

Quotation on CCS8/700 Drawing Production Line (Cu-Claded Steel Wire)

1, Scope of Supply

One CS8/700 Drawing Production System includes one set of $\Phi 1400$ spool payoff (step-moving), one set of 8/700 drawing machine for bi-metal wire, one set of $\Phi 1250$ spooler, and one set of control system.

2, Equipment Descriptions

2.1 : 8/700 Bi-metal Drawing Machine

Data sheet:

Num.	name	unit	data
1	Model		CS8/700
2	Drawing method		Dancer arm control
3	Number of blocks		8
4	Diameter of block	mm	$\phi 700$
5	Speed control method		Variable-Frequency Drive(VFD)
6	motor powers for drawing	kW	55 (made in China)
7	Motor power of spooler	kW	37 made in China
8	Inlet wire dia.(max)	mm	$\leq \phi 6.0$
9	diameter of product(min)	mm	$\geq \phi 0.8$
10	average reduction rate	%	19% Around 19%
11	Line speed on no. 8 block with heave load	m/s	6.0
12	max.line speed on no. 8 block	m/s	12 (high/low speed for light/heave load)
13	control		digital
14	Logic control		PLC
15	raw wire strength	MPa	≤ 1150
16	Cooling of blocks and dies		Water and air circulation for blocks, Water for dies
17	time span of machine stop	second	normal ≤ 50 s;quick ≤ 15 s; emerg. ≤ 4 s, the buyer can set and modify

18	required cooling water supply		0.2~0.3MPa/22-34m ³ /h
19	required air supply		0.5MPa/0.5-0.8 m ³ /min

Notes:

- 1) Steel wire press plate and tension wheels: pneumatic drive; press plate material is nylon .
- 2) Single frame for whole drawing machine, Illumination inside the drawing chamber, Sealed dust protection cover.
- 3) A inside dust-collection piping net is included connecting with branch flanges. Buyer needs to connect a dust-exhausting system (buyer's scope) to an outlet connection flange .
- 4) All **blocks** are made of alloy steel. The 80mm high WC coating is applied on the working surface (HRC=58-62) of the low sections. The blocks surface are finely machined for wire accumulation to 180—250mm height.
- 5) Surface-harden gear main gearbox with noise level less than 78db.

2.2 Φ1250 Spooler

- 2.2.1 diameter of spool flange: 1250mm. Detail drawing shall be provided by buyer, Or, recommended by seller with buyer confirmation.
- 2.2.2 Max. combination weight of spool and product wire: 3000 kg;
- 2.2.3 Motor power: 37kw (VFD type);
- 2.2.4 Positive core clamber is driven by a motor through a belt. tension of belt is manual adjustable. The negative clamber is driven by a hydraulic-cylinder is for clamping and releasing;
- 2.5 A hydraulic station is included with: a hydraulic cylinder for H-type spool loading and unloading;
- 2.6 Spooling position is controlled by a lead screw; spool speed is adjusted by VFD-motor keeping synchronous following drawing wire speed;
- 2.7 The dancer between the **spooler** and drawing machine.

2.3. Spool payoff

- 2.3.1 Diameter of spool: Φ1400. Detail drawing s shall be provided by buyer, Or, recommended by seller with buyer confirmation
- 2.3.2 Max. combination weight of spool and raw wire: 5000 kg
- 2.3.3 Passive pay off by manual-adjusting mechanical tension.
- 2.3.4 A hydraulic station is included with a hydraulic cylinder for H-type spool loading and unloading.
- 2.3.5 Payoff is automatically left-right step-movable to keep suitable angle to the drawing wire inlet.

2.4 Control System

The system applies 'Profibus' field bus with self-developed software, which was proven to be reliable for the control of aluminum-cladding steel wire drawing .

Main components

item	name	model	made by
1	VFD	drawing machine: CS550-01-157A-4	ABB
		winder: CS550-01-125A-4	
2	PLC & Moulds(pass word for the user)	CPU (CPU314-2DP): 6ES7 314-6CG03-0AB0	SIEMENS
		Input Mould: 6ES7 321-1BL00-0AA0	
		Output Mould: 6ES7 322-1BL00-0AA0	
3	Touch Screen	6AV6 643-0CD01-1AX0	SIEMENS MP277
4	Low voltage parts		Schneider
5	Buttons and indicators		Schneider
6	Displacement sensor	XSC-H203629	TE

			TE France
Power Supply: 3P/380V/50Hz, 2 P/220V/50Hz			

2.4.2 Main protections & cause displays

- 2.4.2.1 A.C. power-off;
- 2.4.2.2 Automatic switch trips
- 2.4.2.3 Over speed and over load of main motors and winder motor;
- 2.4.2.4 All VFD faults;
- 2.4.2.5 No actions of main contactors in winder and spool stations;
- 2.4.2.6 Over or low power voltage(+10%、 -10% (no emergency stop));
- 2.4.2.7 Wire break on any spools;
- 2.4.2.8 Low air pressure (no emergency stop);
- 2.4.2.9 Emergency stops;
- 2.4.2.10. Power-off of fan motor.

