



KARTA PRODUKTOWA

Digima W0194Z reinforcement production line





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Product description:

No.	Description	Quantity
1	Longitudinal wire straightening system 1 set	
2	Transverse wire straightening system	1 set
3	Longitudinal wire feeding system	1 set
4	Longitudinal wire storage system	1 set
5	Longitude wire straightening system	1 set
6	Wire mesh welding machine	1 set
7	Mesh tensioning system	1 set
8	Mesh cutting machine	1 set
9	Mesh stacking system	1 set
10	Rolled mesh system	28M
11	Fully automatic longitudinal wire feeding system	1 set
12	Automatic wire straightening and cutting machine	1 set
13	Butt welding machine	1 set
14	Pressure tower with cooling function	1 set
15	Including cables from the welding equipment to the control cabinets. Cables from the factory transformer to the control cabinet. Control cabinets should be supplied by the purchaser.	

Power supply requirements

For single-pass welding, the power supply capacity should be at least 1000 kVA.

Air pressure requirements

The air compressor capacity should be at least 6 m³/min, and the rated outlet pressure should be at least 0.8 MPa. An air tank with a capacity of at least 1 m³ and a pressure of 0.9 MPa must be placed next to the welding equipment. W0194Z Production line 960,000 PLN NET

The air compressor's capacity should be no less than 4 m³/min, and its rated outlet pressure

The pressure should not be lower than 0.8 MPa. The gas cylinder should be positioned next to the welding equipment; its capacity should not be less than 1 m³, and the pressure should be 0.9 MPa.

Requirements for the water supply It is recommended to use a recirculating cooling system, with a tank capacity of not less than 10 m³, a pump head of approximately 15 m, and a flow rate greater than 250 l/min.

Workforce requirements: Total: 4 people, one to operate the controller, one to feed the wire, and the other two to periodically unload the sheets.

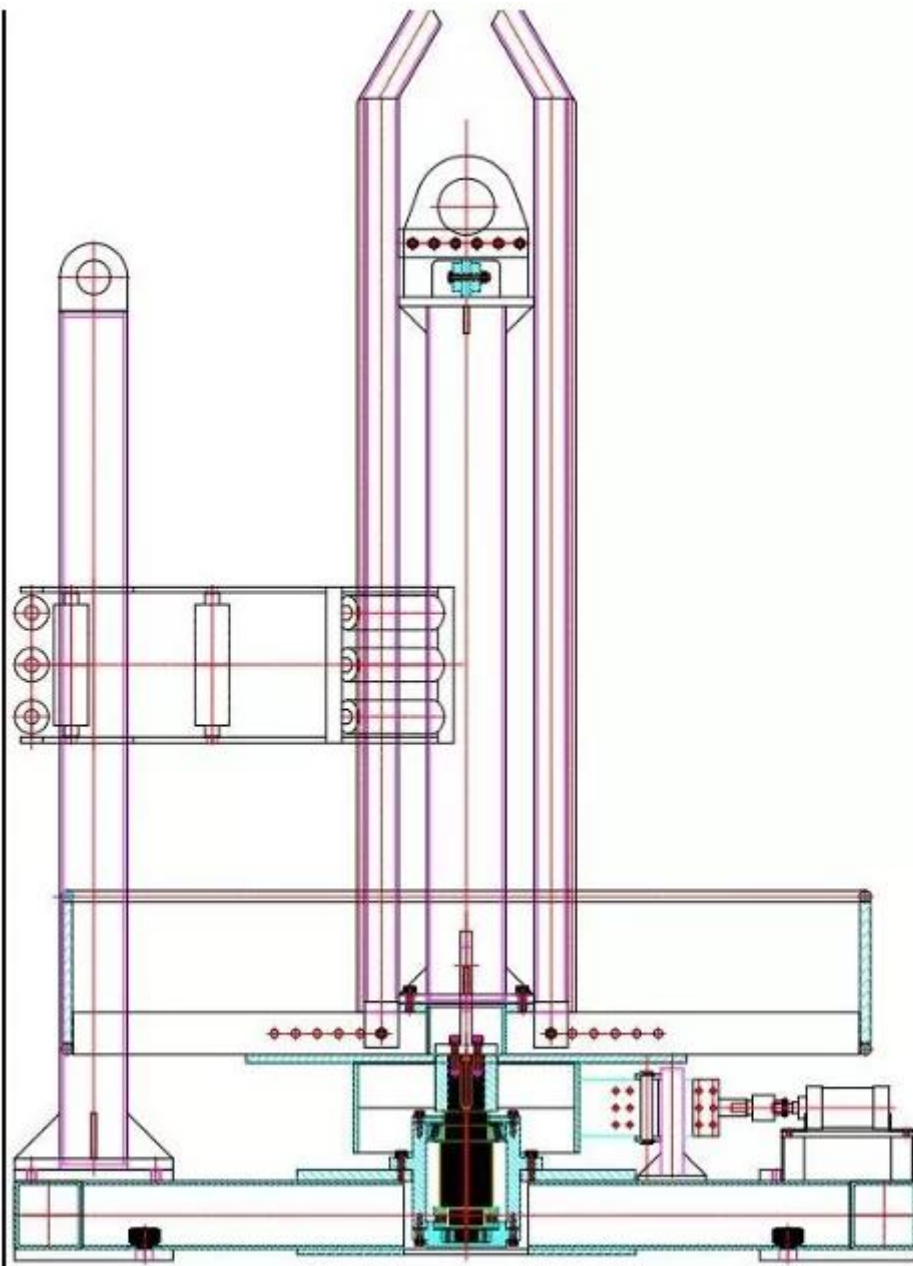
Site requirements: Machine dimensions: 65 m (L) × 8 m (W) × 3 m (H); additional space is required for the wire and the finished mesh.



