Specification of Q6922 Roller Conveyor Shot Blasting Machine

Part I Processed workpieces and parameters

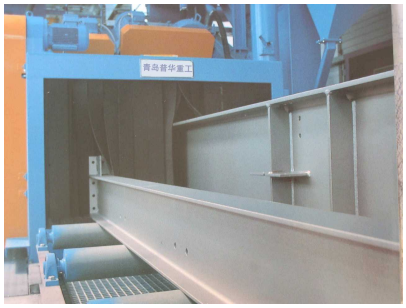
1	Max. Workpiece size (L*W*T)	Steel plate: 12000*2000*(4-30) mm; profile: 500 mm height
2	Chamber open size (W*H)	2200*700 mm
3	Max. Workpiece weight	6 T
4	Finish level	Can achieve Sa2.5-3.0 (GB8923-88)
5	Processing speed	0.5-1.0 m/min (According A-D grade degree of corrosion of original workpiece surface and workpiece diameter size use the stepless frequency conversion variable speed)
6	Surface roughness	30~85 μ (Depend on abrasive size)
7	Suggest abrasive	Steel cut wire, casting alloy shot: Φ0.5~1.5, abrasive supply valve max. flow: 500 kg/min. Abrasive loss: 0.15-0.25 kg/h/pcs. First loading: 3000 kg.
8	Electric power supply	380V, 3P, 50HZ
9	Pit requirement	Waterproof

Part II Technical data of Q6922 shot blasting machine

1	**Roller conveyor system**	Reducer power	2*3 kw
		Roller conveyor length	Inlet and outlet 12 meter each
		Roller diameter	121 mm
		Loading capacity	1000 kg/m
		Roller separation distance	400-800 mm
		Transporting speed	0.1-6 m/min (Frequency control)
2	**Shot blasting system**	Blasting chamber	Material of protective area: Mn13
			Material of the chamber: Q235
		Auxiliary chamber	With rubber curtains for sealing the abrasive flying out of the chamber
		Blasting wheel with inverter	Quantity: 8 units
			Blade structure: Straight line
			Blasting capacity: 8*250 kg/min
			Power: 8*15 kw
			Speed: 76 m/s
3	**Abrasive reclaim system**	Screw conveyor	Conveying capacity: 120 T/H Screw diameter: 320 mm Power: 2*5.5 kw Quantity: 2 set
		Bucket elevator	Lifting capacity: 120 T/H Lifting speed: 1.21 m/s Power: 7.5 kw Quantity: 1 set
			Quantity of separation: 120 T/H

		Separator	Air speed: 4-5 m/s Waste content: ≤1% (Full curtain and flow curtain type multistage winnowing) Power: 5.5 kw Quantity: 1 set
4	**Dust removal system**	Filtering material	Polyester coated fitter cartridge
		Quantity	One set
		Fan power	2*18.5 kw
		Total pressure	1892 pa
		Ventilation volume	37000 m^3/h
		Cartridge quantity	30 pcs
		Filtering area	660 m^2
		Dust falling way	Automatic back pulse
		Filtering accuracy	1 μm
		Back Pulse Quantity	6 pcs
		Dust emission level	≤90 mg/m^3
5	**Sweeping system**	Rolling unit	Rolling brush diameter: 900 mm Motor power: 3 kw Quantity: 1 set
		Abrasive unloading screw	Conveying capacity: 30 T/H Motor power: 2.2 kw Quantity: 1 set
		Strong blowing unit	Total pressure: 5180 pa Air volume: 6762 m^3/h Power: 15 kw Quantity: 1 set
		Lifting mode	Lifting height: 500 mm Power: 3 kw Quantity: 1 set
6	**Electric control system**	PLC, one-button operation system, cables, low-voltage electric, automatic fault detection alarm, etc.	
7	**Noise**	≤85 dB (Measure outside workshop)	
8	**Others**	Air pressure: 0.5-0.7 Mpa	
9	**Total electric power**	About 215 kw	
10	**Production time**	50 workdays	

Part Ⅲ Reference picture of roller conveyor shot blasting machine

Pictures	
	

Part Ⅳ Installation and After-sales Policies

4.1 Production and Delivery

Production is 50 workdays for the Q6922 shot blasting machine against the down payment received.

4.2 Installation, Commissioning, Training and Acceptance

- Zhiling will send one engineer to buyer's factory to supervise installation.

