

İST 08.12.2022  
REF 2013-2101-1

Mr. Abdullah

We hope that you will meet our offer accordingly, and we wish you success in your work.

Best Regards

İSTANBUL  
ELEKTROSTATİK

Kudret ÇELENK

İSTANBUL ELEKTROSTATİK LTD.ŞTİ.



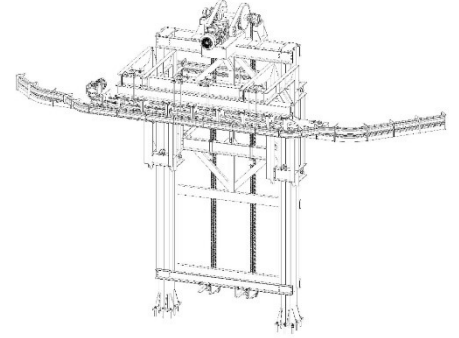
**İESMAK**  
Rainbow®

**1. PFC — 40 POWER & FREE CONVEYOR TECHNICAL INFORMATION**

Flexible Power & Free system with a load capacity of up to 500 kg. Simple and reliable accumulation of wagons in 45° sequential and 90° buffer zones. The minimum accumulation distance is 400 mm. Smooth trolley transfer from one conveyor unit to another reduces the use of transfer units to a minimum, thus reducing system costs. The unique trolley and accumulation stopper design allows you to quickly and highly reliably separate wagons in the accumulation zones. The use of modular components offers complete flexibility and independence in the configuration of the conveyor circuit layout. The subsequent use of tested quality components provides confidence even when working in very demanding working environments. Noiseless accumulation through friction-free break of trolleys in the conveyor drive chain

**Features:**

Power & Free conveyor type PFC - 40 consists of two Cardan flat profiles. In the upper "Power" profile, the cardan chain works with one or more drive units. The wagons in the underlying "Free" profile are operated by power chain carriers by means of axis latches mounted in front and behind the trolley. Both chain carrier groove and accumulation distance are designed according to customer demand. According to the transport requirement, wagons can be separated and deposited at 45° sequential or 90° in deposition zones. When a closed accumulation is directed to the stopper or reaches the "tail" of the previous tram, the accumulating arm of the tram is lifted and latch units are lowered. This way the tram is separated from the chain carriers. Transportation with loads on the rise and landing parts of up to 45°, depending on the load between chain carriers and tram latches relies on the uniquely configured connection.



- Chain carrier groove: 180 /270 mm Max. temperature (around):
- 250°C Max load per trolley (with 4 wheels): 500 kg
- Max load per wagon (2/4/8/16 trolley carriage bar): 1.000/2.000/4.000/8.000 kg
- Standard length, flat profile: 2,980 mm
- Trolley wheels/chain slots: Open or sealed and lubricated version
- Horizontal curves: Degree: 90°/45°/ 30°/15° Radius: Min 2.000 mm
- Vertical curves: Depending on workload
- Drive unit: straight version with double-sided caterpillar drive or 90° version with drive wheels. Fixed or variable speed gear motor
- Tensioning unit: Manual or pneumatic/weight loaded
- Replacement door: Manual, pneumatic or electrical version
- Vertical release and lift: Available in guide/floor mounted version or unguided and ceiling hanging
- Accumulation station: Pneumatic or electric version
- Pneumatic lubrication: Semi-or fully automatic version. Point or mist lubrication of cardan chain and/or trams
- Special designs: e.g. flip stations



**2.. IRON PHOSPHATE SPRAY SYSTEM SURFACE TREATMENT CLEANING LINE****2.1 TECHNICAL DAT**

TUNNEL WIDTH : 3.900 mm  
TANK WIDTH : 3.900 mm  
TOTAL WIDTH : 3.900 mm  
TUNNEL HEIGHT : 3.850 mm  
TANK HEIGHT : 1.800 mm  
TOTAL HEIGHT : 6.700 mm  
TOTAL LENGTH : 33.800 mm

STEAM SUCTION FAN : 2,500 m<sup>3</sup>/h  
NOZZLE PRESSURE : 1.0-1.5 bar  
NOZZLE FLOW RATE : 15 Lt/min  
NOZZLE ANGLE : 60°  
BUILDING MATERIAL : AISI 304 2mm stainless sheet