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Diameter	Materials (g/m)	Speed (min ¹)	Output (kg/min)	Output (t/h)
Ø5	154	50	37	2.22
Ø6	222	45	48	2.88
Ø8	394	40	75	4.5
Ø10	616	35	103	6.1
Ø12	888	30	128	7.5

2. List of equipment .1 Wire unwinder



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Wire decoilers (linear wires from a coil/load for each: 2000 kg)

Inner diameter (ID): 388–768 mm I

Outer diameter (OD): 1400 mm

Steel wire coils: 2000 kg



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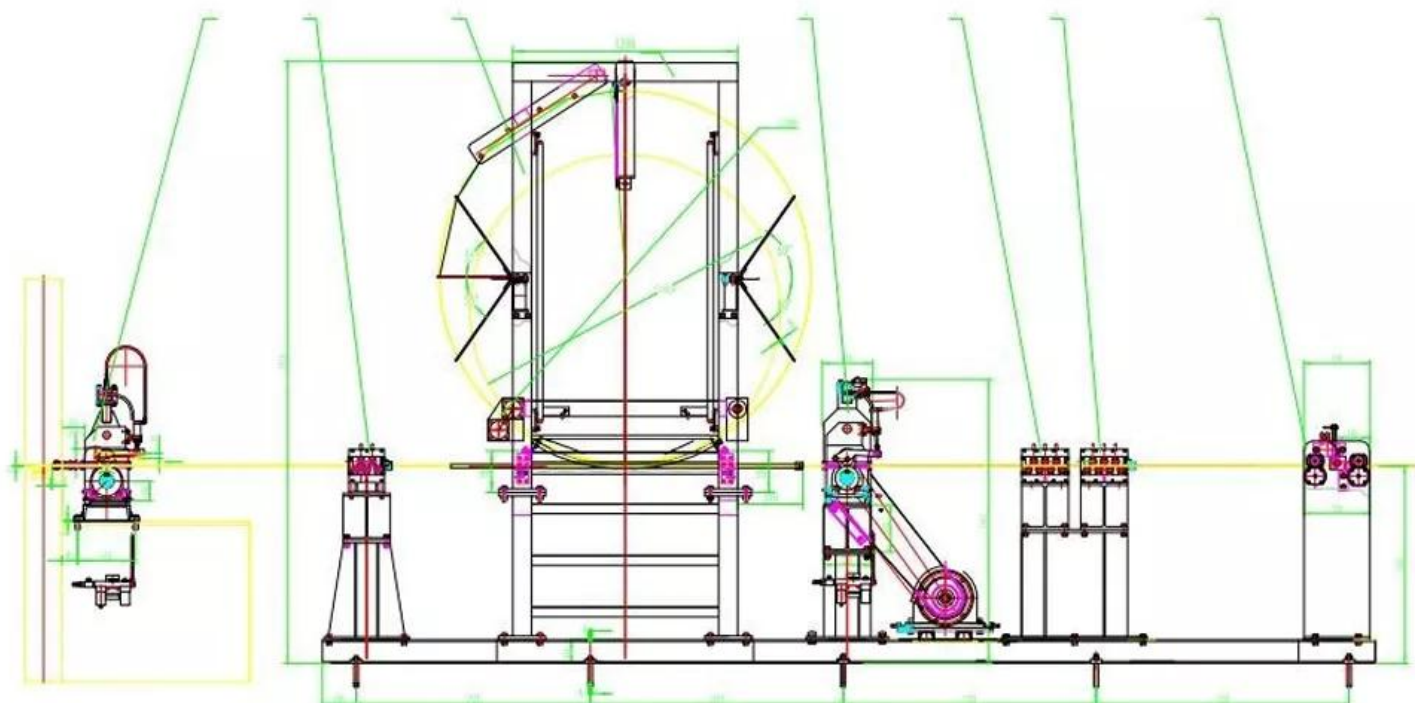
Weight of each decoiler: 750 kg Overall dimensions: 1.6 m × 1.6 m × 2.2 m (length × width × height).

2.2 Device for straightening and feeding straight wire

Straightening and feeding unit for continuous wire The continuous wire straightening unit is situated between the loading reel and the storage rack. It is used to straighten linear wire prior to welding and to straighten linear wire fed from the storage rack. The wire straightening and feeding unit consists of a guide unit, a vertical straightening unit, a horizontal straightening unit, a pneumatic unit, a clamping unit and a drive unit. The loading reel feeds the continuous wire individually through the guide of the guide unit so that the position and direction of the continuous wire correspond to the centre line of the vertical straightening unit, the horizontal straightening unit, and the other straightening units. The vertical straightening unit comprises 30 sets of straightening wheels, each consisting of a fixed wheel frame and a movable wheel frame, with the fixed wheel frame positioned above and the movable wheel frame below. The 30 groups of movable wheel frames are centrally controlled for lifting by means of a diagonal unit. During lowering, this facilitates reeling; during lifting, the reinforced beam must be pressed down firmly to achieve the straightening effect. The clamping force required to achieve the straightening effect does not require excessive pulling force, which helps to minimise unnecessary damage to machinery and energy consumption. The horizontal straightening unit consists of 3 rows of fixed rollers and 2 rows of movable rollers; each row containing 30 straightening rollers, enabling centralised control of the movable rollers and the movement of the fixed rollers towards and away from each other, which facilitates wire feeding and, when the rollers are brought together, presses the reinforcing bars to achieve the straightening effect. The clamping force should be such that the straightening effect is achieved without the need to apply excessive tensile force. The feeding section comprises a clamping device, a pneumatic device, a roller assembly and a feeding drive unit. The feeding section provides traction for the straightening section and guides the straightened reinforcing bar to the storage rack. The motor transmits power to the drive wheel via a gearbox; the wire is positioned between the drive wheel and the pressure wheel, and once the cylinder force is increased via a lever, the pressure wheel exerts sufficient pressure on the wire against the drive wheel, generating enough force to overcome the straightening resistance and feeding resistance.