- Zhiling should provide training to buyer's relevant employee.
- Zhiling should test the machine to reach surface requirements indicated in the technical parameter.

- Buyer should afford the visa, insurance, flight tickets, transportation, hotel and meals.
- Buyer should provide finished pits according to drawing by Zhiling, necessary labor workers, and necessary

tools, facilities, and powers.

- Buyer should pay each engineer USD150 per day as salary. The date will be countered from the date when the engineer departure from Buyer's factory. All the holidays and weekends will be included.
- Buyer should sign on the "***Q6922 Testing and acceptance agreement***" after the successful trial.

4.3 After-sales Service

- One year guarantee time. Easily worn parts and spare parts are not included. (*stated in Q6922*)
- Extended guarantee will be available basted on mutual negotiation.
- Whole-life technical support. Any problem during using appears, will reply within 8 working hours with technical solution.
- Wear parts and spare parts will be available through the machine life. (stated in Q6922)

Part Ⅴ Technical specification of Q6922 shot blasting machine

5.1. Application

Q69 shot blasting machine is a specially designed machine used in the surface cleaning for various jobs. It can realize the shot blasting automatically.

5. 2 Components and function

Q6922 shot blasting machine consists of roller conveyor system, blasting system, abrasive circulation system (separator, bucket elevator, screw conveyor), dust collection system, sweeping unit and electric control system. The surface finish level is Sa2.5.

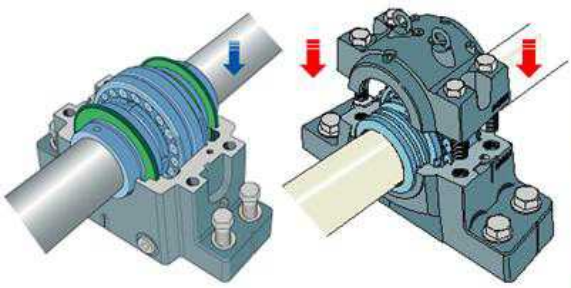
5.2.1 Conveyor system

It consists of loading and unloading rollers, chamber rollers, connecting rollers.

● Rollers in the blasting cabinet are protected by special alloy jacket with lifetime over 4,000 hours.

● Conveyor system is driven by motors with inverter. Rollers can be controlled manually and automatically.

● Step-less speed is available. Roller conveyor could move in step with the whole machine or move faster.



5.2.2 Shot blasting system

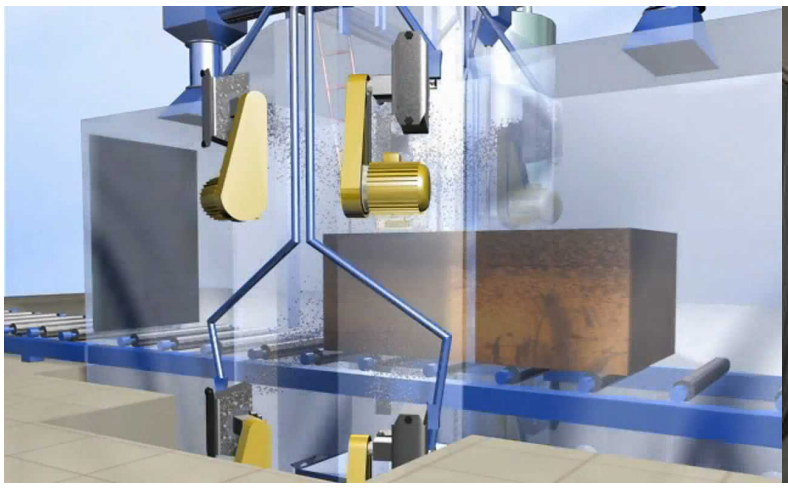
Shot blasting system consists of auxiliary chambers, blasting chamber and shot blasting machine assembly. The

abrasive media like the steel shots, grits are applied on the metal surface driven by the centrifugal force from the blades. Workpieces will be de-rusted, cleaned and roughened in blasting system to reach customer's finishing level.

5.2.2.1 Auxiliary chamber

There are 5-7 layers of wear-resisting rubber curtain in it. The suspension type makes the exchange and access easier. The seal ability is excellent. No dust would be leaked out because of the negative pressure formed by the dust collector fan.

