

Intermediate Wire Drawing Machine with Single Spool Take Up



I. Technical specification

Technical parameters

- (1) Input wire: 2.6mm-3.0mm
- (2) Output wire: 0.4mm - 1.2mm
- (3) Production speed: Max 1800 m/min
- (4) Diameter of Capstan: 250mm
- (5) Number of dies: 21 (afforded by the Buyer)
- (6) Wire drawing lubrication: Lubrication by full immersion
- (7) Outer diameter of dies: $\Phi 25\text{mm} \times 8 - 12\text{mm}$ (thickness)
- (8) Mechanical elongation: By the dies from the 1st to 20th, 18.4%, By the 21st die, 15%
- (9) Main motor power: 55 kW-4P AC motor
- (10) Take-up motor power: 15 kW-4P AC motor
- (11) Take-up control: Double frequency conversion automatic tension synchronous control
- (12) Take-up capacity: Max 600 kg
- (13) Take-up reel: $\Phi 760\text{ mm}$, max $\Phi 630\text{ mm}$
- (14) Brake: Disk type air brake
- (15) Supply voltage: 480V AC, 60Hz, 3-phase
- (16) Power consumption: 60 - 160 kW
- (17) Machine dimensions: 3000L x 1000W x 2800H (mm)
- (18) Machine weight: 4000 kgs

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II. Machine construction and performance

1. Construction of the drawing machine

(1) Material: HT200

(2) Processing: Integral casting and heat treatment are formed in the machine body to eliminate the internal hard force. The precision boring machine has the advantages of no deformation, high precision and good stability.

(3) Transmission shaft: it is made of 42CrMo steel and heat treated to alleviate internal hard force and provide good comprehensive mechanical properties. The surface is finely ground to ensure the concentricity and accuracy of the core.

(4) Gear: It is made of 40Cr and undergoes thermal refining. Gear surface fine grinding and high-frequency treatment have reached the accuracy standard GB (Chinese national standard) above level 6, resulting in high accuracy and low noise during operation.

(5) Capstan: Zirconia ceramic ring is used, which is wear-resistant and durable.

2. Power control: Wire drawing motor 55kW AC and coiling motor 11kw AC capacity. A stepless speed regulating variable frequency governor is used to control take-up. The running linear speed can be automatically displayed on the instrument.

3. Wire drawing: Slip type continuous wire drawing with four horizontal shafts.

4. Drive: The gear box of wire drawing part is driven by V-belt. The transmission of annealing part and drawing part adopts flat belt transmission, and the take-up power transmission adopts V-belt.

5. Wiring arrangement: the wiring arrangement adopts synchronous belt drive and electromagnetic clutch to switch the direction. The wire arrangement automatically tracks the take-up speed. The distance between wires shall be consistent, and the distance between wires can be adjusted according to the change of wire diameter.

6. Take-up: Hydraulic or pneumatic mechanical clamping is adopted, and AC frequency conversion speed regulation and solenoid valve air braking are adopted.

7. Automatic stop: This function includes automatic stop with full reel, automatic braking at wire breakage, braking at traverse overshoot and automatic braking at abnormal operation of the speed regulator, motor, etc.

III. Electric control

1. Electric control components: Imported electric control components with high reliability are used to ensure steady operation of the machine.

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2. Supply voltage: 440V AC, 50Hz, 3-phase
3. Tension control: A special-purpose tension control or inverter is used to ensure steady tension so as to improve the surface quality of the wire.
4. Power control: Dual-inverter-drive is used to reduce mechanical energy loss so that energy-saving and reduced power consumption is achieved.

IV. Selection of parts and components

No.	Name	Manufacturer	Place of origin	Remarks
1	Motor	Siemens	Germany	
2	Bearing	NSK	Japan	
3	Low-voltage electrical appliances	Schneider	France	
4	Inverter	YASKAWA/ Siemens	Japan/Germany	
5	Belt	Nida	Japan	
6	Program controller	Siemens	Germany	

V. Machine components and accessories

No.	Name	Unit	Quantity	Remarks
1	Pay-off stand	Set	1	
2	Drawing machine	Set	1	
3	Annealing institutions	Set	1	
4	Tension unit	Set	1	
5	Take-up	Set	1	
6	Electric control cabinet	Set	2	
7	Accessories supplied with the machine			
8	Anchor bolts	Batch	1	
9	Power supply cords	Batch	1	
10	Steam generator	Set	1	6kw

VI. Color: Paint-spraying according to the colour required by the Buyer after anti-rust treatment or sky blue.

Power allocation and output of Medium continuous annealing equipment

No.	Input	Output	Max speed	Annealing operation speed	Running speed without annealing	Power consumption Copper/ ton	Annealing per hour (Yield)
1	2.5mm	0.4mm	1800 m/min	1600 m/min	1800 m/min	295 kw.h/ton	110kg/h
2	2.5mm	0.6mm	1800 m/min	1500 m/min	1600 m/min	320 kw.h/ton	228kg/h
3	2.5mm	0.8mm	1800 m/min	1200 m/min	1400 m/min	330 kw.h/ton	322kg/h
4	2.5mm	1.0mm	1800 m/min	800 m/min	1200 m/min	340 kw.h/ton	335kg/h
5	2.5mm	1.2mm	1800 m/min	600 m/min	1000 m/min	350 kw.h/ton	360kg/h