The working pressure of the cylinder is 0.3–0.7 MPa, and the drive motor has a power of 5.5 kW. The cylinder's operation is controlled by control cabinets.

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All steel structures are hardened by heat treatment



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Equipment for straightening continuous wire.

Wire diameter: $\varnothing$ 5 mm – $\varnothing$ 12 mm.

The wire diameter can be changed without having to replace the straightening rollers.

Overall dimensions: 2.8 m $\times$ 3.2 m $\times$ 1.2 m (length $\times$ width $\times$ height),

Weight: 7,000 kg

2.3 Linear wire feeding system



A total of 30 linear wire tensioning system sets

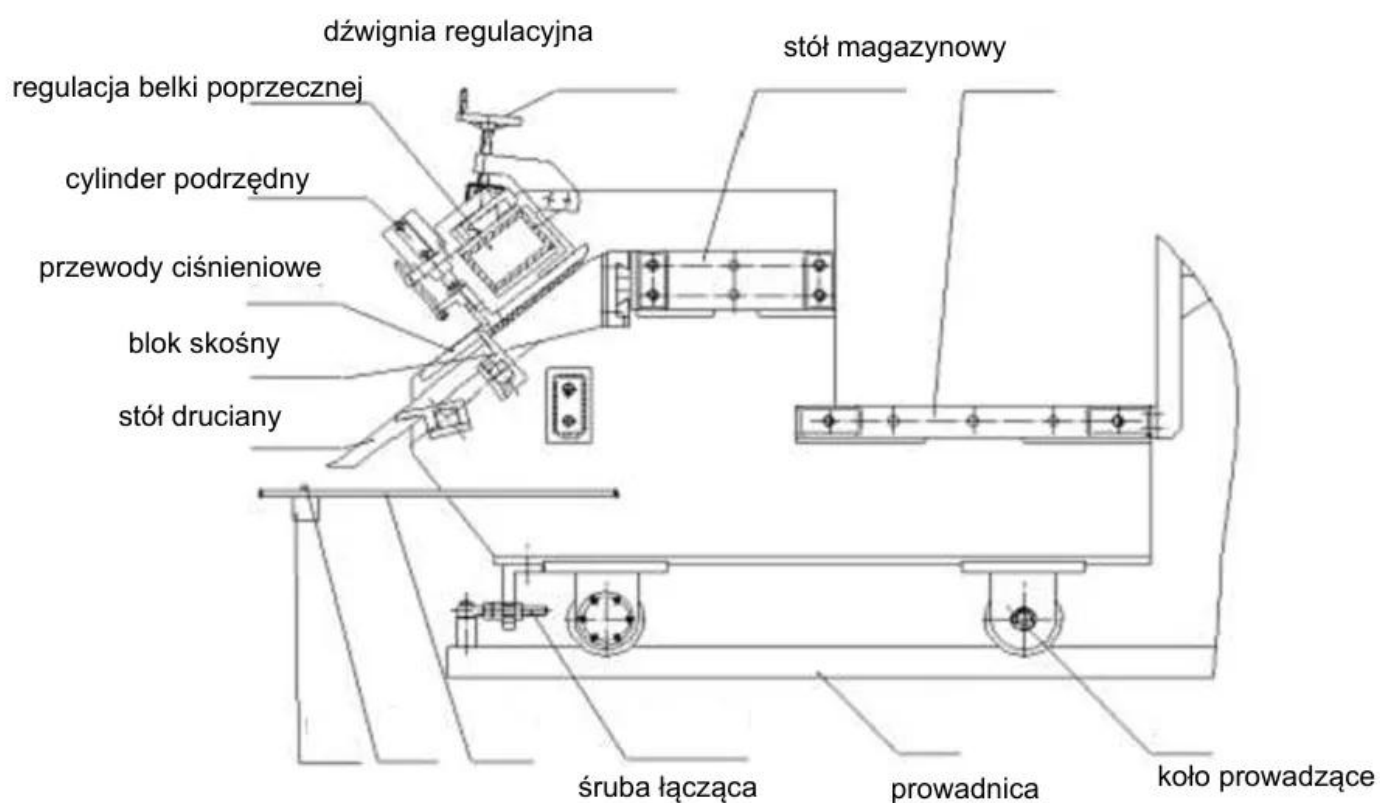
Each set can be controlled separately

All pneumatic components of the accumulator use branded systems, which facilitates their replacement and maintenance.

2.5 Cross-wire feeding device

The cross-wire cutting mechanism is installed above the mesh pulling system, which consists of the first cross-wire magazine, a platform for laying the cross-wire material, and a branching and removal mechanism. The branching and removal movement is performed by a pneumatic cylinder, operating in accordance with a set programme. The cross-wire cutting mechanism is the main component of the welding machine, and the speed at which the cross-wires are branched off, as well as the smoothness of this process, are key factors affecting the welding speed of the machine.

