leakage rate:	<5%

5.4 Extrusion raw material:

Φ9.5 aluminum rod produced by continuously casting and rolling machine.

Aluminum content:	99.7%
Tolerance of diameter:	±0.2mm
Strength of aluminum rod:	≤95N/mm ²

5.5 Dimension:

Length:	4500mm
Width:	1500mm
Height:	2500mm

5.6 Explanation:

LJ350/200A continuously aluminum extruding machine adopts single wheel single groove, radial direction extruding mode. Extrusion wheel is a part of main shaft, top tight by one hydraulic screw nut, to reduce the stress variation. The main shaft is by large double row roller bearing to support its two heads. To prolong the lifetime, the roller bearing selected should be able to work 24 hours per day. Bearings are assembled in multi-sealed bearing box, so as to avoid lubrication oil escaping and dirt entering. A independent cooling lubrication system can ensure sufficient lubrication of bearing, and keep suitable working temperature.

Steel archway can be assembled with radial extrusion groove, main shaft and other related auxiliary device. Main shaft rotating speed is controlled and adjusted by planetary gear box with DC driver, it's continuously viable control, by spline key, the gear box is jointed to main shaft of extruding machine, to ensure correct rotating direction.

Gear box is jointed to lubrication cycling system, to ensure uniform lubrication and suitable working temperature of gear box during running.

DC motor is assembled on the baseboard independently, and is jointed to gear box by coupling and easy to adjust assembling.

There are extrusion groove hydraulic clamping device and jacking system assembled on the archway of main machine, press the button on the operating panel to control and operate. With the help of disassembling oil cylinder, assemble and disassemble bearing housing.

The die system assembled inside extrusion groove is including: Die cavity, Modulating plate, and Die. The system is easy to replace dies, and can replace dies quickly, with long service life.

5.7 Photo:



6. A2002-01 LJ350/200A Machine and Tools Cooling System

6.1 Specification:

Heat Exchange:	8m ²	2 sets
Power of Pump:	3KW	2 sets
Pump flow:	9.5m ³ /h	
Pump lift:	≥20m	
Cooling water for machine:		Soften water
Cooling water for tool:		Soften water
Compressed air supply:		35m ³ /h at 0.56MPa

6.2 Dimension:

Length:	3200mm
Width:	2370mm
Height:	1130mm

6.3 Explanation:

The system is applicable for extrusion wheel, die and radial direction extruded aluminum products cooling system. The system is composed of water tank with cooling water baths assembled on the top, and 2 sets of pumps for heat exchange in the cooling system. One pump can supply required water flow and speed for products cooling, the other one is for extrusion wheel and die cooling. The flow can be controlled by valves.

Cooling water for products and machine should be soften water.

Cooling water in tank is cooled by the customer's cooling system.

6.4 Photo:



7. A3001 Hydraulic Lubrication Station

7.1 Specification:

Hydraulic circuit:

Hydraulic pump: Plunger pump

Oil pressure: Max 32 MPa

Flow: Max 5 L/min

Power of motor: 5.5 KW

Pressing force: Max 140T

Lubrication circuit for reducer:

Pump: Gear pump

Oil pressure: Max 0.4MPa

Flow: 4 L/min

Power of motor: 0.37 KW

Lubrication circuit for bearing:

Pump: Gear pump

Oil pressure: Max 0.4MPa

Flow: 4 L/min

Power of motor: 0.55 KW

7.2 Dimension:

Length:	2000 mm
Width:	1000 mm
Height:	800 mm

7.3 Weight: About 800 kg

7.4 Explanation:

The device is composed of three parts which is assembled on the same frame:

A. Hydraulic circuit:

It's composed of one plunger pump, one oil tank with 120 L capacity, and related high pressure pipe lines, in oil pipe, the oil pressure is max 32 Mpa. The device is for groove clamping, opening and closing.

B. Lubrication circuit for gear box:

It's composed of one gear pump and related pipe lines. The capacity of gear box is 80L, in pipe line, 0.8 m² heat exchange and oil filter are assembled, to exhaust the oil heat and oil impurity in time.

C. Lubrication circuit for bearing:

It's composed of one gear pump and related pipe lines. The capacity of gear box is 50L, in pipe line, 0.4m² heat exchange and oil filter are assembled, to ensure the oil with suitable temperature and purity before flowing into bearing.

7.5 Photo:



8. A3002 Ultra high pressure hydraulic station

8.1 Specification:

Power of motor: 0.75 KW

8.2 Dimension:

Length: 500 mm
Width: 400 mm
Height: 500 mm
Weight: About 50 kg

8.3 Explanation:

It's oil booster pump and related pipe line, for fastening and disassembling hydraulic nut. With high pressure oil pipe, the oil-out and hydraulic nut are connecting. By booster, generate high pressure with ≤ 250 MPa in high pressure oil circuit. It's easy to disassemble and fasten hydraulic nut.

8.4 Photo:



9. A3003 Product length counter

9.1 Explanation:

It can measure length of product accurately, the length required can be set arbitrarily and the automatic hint for alarm or information supply is conducted on time.

9.2 Photo:



10. A3004 Dancer

10.1 Explanation:

The potentiometer and level principle is used to provide take-up machine with tension to control take-up speed and ensure the smooth and even stranding.

10.2 Photo:



11. L5001-2 SP1000 Take-up system

11.1 Specification:

Diameter of take-up coil:	φ1000
Inner Diameter of coil:	400mm
Width of coil:	350mm
Rotating speed of take-up coil:	Max 80RPM

11.2 Dimension:

Length:	1800mm
Width:	1500mm
Height:	1500mm

11.3 Explanation:

The spools and transverse take-up device is selected, each spool is driven by one motor, the speed of take-up can be adjusted by speed and tension. Adopt the rod mode for take-up is reliable, with counter, and assemble moving arm to control tension and feedback the speed signal.

When the spool is full, it will cut the wire quickly, and wind onto the other spool to take up continuously, and no need to stop the machine.

11.4 Photo:



12. A6001 Electrical control system

12.1 Specification:

Power of main motor:	200KW
Short-term overload capacity:	150% in 15 seconds

12.2 Dimension:

	Cabinet	Panel	Manual operating box
Length(mm):	1600	1000	400
Width(mm):	600	900	300
Height(mm):	2100	1200	200

12.3 Explanation:

The system is composed of driving control system (control cabinet), operating panel(including manual operating box), and touch screen monitor system.

In the system, main elements, such as DC driver(Parker), PLC, and touch screen, are SIEMENS brand; Low-voltage apparatus is also SCHNEIDER brand.

The line is controlled by PLC. Control panel is assembled with buttons and touch screen. By touch screen, the machine can realize man-machine interaction and real time monitoring.

Also, by touch screen, the machine can do parameter setting, operating, status display and failure alarming.

Manual operating box can control the groove opening and closing, compressing, releasing, and feeding and cutting material, also, by operating box, it can complete assembling and disassembling

Bearing housing, and operating the main shaft positive and negative rotating.

12.4 Photos:



13 Hot air drying machine

13.1 Specification:

Power of main motor: 2.2KW

13.2 Dimension:

Length 700mm,

Width: 400mm,

Height: 1050mm

13.3 Explanation:

The hot air produced by the vortex air pump is used to dry the surface of the product.

13.4 Photo:



Spare parts:

1. Extrusion wheel with single groove:



2. Die chamber



3. Main shaft:



4. Sealed parts:

No photo

5. Scraping knife:



6. Electrical Furnace

No photo