**2.2.1. TUNNEL ENTRANCE HALL**

EXHAUST ASPIRATOR : 7.000 m<sup>3</sup>/h  
BUILDING MATERIAL : AISI 304 2mm stainless sheet

**2.2.2. PRE- DEGREASING+IRON PHOSPHATE**

PROCESS TIME : **3 MINUTES**  
PART LENGTH : 4.000 mm  
NUMBER OF RINGS : 9 PCS X 2 (1 ¼ 304 chrome)  
RING AXIS RANGE : 350 mm  
NOZZLE AXIS RANGE : 350 mm  
NUMBER OF NOZZLES IN RING : 15 PCS  
TOTAL NUMBER OF NOZZLES : 270 PCS  
NOZZLE FLOW RATE : 15 Lt/min  
NOZZLE TYPE : BODY PLASTIC-SPRINKLER MINE  
SPRAY PUMP : 240 m<sup>3</sup>/h — 1500 d/min SUCKING PUMP OR STANDARD PUMP  
TYPE OF SEAL : MECHANICAL SEAL

## 2.3. DESCRIPTIONS

### 2.3.1. TANKS

The tanks are sealed welded, the base part is inclined towards the drain valves. All tanks are equipped with necessary fasteners and convenience in operation. Supply and maintenance caps are available and the filters are cleaned from these covers. Tanks are made of 2mm 304&316 chrome material. Insulation of heated tanks is provided by 50mm rock wool. The outer side of all tanks is covered with 304 stainless steel sheet.

### 2.3.2. FILTERS

All bath tanks have special perforated filters to protect pumps and spray nozzles.

### 2.3.3. SPRAY PUMP

There are 1 pumps in each liquid tank. All pumps are mechanical seal and are SUCKING PUMP OR STANDARD Pumps.

### 2.3.4. MAINTENANCE AND PRESSURE ADJUSTMENT VALVES

The valves in the pump installation serve to disassemble and repair without causing liquid and chemical loss in the malfunctions that may occur in the pumps and to keep the pump pressure under control.

### 2.3.5. TANK FILLING AND DISCHARGE VALVES

The water filling line is placed on the top of the tanks, valves for draining and cleaning are placed in the lower parts of the tanks. Drain valves are of spherical type.

### 2.3.5. AUTOMATIC CONTROL AND INFORMATION DEVICES

In order to keep the pressure of the spray pump and the tank temperature under control and to be informed, thermometers are placed in the tanks to be heated and manometers are placed on each pump. It does not require any manual intervention to the fully automatic thermostats system that keeps the set temperature constant at the desired values.

### 2.3.6. TANK HEATING SYSTEM

Through the thermoblock in the tank, the liquid in the tank is heated and sent to the nozzles via the pump. The burner is thermostatically activated and disengaged, in this way the liquid in the tank is kept at a constant temperature. The thermoblock consists of complete 310 chrome sheets and 60mm diameter transition pipes.

### 2.3.7. SPRAY COLLECTORS AND PIPES

Spray collectors will be placed in accordance with the active parts and spray pipes will be fixed to these collectors with detachable fittings. Spray pipes are designed in such a way that the exact surface of the material contacts with the chemical.

### 2.3.8. SPRAY TUNNEL

Tunnel body is made of 2 mm 304 chrome sheet material. In order to prevent water vapor dissipation and damage to the factory, the exhaust extractor has been placed. It will be of 304 chromes. One door will be placed for maintenance in the necessary places of the tunnel and walkways will be placed in the interior of the tunnel. Conveyor carriers are available at the top of the tunnel. Brushes will be placed on both sides for the purpose of protecting the conveyor on the washing line.

### 2.3.9. EXHAUST ASPIRATOR

At the top of the tunnel there is one exhaust extractor in the section where there is degreasing unit. An exhaust fan with a capacity of 7.000m<sup>3</sup>/h was placed at the inputs and outputs. The system is designed to expel water, vapor and chemical gases out of the factory without dissipating into the factory environment.

**3. TUNNEL TYPE POWDER COAT FURNACE**

Tunnel furnaces are preferred for continuous work. The product painted in these furnaces used in automatic powder coating plants with conveyors is processed continuously at the desired temperature and time. There are different types according to the characteristics of the place where the furnace will be put or the speed of the conveyor. In these furnaces (U-turn, S type or M-type), the furnace entrance and exit doors are open because the material proceeds without stopping. Air curtains placed in these zones and working closed circuit minimize heat loss, which can occur outside the furnace.