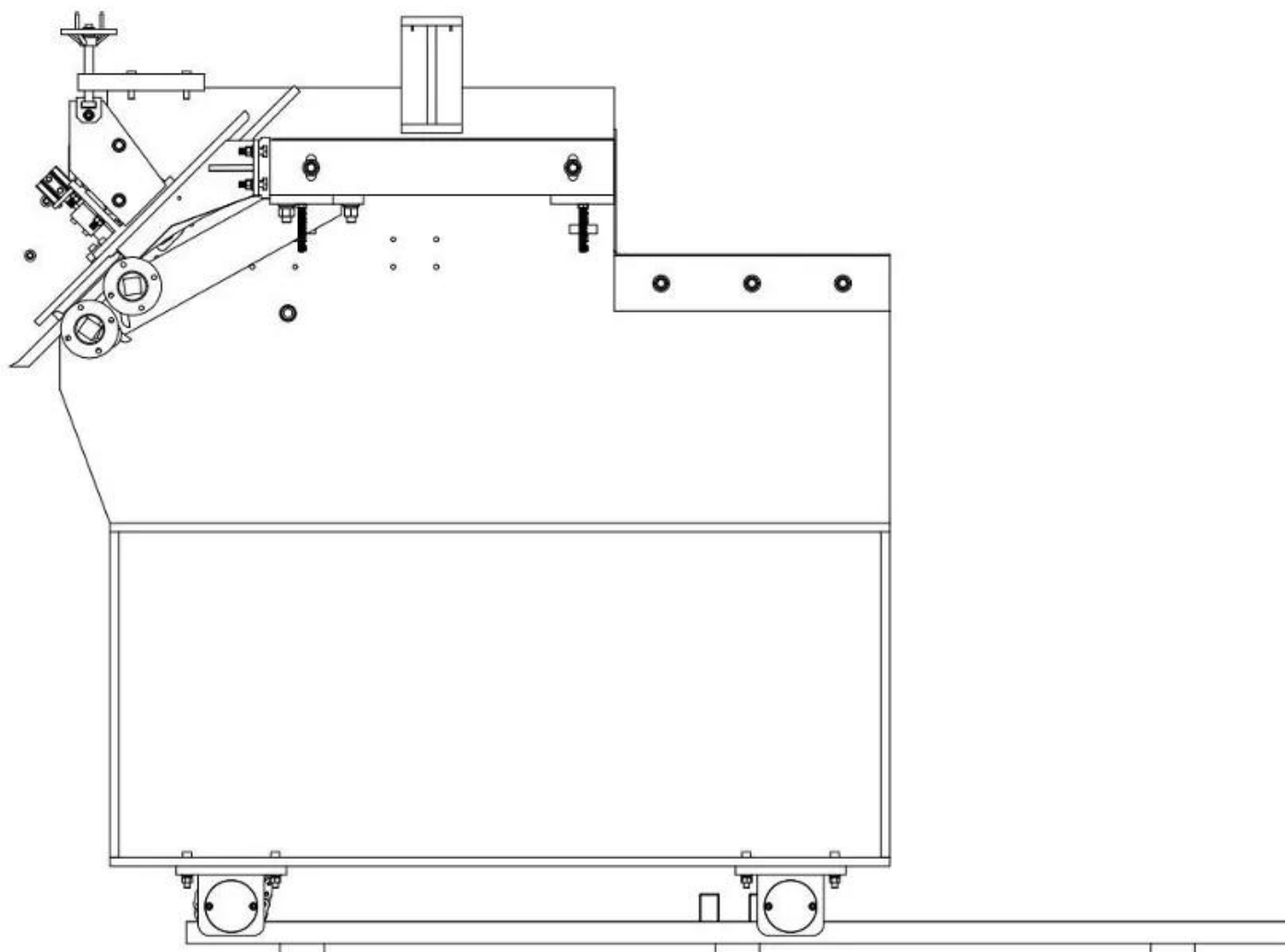
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Feeding and storage system for cross-bars



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The cross-bars stored on the storage platform are arranged in an inclined slide chute, along which groups of separating needles are positioned. Two groups of distribution needles are controlled by a distribution actuator and move up and down along the normal direction of the slide chute. In accordance with the set procedure, the actuators work together to ensure accurate separation of the cross-bars.

The position of the pressure line and the branching needles must be adjusted during the first welding