3 Mainly Running Control Functions

- 3.1 All motors run synchronously with matched speed for normal drawing production;
- 3.2 Each motor can run independently, in continuous or normal/reverse inching turning. A group of motors before or after any special motor of the production line can run synchronously with matched speed;
- 3.3 Synchronous running speed is set on main operation console. Separate motor running speed can be set separately, which is useful for starting/ending a drawing process;
- 3.4 User may take advantage of wire-break switches (stop/recover the production line running) to handle starting/ending a drawing process;
- 3.5 Each motor could be operated near to accordingly spool. Production line can be synchronous-running operated at winder stand and operation console. Inching turning is operated by a pedal switch. The cooling fan of the spool stops during the inching turning;
- 3.6 There are emergency stop buttons near every spools, winder , unwinder , and operation console;
- 3.7 In stop condition, wire press plates could be pressed on or released manually.

4、 Measurement functions

- 4.1 Voltage meters, current meters installed on electric cabinets;
- 4.2 Display of winder running time on touch screen;
- 4.3 Display of all motor speeds, all motor loads and faults on touch screen;
- 4.4 Measure and display of the length of wire drawing. Stop setting when the product reaches set length, Alarming setting when the length is near to set length.

5 Colors

Drawing machine:
Protection cover: orange;
Rotating parts: orange;
Cabinet: light camel.

6 Documents

- 6.1 Seller shall provide general arrangement drawing, including installation foundation requirements, to buyer in 40 days after purchase order is in effective.
- 6.2 Documents with the equipment delivering: Electrical schematic diagram, Specifications of PLC Controller, Spare part list, Main Drive Gear Diagram and Production Line Operation manual.
- 6.3 Buyer shall singe a confirmation that one spool drawing ($\phi 1250$ or $\phi 1400$) and all dies size drawing recommended by seller to facilitate seller's detail design.

7 Miscellaneous

- 7.1 All cables between control cabinets to all mechanical stands, all labors installing the cables are buyer scope. Seller is responsible to the cable connections inside the machine.
- 7.2 The machine direction depends on the customer's requirements.
- 7.3 Seller shall supply following attachments:
 - ①. a set of tools for pulling wire.

②. 8 sets of lubricating powder clampers (4 sets X 2(big/small)).

7.4 All dies, H-wheels are not included in seller supply scope.

8 Price for the equipment

The **FOB SHANGHAI** price is USD450,000.00 And the price validity is 50 days.

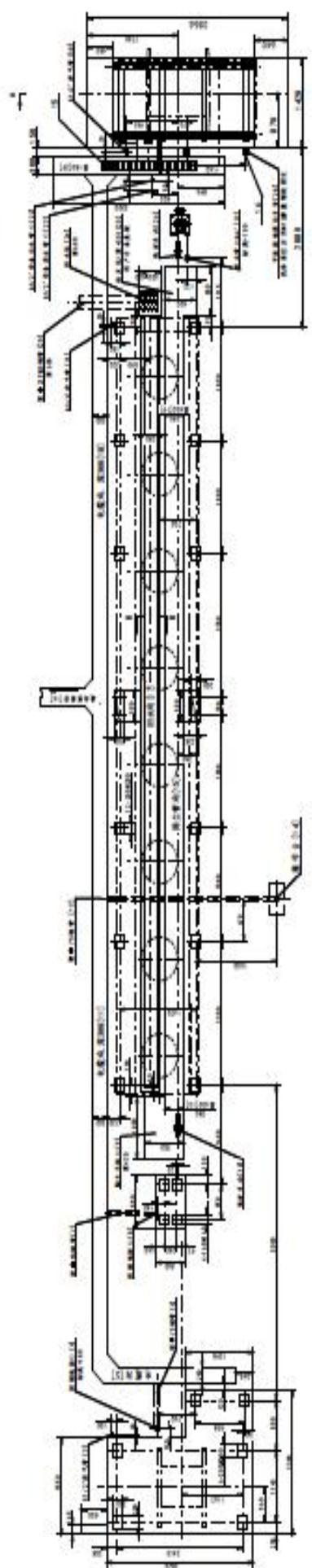
9 Commissioning

The seller send 2 technicians, and the buyer afford the fee as follow: round-trip tickets cost from China to Korea (the tickets should be bought by the buyer), accommodation, traveling expenses and communication expenses in Korea.

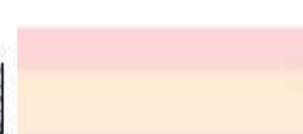
Before the seller's technicians reaching Korea factory, the buyer should finish the installation, get through the water, gas and electricity for the equipment. All things for adjustment should be ready, such as material, die, wire draw powder and other tools. And the video should be sent to seller. Buyer should pay US\$60 per person per day to seller as the technology labor. In principle, the test time should not be more than 20 days, if without seller's equipment fault. Or, the buyer should pay US\$150 per person per day for the extra labor on delayed days.

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