It is designed to minimize heat losses. Sandwich type interlocking consists of panels of 150 mm thickness. At the joints of wall panels, silicone resistant to 300°C was used. The circulation fan is of type suitable for operation at 250°C.



The furnace is placed on a chassis consisting of 2.5 mm Black sheet and covered with 1.2 mm galvanized steel sheet and insulated with a complete 100 mm thick rock wool at the base of the furnace. In the interior of the furnace, there are channels that distribute air uniformly. Through the air curtain system located at the furnace entrance and exit doors, the system operating according to the principle of closed-circuit air circulation comes to the desired temperature in a short time. Temperature control is provided by a specially programmed digital thermostat and fuel saving is maintained at maximum level. Electrical installation and electrical control panel are available on the unit.

**3.1 TECHNICAL SPECIFICATIONS**

PROCESS TIME	: <b>4 MINUTES</b>
Length (mm)	: 11.200
Width (mm)	: 3.000
Height (mm)	: 5.200
Furnace volume (gross)	: 174 m <sup>3</sup>
Building material	: Panels 1.2 mm DKP and Galvanized sheet Furnace base 2 mm and Air duct 2 mm Galvanized sheet Chassis 1.5mm Black sheet
Insulation	: 150 mm Rock wool inside the oven ( $\rho=50 \text{ kg/m}^3$ ), Combustion chamber total 150 mm Rock wool ( $\rho=50 \text{ kg/m}^3$ )
Maximum temperature	: 220°C
Heat transfer form	: Through convection
Air distribution inside the furnace	: By means of adjustable caps homogeneously
Thermal capacity	: 950.000 kcal/h
Burner	: 1.000.000 kcal/h
Fuel	: Gas burner
Thermoblock material	: Body AISI309 Standard 2 mm sheet
Transition pipes	: 1.5 mm AISI304 6-corner special twisted duct
Temperature control	: On-off, 0-350°C Digital thermostat, Fe-Const Thermoelement
Circulation fan	: 3 X 25.000 m <sup>3</sup> /h, <b>15 KW 50Hz BELT PULLEY</b>

**4. MONO-CYCLONE POWDER COATING CABINET**PROCESS TIME : **4 MINUTES**

Width : 4.500 mm

Length : 7.300 mm

Height : 4.300 mm

Building material: 1.5mm /2mm GALVANIZED sheet/1.5mm /2mm  
AISI 316 Stainless

Lighting : 4 Pcs 2x36W Ethange

Cabinet base Cleaning valves:6pcs ¼ 24V

**X.1 REAR FILTER**Fan : 18.000 m<sup>3</sup>/h Radial fan

Fan motor : 22KW 50Hz

Powder Coating Filters : 20 Qty Ø320x1200 Aluminum filter

Solenoid Valves : 20 Qty ¼" 24V

Paint tank : 1 Piece -30 lt.

Compressed air : 200 lt/min 6 Bar — dry air

**CYCLONE**

Number of cyclone : 1

Building material : 2.5mm black sheet

Paint recovery: Automatic

**4.1. PAINTING CABINET**

In the cabin, the bottom suction is provided using the downward movement of the paint that can not stick to the material while painting. As standard, inside and outside of the cabinet are made of electrostatic powder coated 1.5 mm and 2 mm GALVANIZED sheet. The cabin base is inclined, and at the bottom there is a reservoir that allows the paint to accumulate and being absorbed here along the cabin.

**4.2. CYCLONE GROUP**

The cyclone where the absorbed powder coating comes first operates according to the principle of the precipitation of the paint dust particules' velocity by way of air flow is reduced by the effect of centrifugal force and the friction of powder coatings granules on the cyclone walls. The powder coating accumulated in the tank under the cyclone is recovered manually from here.

**4.3. REAR FILTER GROUP**

The filter group with powder coating filters and suction fan allows the paint to be filtered for the second time, which increases the efficiency of the system. Thanks to the reverse blasting system, cleaning of filters is carried out automatically during operation.

**4.4. CONTROL PANEL AND ELECTRICAL INSTALLATION**

The electrical control panel is installed on the furnace and the inside wiring is laid. The control panel consists of SCHNEIDER ELECTRIC, LEGRAND and EMAS and its counterpart branded panel elements.