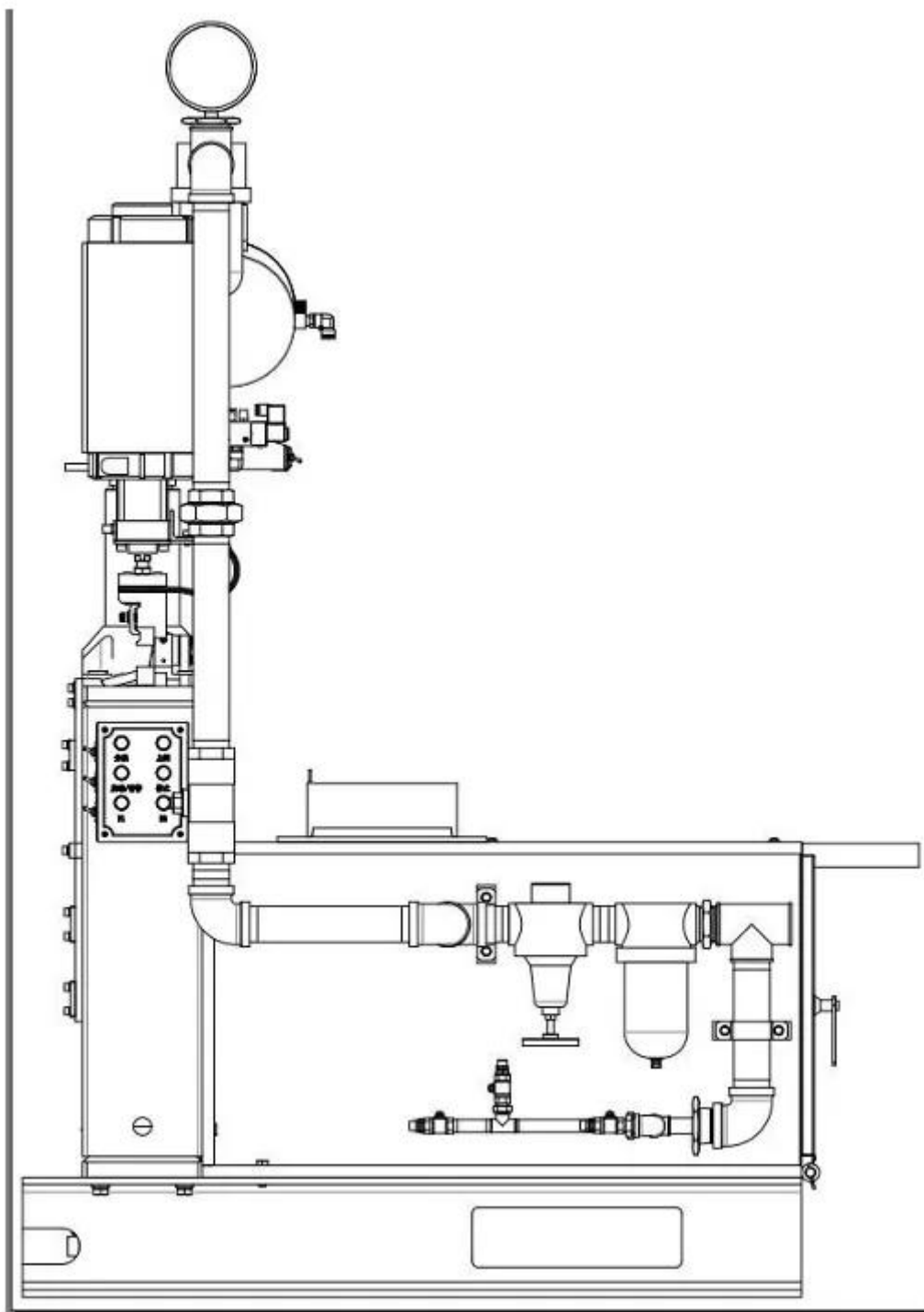
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operation. Adjustment of the clamping line involves loosening the clamping line and adjusting the beam fixing bolt. The distance between the clamping line and the punching stand must be adjusted so that it is 1–2 mm greater than the diameter of the cross-beam to be welded, and bear in mind that the distance between the pressure line and the punching stand should be the same at the top and bottom; it is not permissible for this distance to be greater at the top and smaller at the bottom, or smaller at the top and greater at the bottom; the bolt should then be tightened.

2.6 Welding system



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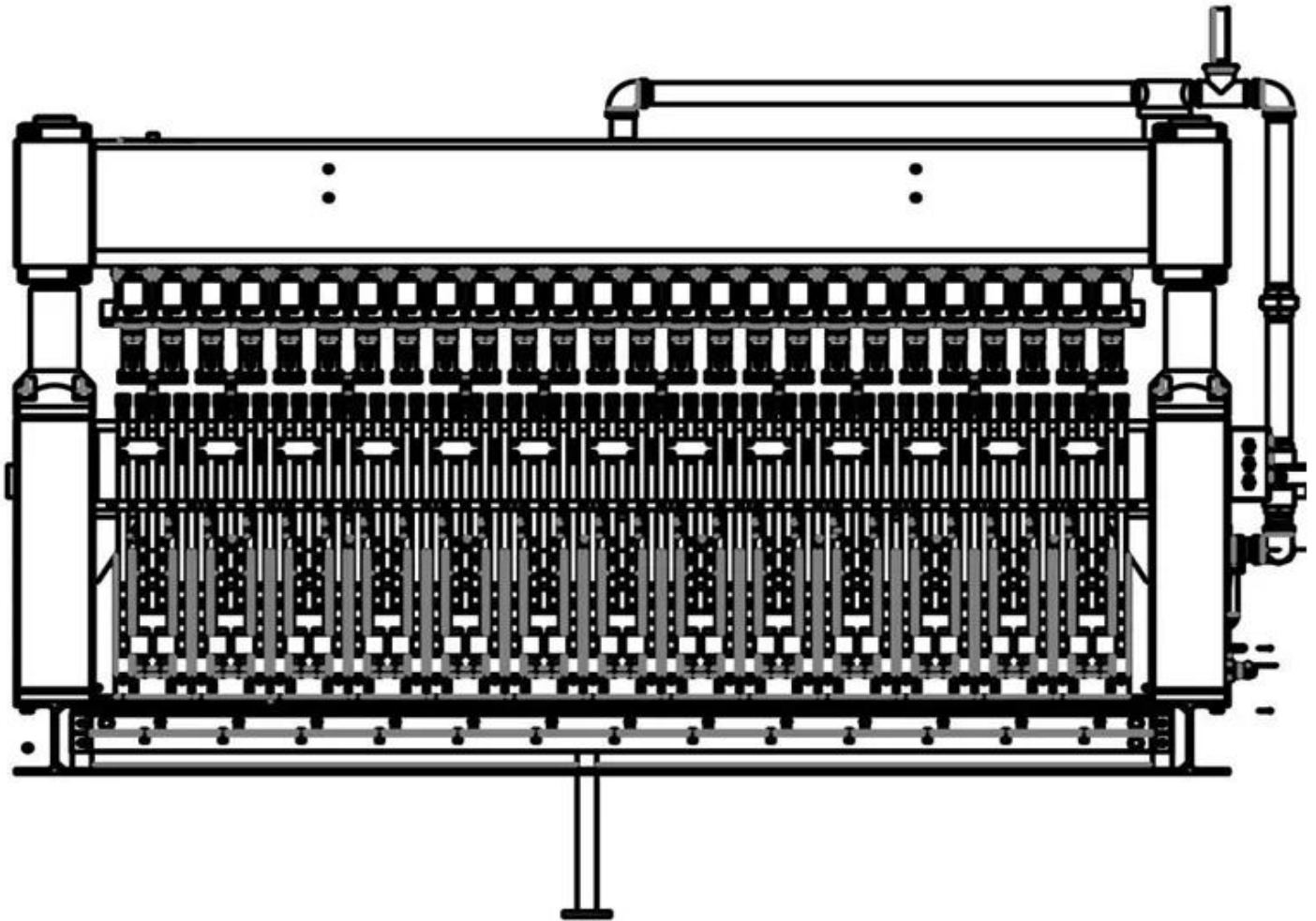
Side view