5.2.2.2 Blasting chamber



In the blasting chamber, the wall is protected by Mn13 material liner, which has high wear resistant performance. Chamber inside protection plate all adopt the high strength nut fixed and pressure on the inner of blasting chamber, easy tear open outfit replacement. Prolong service life, reduce the cost and reduce maintenance frequency.
The steel grilling floor of blasting chamber can let abrasive fall through it freely and collected by screw conveyor.

5.2.2.3 Shot blasting machine assembly

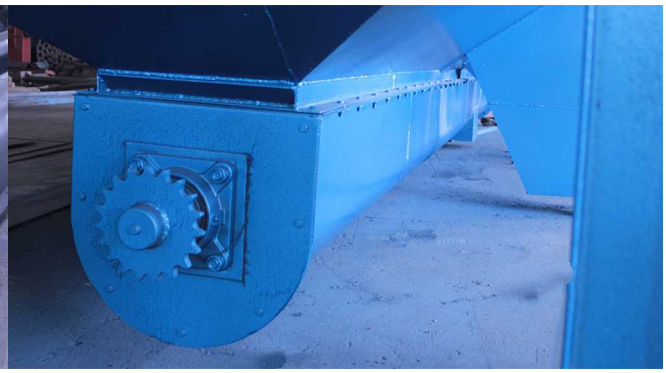
This machine has 8 set of high speed & performance blast wheels. One blast wheel has eight blades. It takes 5 to 10 minutes to replace 8 pieces of blades. Material of blades, directional sleeve and shot separating wheel is high chromium cast iron, which has long service life. Generally speaking, lifetime of blade is over 800 hours, and lifetime of directional sleeve and shot separating wheel is over 1200 hours. All wear parts are the market most universal national standard parts.

5.2.3 Abrasive circulation system

The system includes following parts: hopper, abrasive flow pipe, abrasive control valves, screw conveyors, bucket elevator, separator.

5.2.3.1 Screw conveyor

Screw conveyor consists of decelerator, screw axis, conveyor shell, bearing, etc. It is standard transverse conveying device, an important part of abrasive circulating system. The screwing blade is made of 16Mn.



This unit is responsible for the abrasive delivered to the elevator. Screw conveyor located at the bottom of shot blasting chamber, the spiral blade welding in the drive shaft. Conveyor motor through reducer drive rotary screw conveyor, send abrasive to discharge outlet, then the mixed abrasive will be collected to elevator bottom.

On both ends of the screw conveyor adopts triple seal protection, plus labyrinth seal cover in the interior of the end plate, middle with oil seal protection, end plate external insulate bearing and end plate. Once the abrasive and dust out, will drop from the end plate and bearing clearance, will not enter the bearing. Screw conveyor shaft with sensors detecting means, can detect the working state.Once the shaft does not turn or other faults, can timely feedback to the PLC signal processing, and through the alarm alarm, ensure the safe operation of the equipment.

5.2.3.2 Bucket elevator

● Housing of bucket elevator is welded of steel plate.

There is a checking door for maintenance and replacing buckets at the bottom of the housing.

● The buckets are screwed to rubber belt which is stretched between two pulleys.