**5. TUNNEL TYPE POWDER COAT FURNACE**

Tunnel furnaces are preferred for continuous work. The product painted in these furnaces used in automatic powder coating plants with conveyors is processed continuously at the desired temperature and time. There are different types according to the characteristics of the place where the furnace will be put or the speed of the conveyor. In these furnaces (U-turn, S type or M-type), the furnace entrance and exit doors are open because the material proceeds without stopping. Air curtains placed in these zones and working closed circuit minimize heat loss, which can occur outside the furnace.

It is designed to minimize heat losses. Sandwich type interlocking consists of panels of 150 mm thickness. At the joints of wall panels, silicone resistant to 300°C was used. The circulation fan is of type suitable for operation at 250°C.

The furnace is placed on a chassis consisting of 2.5 mm Black sheet and covered with 1.2 mm galvanized steel sheet and insulated with a complete 100 mm thick rock wool at the base of the furnace. In the interior of the furnace, there are channels that distribute air uniformly. Through the air curtain system located at the furnace entrance and exit doors, the system operating according to the principle of closed-circuit air circulation comes to the desired temperature in a short time. Temperature control is provided by a specially programmed digital thermostat and fuel saving is maintained at maximum level.

Electrical installation and electrical control panel are available on the unit.

**3.1 TECHNICAL SPECIFICATIONS**

PROCESS TIME	: <b>4 MINUTES</b>
Length (mm)	: 25.200
Width (mm)	: 3.000
Height (mm)	: 5.200
Furnace volume (gross)	: 393 m <sup>3</sup>
Building material	: Panels 1.2 mm DKP and Galvanized sheet Furnace base 2 mm and Air duct 2 mm Galvanized sheet Chassis 1.5mm Black sheet
Insulation	: 150 mm Rock wool inside the oven ( $\rho=50 \text{ kg/m}^3$ ), Combustion chamber total 150 mm Rock wool ( $\rho=50 \text{ kg/m}^3$ )
Maximum temperature	: 220°C
Heat transfer form	: Through convection
Air distribution inside the furnace	: By means of adjustable caps homogeneously
Thermal capacity	: 2.000.000 kcal/h
Burner	: 2 X 1.000.000 kcal/h
Fuel	: Gas burner
Thermoblock material	: Body AISI309 Standard 2 mm sheet
Transition pipes	: 1.5 mm AISI304 6-corner special twisted duct
Temperature control	: On-off, 0-350°C Digital thermostat, Fe-Const Thermoelement
Circulation fan	: 2X (3 X 25.000 m <sup>3</sup> /h, <b>15 KW 50Hz</b> BELT PULLEY)



**6. POSITIVE PRESSURE PAINTING CHAMBER**

In order to prevent the entry of foreign substances such as dust from the external environment into the cabinet and to improve the paint quality of the painted material, the painting cabinet is a system in which it is in a room. In the positive pressure chamber, air is sucked out of the room and brought to a temperature suitable for working conditions and filtered and pressed into the room from the ceiling.

The filters on the ceiling are of the EU5 type and do not allow the passage of foreign matter that will damage the paint quality. Filters are easy to change. The system works quietly and has a long service life.

**ROOM INTERIOR DIMENSIONS****PROCESS TIME : 4 MINUTES**

Width : 4.100 mm

Length: 7.700 mm

Height : 4.200 mm

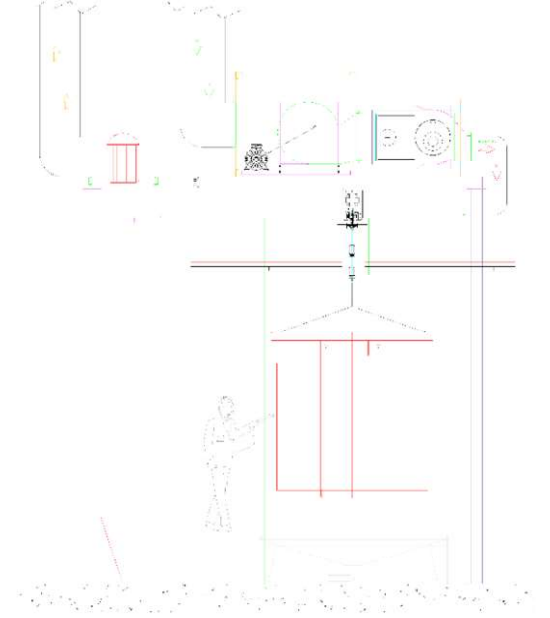
Ceiling filter : EU5

Ceiling filter surface area : 6,50.0 m<sup>2</sup>Fresh air fan : Cell type, 18.000 m<sup>3</sup>/h -20.000 m<sup>3</sup>/h