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Rear view

Diameter	100×100	100×150	100×200	200×200	200×150	200×100
Φ 5	2263.8 kg/h	2841.3 kg/h	3418.8 kg/h	2310 kg/h	2009.7 kg/h	1709.4 kg/h
Φ 6	2937.06 kg/h	3686.34 kg/h	4435.56 kg/h	2997 kg/h	2607.42 kg/h	2217.78 kg/h
Φ 8	4633.44 kg/h	5815.44 kg/h	6,997.44 kg/h	4,728 kg/h	4,113.36 kg/h	3,498.72 kg/h
Φ 10	6338.64 kg/h	7955.64 kg/h	9572.64 kg/h	6468 kg/h	5627.1 kg/h	4786.32 kg/h
Φ 12	7832.16 kg/h	9830.16 kg/h	11828.16 kg/h	7,992 kg/h	6,953.04 kg/h	5,914.08 kg/h



Wire spacing: 100×100 mm, adjustable as required.

Wire mesh welding machine with stepless adjustment of transverse and longitudinal wire spacing; longitudinal wire spacing is adjusted manually; transverse wire spacing is adjusted via an electrical control cabinet.

The welding system is designed for smooth and ribbed wire.

Parameter	Value
Max. mesh width (transverse wire length)	3000 mm
Wire spacing	100 mm, freely programmable spacing
Cross-wire spacing	100 × 100 mm, 150 × 150 mm, 200 × 200 mm
Line wire diameter and feed	Φ5–Φ12 mm, from a spool
Transverse wire diameter and feed	Φ5–Φ12 mm, PRECUT
Number of transformers	15 × 125 kVA

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Parameter	Value
Max. welding speed	60–70 passes/min
Air consumption	≥ 0.8 MPa, 2 m ³ /min
Cooling water consumption	≥ 0.3 MPa, 3 m ³ /min
Overall machine dimensions	4.1 × 1.2 × 2.5 m (L × W × H)
Air compressor requirements	Min. 0.7 MPa, 4 m ³ /min
Cooling water requirements	Min. 0.2 MPa, 2 m ³ /min
Total machine weight	7000 kg

Parameter	Value
Number of welding transformers	12
Number of pneumatic cylinders (welding press)	12
Number of electrodes	24
Electrical power of the welding transformer	15 × 125 kVA, 380 V / 50 Hz / 3-phase
Compressed air consumption	≥ 4 m ³ /min