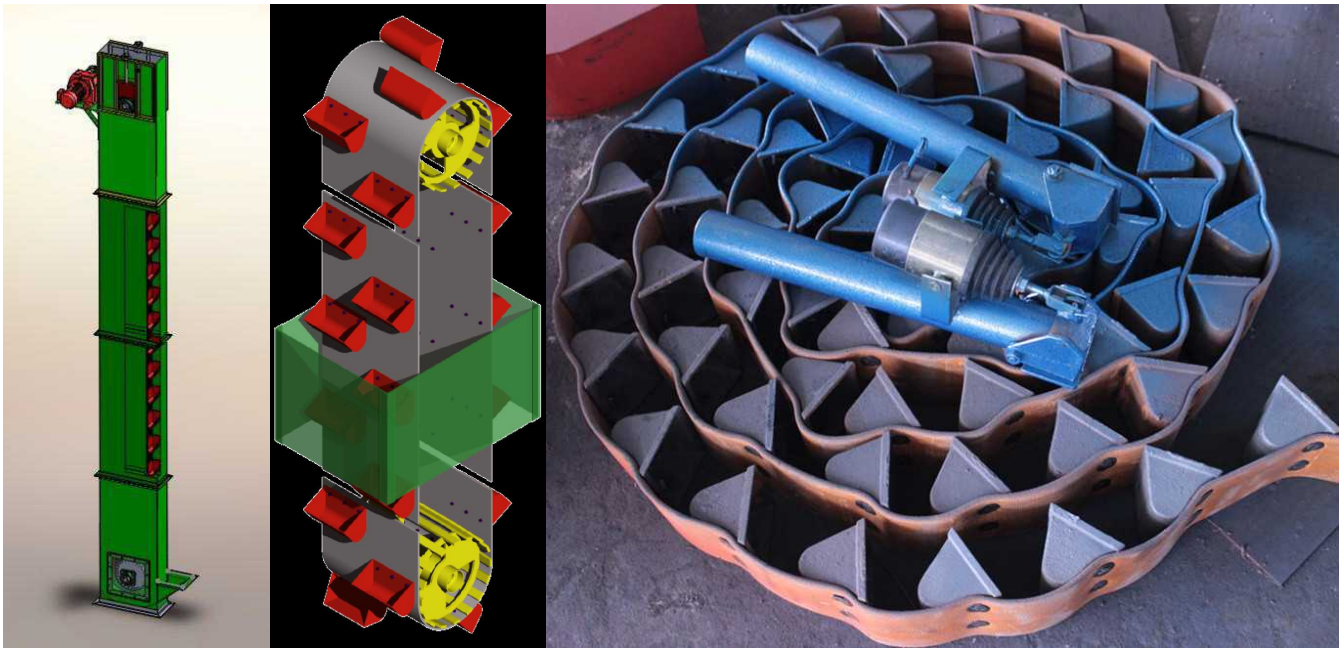
Belt material: Polyester.

● Consists of decelerator, upper and bottom barrel, belt, bucket and tensioning device, etc

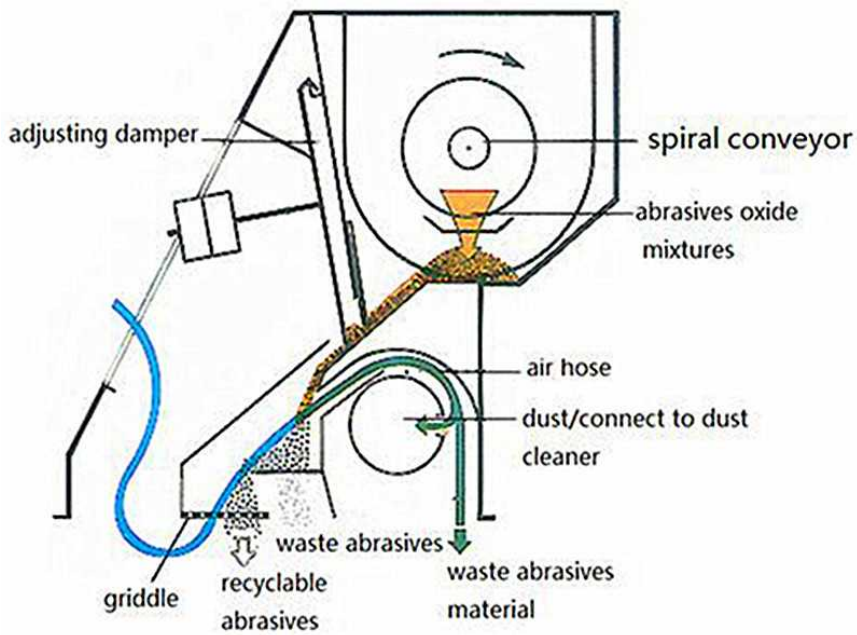
In operation, the hopper fixed on the conveyor belt sweeps the abrasive on the bottom, and send abrasive to the top, then by way of gravity centrifugation blanking. Using polyester wire core special belt, high strength, high tensile properties. Pulley using squirrel cage structure, middle is slightly raised, each spokes are processed by machining chamfering.

Both to improve the promotion of friction between the belt and pulley, avoiding the old-fashioned light pulley slipping and sliding belt pulley on the injury, also reduces the lifting belt preload, extend the life; while avoiding scattered grit embed between the pulley and belt, affecting transmission.

Lifting capacity leaves 10% margin. Because the elevator blank by way of centrifugal gravity. Each time blanking, there will always be part of the abrasive down to the elevator, and therefore need appropriate to increase the lifting amount. With sensors detecting apparatus on the lower part of the elevator shaft, can detect the working state of elevator belt. Once the lifting belt loosening and other failure, can timely feed back to the PLC signal processing, and through the alarm alarm, ensure the safe operation of the equipment.