Room doors : PNEUMATIC SLIDING DOOR

Lighting: Day-light with fluorescent lamp

Air Heating/Conditioning : 120,000 kcal/h GAS BURNER HEATING SYSTEM





**7. TUNNEL TYPE POWDER COAT FURNACE**

Tunnel furnaces are preferred for continuous work. The product painted in these furnaces used in automatic powder coating plants with conveyors is processed continuously at the desired temperature and time. There are different types according to the characteristics of the place where the furnace will be put or the speed of the conveyor. In these furnaces (U-turn, S type or M-type), the furnace entrance and exit doors are open because the material proceeds without stopping. Air curtains placed in these zones and working closed circuit minimize heat loss, which can occur outside the furnace.

It is designed to minimize heat losses. Sandwich type interlocking consists of panels of 150 mm thickness. At the joints of wall panels, silicone resistant to 300°C was used. The circulation fan is of type suitable for operation at 250°C.



The furnace is placed on a chassis consisting of 2.5 mm Black sheet and covered with 1.2 mm galvanized steel sheet and insulated with a complete 100 mm thick rock wool at the base of the furnace. In the interior of the furnace, there are channels that distribute air uniformly. Through the air curtain system located at the furnace entrance and exit doors, the system operating according to the principle of closed-circuit air circulation comes to the desired temperature in a short time. Temperature control is provided by a specially programmed digital thermostat and fuel saving is maintained at maximum level.

Electrical installation and electrical control panel are available on the unit.

**3.1 TECHNICAL SPECIFICATIONS**

PROCESS TIME	: 15 MINUTES
Length (mm)	: 21.200
Width (mm)	: 3.000
Height (mm)	: 5.200
Furnace volume (gross)	: 330 m <sup>3</sup>
Building material	: Panels 1.2 mm DKP and Galvanized sheet Furnace base 2 mm and Air duct 2 mm Galvanized sheet Chassis 1.5mm Black sheet
Insulation	: 150 mm Rock wool inside the oven ( $\rho=50 \text{ kg/m}^3$ ), Combustion chamber total 150 mm Rock wool ( $\rho=50 \text{ kg/m}^3$ )
Maximum temperature	: 220°C
Heat transfer form	: Through convection
Air distribution inside the furnace	: By means of adjustable caps homogeneously
Thermal capacity	: 1.800.000 kcal/h
Burner	: 2 X 900.000 kcal/h
Fuel	: Gas burner
Thermoblock material	: Body AISI309 Standard 2 mm sheet
Transition pipes	: 1.5 mm AISI304 6-corner special twisted duct
Temperature control	: On-off, 0-350°C Digital thermostat, Fe-Const Thermoement
Circulation fan	: 2X (3 X 18.000 m <sup>3</sup> /h, 12 KW 50Hz BELT PULLEY)

**8. IESMAK POWDER CENTER**

**IESMAK** powder center is our own production and has great advantages in terms of use. It provides great comfort to the user, especially since it avoids labor costs and time loss. The paint from the cyclone group is transferred to the paint tank by passing through the sieve, which is fixed to the main body. In the tank where vibration is provided by the vibration system, the paint dissipates homogeneously, resulting in a proportional suction from the injectors. Injector group platform on the tank allows easy paint change and easy cleaning of paint transition pipes by moving up and down by means of pistons.

This system, which provides comfort in terms of easy operation and function, has been designed and produced in our own body and is presented to our customers.

**Dimensions:**

Depth: 1.300 mm

Length: 1.060 mm

Height: 2.000 mm

Manufacturing Material: 1.5 mm Painted DKP Sheet

Light: 1pc 18 W Indoor Type Fluorescent Lamp

Color: RAL 9002

Capacity: 6000 m<sup>2</sup>/h 2.2 KW 50/60 Hz

Engine: 220 V - Vibration

Control: Manual switch

Air: 6 bar dry air

Warehouse: 1 pcs 50 lt

Injector Platform: 4-10 pcs injector slots

Injector Lift: Lineer bearing air piston 1pc

Piston Valve: 1 x 6 bar air valve