German Siemens 1 control unit

PLC servo control unit and

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Siemens display

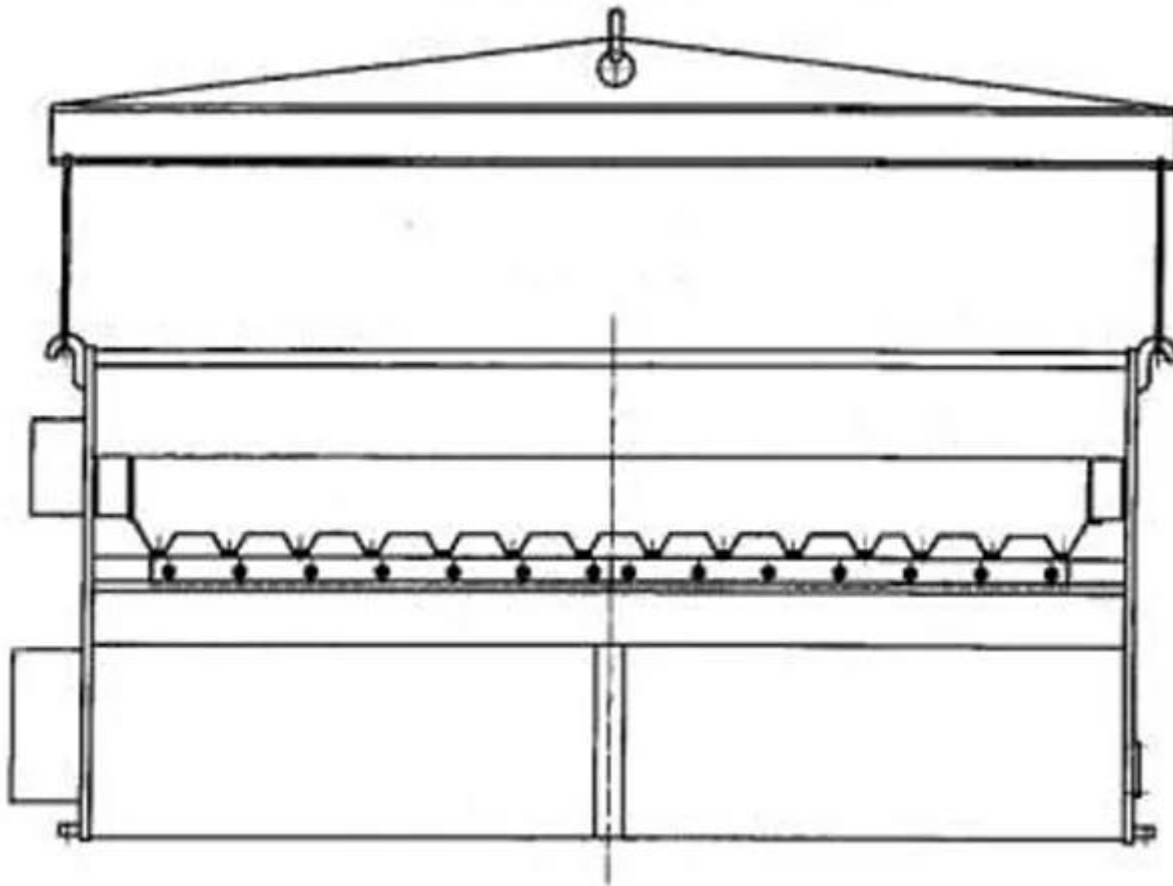
Other electrical components from OMRON

Control language: English, with touchscreen

2.9 Wire mesh cutting machine



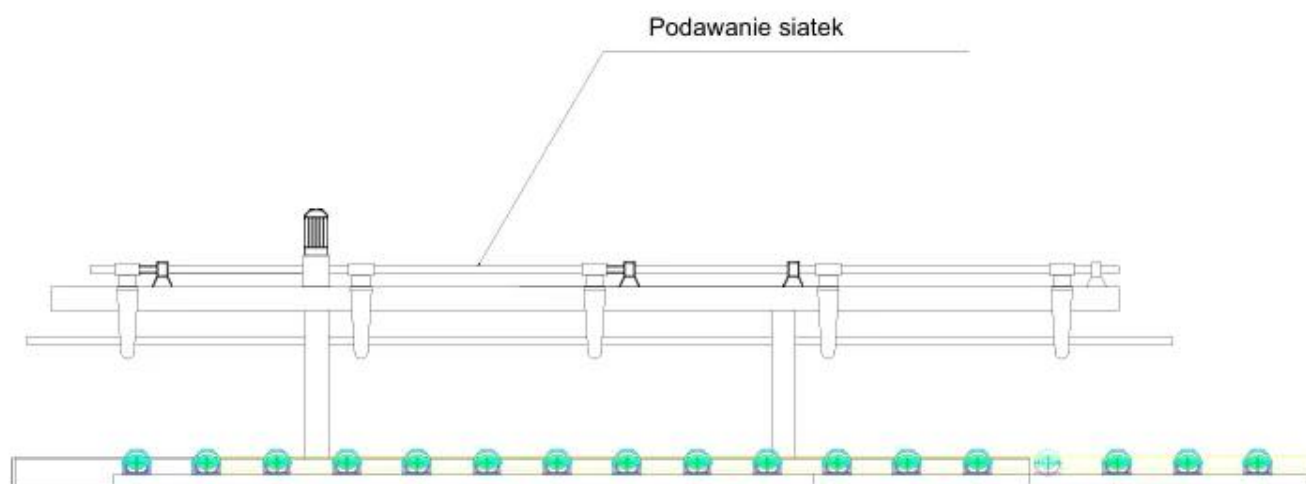
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Parameter	Value
Cutting speed	50 times/min
Cutting capacity	12 mm + 12 mm
Mesh cutting	automatic
Mesh cutting width	2500 mm
Mesh cutting type	mechanical
Overall dimensions	3.2 × 1 × 1.6 m (L × W × H)
Weight	5000 kg

2.10 Sheet collection table

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Parameter	Value
Maximum sheet length	14,000 mm
Maximum sheet weight	1,000 kg
Feed type	pneumatic

2.11 Sliding table with mesh

ROLLER CONVEYOR FOR MESH

Podajnik rolkowy dla siatki



Parameter	Value
Movable mesh table – length	28 m × 2.4 m
Roller diameter	120 mm
Motor	5.5 kW
Weight	5 tonnes
Overall dimensions	24 × 3.2 × 2.2 m (L × W × H)