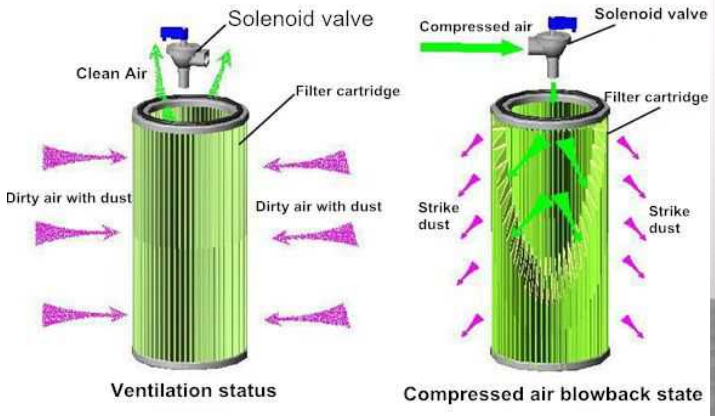


5.2.3.3 Separator

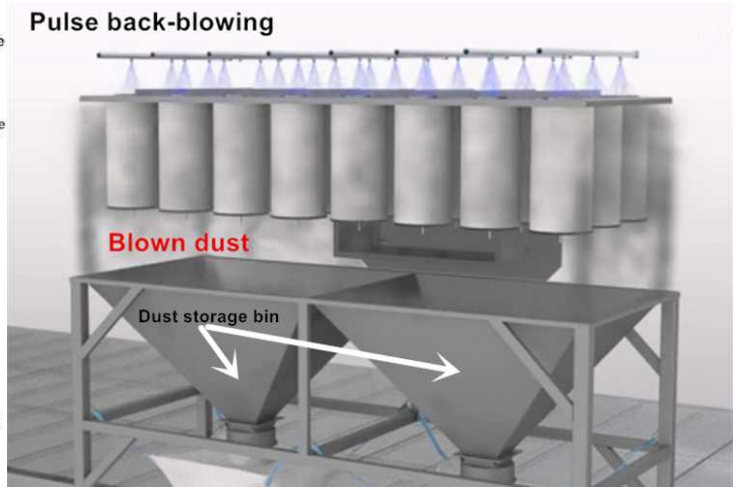


5.2.4 Dust removal system

The dust removal system consists of ducting system and filter cartridge dust collector. The emission standard can be lower 50 g/m^3. It is stable and easy operation, low noise, high efficiency and easy maintenance. The the blower power 37 kw, ventilation quantity is 37000 m^3/h. Pulse blowback dust removing, cartridge can be easily removed for cleaning then re-use.



Filter cartridge dust removal operating principle



5.2.5 Electric control system

● The program of the PLC is modular and can be edited.

● Two operating ways are available: manual and automatic.

● Alarm device and overload protection device are available.

The electrical control system for three-phase AC frequency 50 HZ voltage 380 V power distribution.

The machine electrical system has the following features:

The blast wheel, maintenance door, abrasive controller and abrasive circulation system are equipped with electric interlock and self-locking system to ensure the reliable operation of the equipment and the safety of operators.

This system's blast wheel running conditions adopts the ammeter monitoring control, on the one hand, can through the ammeter to protect blast wheel, on the other hand can monitor the blast of the empty cast, the phenomenon such as jam, in order to adjust the equipment working state.

Pulse detector:

Pulse detector is installed in the screw spindle nose of abrasive separator, driven pulley spindle nose of elevator and spindle nose of each screw conveyor.

Composition: ◆Proximity switches; ❖Sensors semicircular iron.

Cause:

For the elevator, the biggest cause of failure is due to belt slippage caused by loose.

For screw conveyor: may be⁂◆ overloaded (abrasive blockage), ⁂❖motor thermal protection.

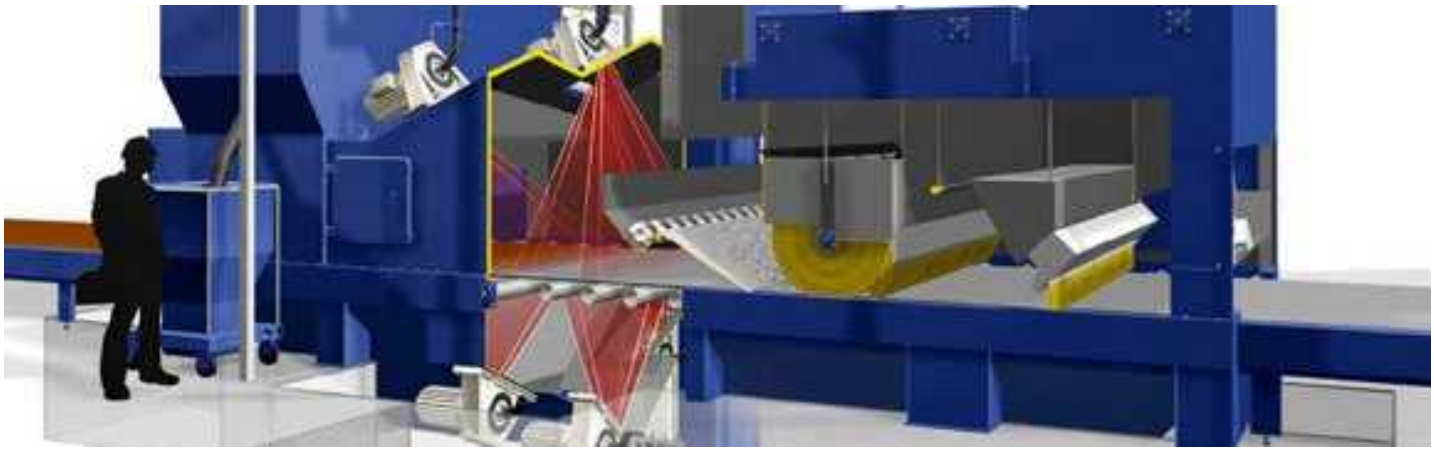
5.2.6 Sweeping system

In order to recover the abrasive on the steel plate, we use three steps to achieve best effect.

First level scraper to recycle the abrasive;

Second level rolling sweep use high strength nylon roller brush + recovery screw;

Three level air flow use high pressure fan to blow abrasive twice.



(For reference only)

Part Ⅵ Main function parts and purchased parts manufacturer

The components name	Manufacturers	Place of origin
Blasting assembly	Qingdao Zhiling Machinery Co., Ltd	Qingdao
Blasting chamber	Qingdao Zhiling	Qingdao
Roller conveyor	Qingdao Zhiling	Qingdao
Separator	Qingdao Zhiling	Qingdao
Elevator	Qingdao Zhiling	Qingdao
Screw conveyor	Qingdao Zhiling	Qingdao
Hopper, Baffle plate	Qingdao Zhiling	Qingdao
Electric control system	Qingdao Zhiling	Qingdao
Main low-voltage apparatus	Chint	China
Blast wheel motor	Qingdao Zhiling	Qingdao
Dust removal system	Qingdao Zhiling	Qingdao
PLC	Siemens	
Fan	Qingdao Zhiling	Qingdao
Filter cartridge	China brand	China
Speed reducer	China brand	Qingdao
Bearing house	HRB & ZWZ	China
Inverter	China well-known brand	China
Detection Appliance	Omron	China

Part Ⅶ Part material

Name	Material	Thickness (mm)
Directional sleeve	High chromium	Casting profiled
Shot separating wheel		
Blade		
Top protection plate		
Side protection plate		
End protection plate		

Impeller	40Cr	Forging profiled
Combined plate		
Auxiliary chamber sealing rubber sheet	Resistant rubber, Mn65	4-5 mm
Outside chamber shell	Q235 Steel plate	10 mm (Reinforced with U-steel)
Auxiliary shell		4-6 mm (Welded with channel steel)
Elevator, separator, screw, dust collector		3-4 mm
Pipe		0.5 mm
Blasting area protective plate	Mn13	10 mm
Non blasting area protective plate	65Mn	6 mm
Protective nut	High chromium cast	Casting profiled
Screw blade	16Mn	6 mm
Blasting chamber roller sheath	Mn13	Φ121 mm
Outdoor Roller	20# steel	Φ121 mm

Shipment Packages:

45G1
MAX. GROSS
32.500 KGS
71.650 LBS
TARE
3.830 KGS
8.440 LBS
MAX.CARGO
28.670 KGS
63.210 LBS
CU. CAP.
76.4 CU.M.
2.700 CU.FT.