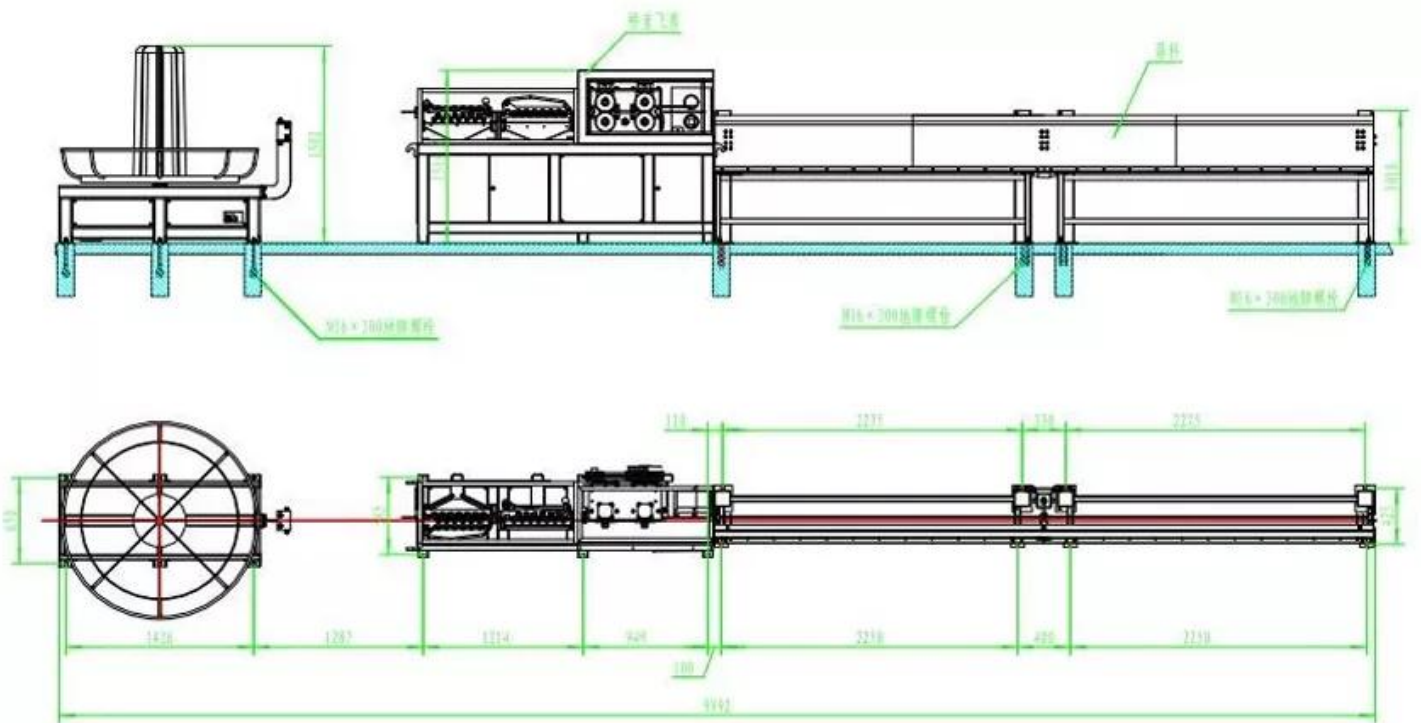


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No.	Name	Quantity
1	Wire drop piston	1
2	Diffusion piston	1
3	Solenoid valve 1	1
4	Solenoid valve 2	1
5	Switch	1
6	Fast-acting fuse	2
7	Water valve	1
8	Microswitch	1
9	Touch switch	1
10	Key switch	5
11	Round magnet	5
12	Phosphorus clip	5
13	Electrode	6
14	Top electrode / copper tape	2
15	Copper transformer strip	2
16	Square metre	1
17	Square metre 2	1
18	Quick connector	1
19	Quick connector 2	1
20	Quick-connect 3	1
21	Quick-connect 1/4"	1
22	1/8"	1
23	Oil	1
24	Electronic card	1

2.12 High-performance wire straightening and cutting machine

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This high-speed straightening and cutting machine is suitable for cutting and straightening wire in coils, hot-rolled bars and cold-rolled ribbed steel; it does not cause scratches to the ribs and is characterised by tight cutting tolerances, good straightness, ease of operation and high productivity. The machine mainly consists of an uncoiler, a straightening unit (double traction, chain drive), a flying-wheel cutter, an electrical cabinet and a 12-metre collection rack.

Ribbed wire diameter: 5–12 mm Material: HRB335 hot-rolled steel bars; deformed and smooth wire Speed: max. 160 m/min Cutting length: 1–12 m Straightening tolerance: ≤ 2 mm/m Cutting length tolerance: ≤ 2 mm with approximate switch Total power: 22 kW

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The high-speed straightening and cutting machine is suitable for cutting and straightening wire in coils, hot-rolled bars and cold-rolled ribbed steel; it does not cause scratches to the ribs and is characterised by tight cutting tolerances, good straightness, ease of operation and high efficiency. The machine consists mainly of a decoiler, a straightening machine (double traction, chain drive), a flying-wheel cutter, an electrical cabinet and a 12-metre collection rack.

Parameter	Value
Ribbed wire diameter	5–12 mm
Material	HRB335 hot-rolled steel bars; deformed and smooth wire
Speed	max. 160 m/min
Cutting length	1–12 m
Straightening tolerance	≤ 2 mm/m
Cutting length tolerance	≤ 2 mm
Total power	22 kW
Total weight	3500 kg
Machine dimensions	17 × 2 × 2 m (L × W × H)

Cooling tower

Parameter	Value
Equipment	Air compressor
Model	LG-6/7
Outlet pressure	0.7 MPa
Shaft power	6.0 kW
Capacity	36.0 m ³ /min
Electric motor power	37 kW
Rotational speed	1050 rpm



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Parameter	Value
Weight	4,300 kg
External dimensions	1,300 × 1,100 × 1,660 mm